EXHIBIT 18

IN THE UNITED STATES DISTRICT COURT FOR THE MIDDLE DISTRICT OF TENNESSEE NASHVILLE DIVISION

L.E., by his next friends and parents, SHELLEY ESQUIVEL and MARIO ESQUIVEL, *Plaintiff*, v. BILL LEE, in his official capacity as Governor of Tennessee, *et al.*, *Defendants*.	Case No. 3:21-cv-00835

EXPERT REPORT OF DR. MELISSA A. CYPERSKI

1. I submit this expert report based on my personal knowledge.

2. I have been retained by counsel for Plaintiff as an expert in connection with the above-captioned litigation. Specifically, I have been asked by Plaintiff's counsel to provide my expert opinion on gender identity, gender dysphoria in children and adolescents, the treatment of gender dysphoria, and the impact of laws like Senate Bill 228—Tennessee's legislative ban on transgender middle and high school students from participating on interscholastic sports teams consistent with their gender.

3. In preparing this expert report, I reviewed the text of Senate Bill 228 at issue in this matter. In forming my opinions, I relied on my education, training, and professional experience, as well as my knowledge of the professional guidelines and scientific literature in the pertinent fields. The materials I have relied upon in preparing this expert report are the same types of

materials that experts in my field regularly rely upon when forming opinions on these subjects. I may wish to supplement these opinions because of new developments in my field.

4. I am being compensated for my work on this matter at a rate of $250 per hour for preparation of expert reports and $400 per hour for time related to providing deposition or trial testimony. My compensation does not depend on the outcome of this litigation, the opinions I express, or the testimony I may provide.

PROFESSIONAL BACKGROUND AND EXPERIENCE

5. I am a licensed clinical psychologist. I have been licensed in the state of Tennessee since September 2017. A true and correct copy of my curriculum vitae is attached hereto as **Exhibit A**.

6. I received my B.S. in Psychology from Denison University in Granville, Ohio in 2010. I received my M.S. and Ph.D. in Clinical Psychology from Auburn University in Auburn, Alabama in 2013 and 2016, respectively. From 2015 to 2016, I completed a Predoctoral Internship in Professional Psychology at the Vanderbilt University/Department of Veterans Affairs consortium in the Division of Child and Adolescent Psychiatry. From 2016 to 2017, I completed a Postdoctoral Fellowship at Vanderbilt University Medical Center ("VUMC") in the Center of Excellence for Children in State Custody.

7. I have been an Assistant Professor of Psychiatry and Behavioral Sciences at VUMC since 2017. I have been an Adjunct Assistant Professor in Psychology at Vanderbilt University since 2018 and in Medicine, Health, and Society since December 2021. The opinions presented in this report are my own and are not presented on behalf of my institutional affiliations.

8. I have been a Psychologist and Mental Health Consultant at the Vanderbilt Pediatric and Adolescent Transgender Health Clinic ("VPATH") at VUMC since the clinic opened in 2018.

VPATH is an interdisciplinary clinic, bringing together practitioners from endocrinology, psychology, primary care, and other fields to provide comprehensive care to transgender children, adolescents, and their families.

9. In my role as a psychologist and mental health consultant in VPATH, I diagnose gender dysphoria, assess comorbid mental health concerns, and collaborate with patients, their caregivers, and other healthcare providers to develop and coordinate a specific treatment plan for each youth. During my time as a mental health provider in VPATH, the clinic has treated over 100 transgender children and adolescents. I am a member of the World Professional Association for Transgender Health ("WPATH"), the leading association of medical and mental health professionals regarding transgender health and the treatment of gender dysphoria.

10. Additionally, I provide psychotherapy and psychological assessments for transgender and gender diverse youth in my outpatient practice. I serve as an educator to students who are training to be psychologists and psychiatrists. In that capacity, I offer lectures, seminars, supervision, and consultation regarding the provision of mental health services to transgender youth.

11. I have not provided expert testimony in any other case in the past four years.

GENDER IDENTITY AND GENDER DYSPHORIA

12. A person's gender identity refers to their inner sense of their own gender. Gender identity is a fundamental and core component of human identity. Every person has a gender identity.

13. At birth, most people are assigned a sex, typically male or female, based solely on the appearance of their external genitalia. Non-transgender people, also referred to as cisgender people, have a gender identity that aligns with their sex assigned at birth. Transgender people have

a gender identity that is incongruent with the sex they were assigned at birth. For example, a transgender boy has a male gender identity, but was assigned female at birth.

14. Many transgender people become aware of their gender identity at a very early age. Other transgender people may not become fully aware of their gender identity until the onset of puberty or later.[1]

15. The general medical consensus is that gender identity cannot be changed by external factors such as psychotherapy.[2] Efforts to change a person's gender identity are ineffective, can cause harm, and, therefore, are unethical.[3]

16. An incongruence between gender identity and sex assigned at birth can cause severe psychological distress. Gender dysphoria is the diagnostic term in the American Psychiatric Association's *Diagnostic & Statistical Manual of Mental Disorders, Fifth Edition, Text Revision* ("DSM-5-TR") which describes the clinically significant distress or impairment in functioning that can arise from the incongruence between a person's gender identity and their sex assigned at birth.[4]

17. People diagnosed with gender dysphoria have an intense and persistent discomfort with their sex assigned at birth which may include but is not limited to distress related to the development of primary and/or secondary sex characteristics associated with their sex assigned at birth.[5] A gender dysphoria diagnosis is marked by an experienced incongruence between gender

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[1] World Professional Association for Transgender Health. (2012). *Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People* (7th version). https://www.wpath.org/publications/soc ("WPATH SOC7"), p. 12.

[2] WPATH SOC7, p. 16.

[3] *See, e.g.*, Substance Abuse and Mental Health Services Administration ("SAMHSA"). (2015). *Ending Conversion Therapy: Supporting and Affirming LGBTQ Youth*. HHS Publication No. (SMA) 15-4928. Rockville, MD, pp. 24-25.

[4] American Psychiatric Association (2022). Gender dysphoria. In *Diagnostic and statistical manual of mental disorders* (5th edition, text revision). https://dsm.psychiatryonline.org/doi/book/10.1176/appi.books.9780890425787 ("DSM-5-TR")

[5] *Ibid*.

identity and sex assigned at birth lasting at least six months, that is accompanied by clinically significant distress or impairment in social, school, or other important areas of functioning in life.[6]

18. Gender dysphoria is a serious medical condition and if left untreated or inadequately treated, it can result in severe anxiety, depression, self-harm, and suicidality.

TREATMENT GUIDELINES FOR GENDER DYSPHORIA

19. The Endocrine Society and WPATH have published widely accepted guidelines that are informed by the available scientific evidence regarding the treatment of gender dysphoria.[7] These guidelines are recognized as authoritative by the leading medical and mental health professional groups in the United Sates.[8] Many organizations, including the American Academy of Pediatrics, the American Medical Association, the American Academy of Child and Adolescent Psychiatry, and the American Psychological Association, have published statements in support of access to gender affirming care consistent with the treatment guidelines.[9]

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[6] *Ibid.*

[7] Hembree, W. C., Cohen-Kettenis, P. T., Gooren, L., Hannema, S. E., Meyer, W. J., Murad, M. H., Rosenthal, S. M., Safer, J. D., Tangpricha, V., & T'Sjoen, G. G. (2017). Endocrine treatment of gender dysphoric/gender-incongruent persons: An Endocrine Society clinical practice guideline. *Journal of Clinical Endocrinology and Metabolism*, *102*(11), 3869-3903 ("Endocrine Society Guideline"); WPATH SOC7.

[8] *See, e.g.*, Rafferty, J., American Academy of Pediatrics (AAP) Committee on Psychosocial Aspects of Child and Family Health, AAP Committee on Adolescence, & AAP Section on Lesbian, Gay, Bisexual, and Transgender Health and Wellness. (2018). Ensuring comprehensive care and support for transgender and gender-diverse children and adolescents. *Pediatrics, 142*(4): 2018-2162; American Psychological Association. (2015). Guidelines for psychological practice with transgender and gender non-conforming people, *American Psychologist*, *70*(9), 832-864.

[9] *Ibid.*, American Medical Association. (2021). *March 26, 2021: State Advocacy Update*. https://www.ama-assn.org/health-care-advocacy/advocacy-update/march-26-2021-state-advocacy-update; American Academy of Child & Adolescent Psychiatry (AACAP). (2019). *AACAP Statement Responding to Efforts to ban Evidence-Based Care for Transgender and Gender Diverse Youth*. https://www.aacap.org/AACAP/Latest_News/AACAP_Statement_Responding_to_Efforts-to_ban_Evidence-Based_Care_for_Transgender_and_Gender_Diverse.aspx

20. The goal of treatment for gender dysphoria is to reduce or eliminate the individual's clinically significant distress or impairment in functioning which includes helping the patient to live in accordance with their gender identity. Treatment for gender dysphoria is sometimes called "gender-affirming care" and may include terms such as "gender transition" or "transition-related care."

21. Treatment for gender dysphoria is patient-specific and depends on each person's individualized needs. Additionally, treatment protocols are different based on a patient's age, with distinct guidelines for pre-pubertal children, adolescents, and adults.

22. For pre-pubertal children, treating gender dysphoria does not include any pharmacological or surgical interventions. For these patients, social transition—living in accordance with one's gender identity—may be appropriate. After an individual begins puberty, medical interventions may be indicated, including puberty-delaying medications and/or hormone therapy to initiate puberty consistent with one's gender identity. Individuals who receive hormone therapy develop secondary sex characteristics consistent with their gender identity. For example, a transgender boy treated with puberty delaying drugs followed by testosterone will have the body build, facial hair, and deepened voice that boys experience with puberty. For mature adolescent transgender males, chest surgery may be indicated, and for adults, other surgeries may be indicated.

23. Social transition can be a core aspect of treatment for gender dysphoria for patients of any age. A social transition involves living and being recognized by others in accordance with one's gender identity in all aspects and across settings of one's life. For students, that includes at school.[10] Steps taken to socially transition can include wearing clothing, engaging in personal

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[10] Endocrine Society Guideline, p. 3878; WPATH SOC7, pp. 15-17.

hygiene and styling, using names and pronouns, using restrooms and other sex-separated facilities, as well as participating in sex-separated activities in accordance with one's gender identity.

THE IMPACT OF SB 228 ON TRANSGENDER STUDENTS

24. Many transgender students, in accordance with the well-established guidelines for the treatment of gender dysphoria discussed above, are living all aspects of their lives consistently with their gender identity. Thus, there are transgender boys who have typically male names; are referred to by male pronouns by family, friends, and teachers; and dress and style like other boys. Moreover, given the medical treatments currently available to adolescents with gender dysphoria, transgender adolescent boys may have facial hair and deep voices and otherwise sound and appear indistinguishable from other boys. For some transgender adolescents—particularly those who have changed schools after initiating medical transition—their peers may not be aware that they are transgender.

25. Excluding transgender students from participating in peer activities such as interscholastic sports in a manner consistent with their gender identity can be harmful to them in several ways. First, it is stigmatizing for transgender boys to be designated as girls just as it would be for cisgender boys. For transgender boys, it is further stigmatizing because, by singling them out, it sends the message to them and their peers that they are different from other boys, and they should be treated differently or do not belong. In addition, requiring transgender boys to participate on girls-only teams or in other girls-only activities could subject them to uncomfortable and potentially hostile questions about their participation in these activities.

26. Requiring transgender students to participate in sex-separated school activities in a manner that is inconsistent with their gender identity can also harm them by involuntarily disclosing their transgender status to the entire community. Maintaining privacy about one's

transgender identity can be important to safety, given the persistence of harassment and even violence exhibited against transgender people.

27. For transgender students with gender dysphoria, participating in a sex-separated activity like interscholastic sports based on their sex assigned at birth rather than their gender identity would undermine their social transition and could exacerbate their gender dysphoria. In my professional experience, transgender youth have shared with me that not being treated by others in accordance with their gender identity—such as being misgendered, misnamed, and being required to participate in sex-separated activities that do not match their gender identity—is a significant source of gender dysphoria and stress.

28. Even before SB 228 became law, I had transgender patients who enjoyed playing sports but stopped participating for fear of being placed on a team that did not match their gender identity or due to the significant discomfort they experienced when they were expected to dress or otherwise participate in ways that did not align with their gender identity.

29. Participating in interscholastic athletics can have significant psychological and physical health benefits for young people. In addition to improving physical fitness, student athletes are often supported by team policies or procedures that decrease the likelihood of engaging in misconduct and illicit activity such as alcohol or drug use. Instead, student athletes often demonstrate improved academic performance, graduation rates, and a greater sense of connection or belonging at school.[11] Participating in athletics can also enhance mental health outcomes such as increasing self-esteem and social skills. Team sports, in particular, can provide youth with

[11] Marsh, H. W., & Kleitman, S. (2002). Extracurricular school activities: The good, the bad, and the nonlinear. *Harvard Educational Review, 72*(4), 464– 514; Marsh, H. W. & Kleitman, S. (2003). School athletic participation: Mostly gain with little pain. *Journal of Sport and Exercise Psychology, 25*(2), 205–228.

opportunities to practice their social skills and offer social supports through friendships with teammates or mentoring relationships with coaches. Additionally, among children who have experienced adverse childhood events, data suggest that participating in team sports during adolescence can enhance current and long-term mental health outcomes with decreased incidences of depression and anxiety.[12]

30. For some transgender students, being able to participate on an interscholastic athletic team would promote resilience and be especially beneficial to their emotional well-being given the adversity, rejection, and isolation that so many transgender young people experience in their daily lives. By making it impossible for many transgender students to participate in interscholastic athletics, SB 228 denies transgender youth the opportunity to engage in positive experiences that can protect and enhance their mental health.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed On: April 15, 2022

, PhD

Melissa A. Cyperski, Ph.D.

[12] Easterlin, M. C., Chung, P. J., Leng, M., & Dudovitz, R. (2019). Association of team sports participation with long-term mental health outcomes among individuals exposed to adverse childhood experiences. *JAMA Pediatrics, 173*(7), 681-688.

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Exhibit A

CURRICULUM VITAE

Updated 04/09/2022

NAME:	Melissa A. Cyperski, Ph.D.
ADDRESS:	Vanderbilt Child and Adolescent Psychiatry Clinic 1500 21st Avenue South, Suite 2200 Nashville, TN 37212
PHONE:	(615) 936-3555
FAX:	(615) 322-7108
EMAIL:	melissa.cyperski@vumc.org

EDUCATION

2010	**B.S. in Psychology** Denison University | Granville, OH Minors in English and Music Performance (Voice) Honors Thesis: *Therapeutic assessment and clinical improvement: An investigation of hope, self-efficacy, and clients' expectancies*
2013	**M.S. in Clinical Psychology** Auburn University | Auburn, AL APA Accredited | Child Track Thesis: *Examining executive functioning deficits in juvenile delinquents with a history of trauma exposure*
2016	**Ph.D. in Clinical Psychology** Auburn University | Auburn, AL APA Accredited | Child Track Dissertation: *Forming therapeutic alliances across the milieu: Clinical implications and challenges of working with adjudicated adolescent males in residential treatment*
2015 – 2016	**Predoctoral Internship in Professional Psychology** Vanderbilt University/Department of Veterans Affairs APA Approved | Division of Child and Adolescent Psychiatry Vanderbilt University Medical Center (VUMC) | Nashville, TN
2016 – 2017	**Postdoctoral Fellowship** APPIC Listed | Child Welfare & Trauma-Informed Care Track Center of Excellence for Children in State Custody (COE) Vanderbilt University Medical Center (VUMC) | Nashville, TN

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LICENSURE

Sept. 2017 – Present	Licensed Clinical Psychologist, HSP Tennessee #3476

ACADEMIC APPOINTMENTS

Nov. 2017 – Present	Assistant Professor of Psychiatry and Behavioral Sciences Vanderbilt University Medical Center (VUMC) | Nashville, TN
Sept. 2018 – Present	Adjunct Assistant Professor of Psychology Vanderbilt University | Nashville, TN
Dec. 2021 – Present	Adjunct Assistant Professor in Medicine, Health, and Society Vanderbilt University | Nashville, TN

PROFESSIONAL ORGANIZATIONS

2021 – Present	World Professional Association for Transgender Health (WPATH)

PROFESSIONAL ACTIVITIES

INTRAMURAL

2020	Academic Psychiatry Day Committee
2018 – Present	Vanderbilt Pediatric and Adolescent Transgender Health (VPATH) Clinic Psychologist and Mental Health Consultant Vanderbilt University Medical Center (VUMC) | Nashville, TN
2021 – Present	Psychology Advisory Committee Psychotherapy Representative

EXTRAMURAL

2010 – Present	Admission Ambassador Denison University | Granville, OH

Ad Hoc Review Experience

2021 – Present	*Transgender Health*

HONORS & DISTINCTIONS

2009	Independent Summer Research Award | Denison University
2010	William Osborne Award | Denison University, Department of Music
2010	Irvin S. Wolf Award | Denison University, Department of Psychology
2010	Distinguished Leadership Award | Denison University
2011	First-Year Graduate Teaching Assistant of the Year | Auburn University
2015	"Most Devoted" | Auburn University, Department of Psychology

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TEACHING ACTIVITIES

CONTINUING MEDICAL EDUCATION

1. Ebert, J., Kuhn, T., Cyperski, M., Billings, G., & Smith, K. (2018, June). *Consultation with complex cases: Navigating reunification and system conflict*. Case conference presented at Grand Rounds for the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

2. Cyperski, M**.**, Brady, C., & Romano, M. (2020, October). *PATH to affirmative medical care for transgender/gender diverse (TGD) youth: A guide for mental health providers*. Presented at Grand Rounds for the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

3. Cyperski, M. & Jackson, C. (2020, November). *Supporting mental health and accessing affirmative care for transgender/gender diverse youth*. Presented at Social Work Grand Rounds for Vanderbilt Behavioral Health, Vanderbilt University Medical Center, Nashville, TN.

MEDICAL STUDENT DIDACTICS

Psychiatry Residents

1. Cyperski, M., & Billings, G. (2019, March). Psychotherapy considerations for children and adolescents. Developed and presented seminar to advanced resident physicians in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

2. Billings, G., & Cyperski, M. (2019, May). Grief and loss. Psychotherapy seminar presented to advanced resident physicians in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

3. Cyperski, M., Billings, G., & Schoonover, C. (2019, August). Developmental psychology. Developed and presented multi-part series of psychotherapy seminars for advanced resident physicians in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

4. Cyperski, M. (2020, March). Psychotherapy for children and adolescents. Seminar presented to advanced resident physicians in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

5. Cyperski, M. (2020, March). Counseling considerations for LGBTQ+ clients. Developed and presented seminar to advanced resident physicians in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

6. Cyperski, M. (2020, September). Intro to psychiatric practice with sexual and gender minority (SGM) patients. Developed and presented seminar to psychiatry residents in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

7. Billings, G., Cyperski, M., & Broderick, A. (2020, September). Developmental psychology. Multi-part series of psychotherapy seminars for advanced resident physicians in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

8. Cyperski, M. (2021, March). Psychotherapy for children and adolescents. Seminar presented to advanced resident physicians in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

9. Cyperski, M. (2021, March). Counseling considerations for LGBTQ+ clients. Seminar presented to advanced resident physicians in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

10. Cyperski, M. (2021, September). Intro to psychiatric practice with sexual and gender minority (SGM) patients. Seminar presented to child and adolescent psychiatry residents in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

11. Cyperski, M., Billings, G. & Nichols, T. (2021, September). Developmental psychology. Revised content and presented multi-part series of psychotherapy seminars to advanced resident physicians in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

12. Cyperski, M. (2022, March). Psychotherapy for children and adolescents. Seminar presented to advanced resident physicians in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

13. Cyperski, M. (2022, March). Counseling considerations for LGBTQ+ clients. Seminar presented to advanced resident physicians in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

Psychiatry Fellows

14. Kuhn, T., Cyperski, M., & Ebert, J. (2019, April). Motivational interviewing: Emotion regulation & engagement towards change. Developed and presented workshop for advanced resident physicians and psychiatry fellows in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

15. Cyperski, M. (2019, June). CBT for children & adolescents. Developed and presented seminar for child and adolescent psychiatry fellows in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

16. Cyperski, M. (2019, October). CBT for children & adolescents. Seminar presented to child and adolescent psychiatry fellows in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

17. Cyperski, M. (2020, September). CBT for children & adolescents. Seminar presented to child and adolescent psychiatry fellows in the Vanderbilt University School of Medicine, Department of Psychiatry and Behavioral Sciences, Nashville, TN.

Predoctoral Psychology Interns

18. Cyperski, M. (2019, May). Transitioning from mentor to mentee. Developed and presented seminar for pre-doctoral psychology interns in the Vanderbilt University Medical Center Internship in Professional Psychology (VUMC-IPP), Department of Psychiatry and Behavioral Sciences, Nashville, TN.

19. Scott, C., Cyperski, M., & Howard, D. (2019, September). Pathways to postdoctoral fellowship. Panelist for seminar to predoctoral psychology interns in the Vanderbilt University Medical Center Internship in Professional Psychology (VUMC-IPP), Department of Psychiatry and Behavioral Sciences, Nashville, TN.

20. Cyperski, M. (2021, May). Transitioning from mentor to mentee. Seminar presented to predoctoral psychology interns in the Vanderbilt University Medical Center Internship in Professional Psychology (VUMC-IPP), Department of Psychiatry and Behavioral Sciences, Nashville, TN.

21. Cyperski, M. (2021, September). Supporting LGBTQ+ clients. Developed and presented seminar for predoctoral psychology interns in the Vanderbilt University Medical Center Internship in Professional Psychology (VUMC-IPP), Department of Psychiatry and Behavioral Sciences, Nashville, TN.

CLINICAL TEACHING

2012	**Teaching Assistant**, Assessment of Cognitive Abilities & Achievement Auburn University | Auburn, AL Instructed and supervised first-year graduate clinicians on administration and scoring of Wechsler Intelligence Scale for Children, 4th Edition (WISC-IV) and Woodcock-Johnson III Tests of Achievement (WJ-III ACH). Instructor of record: Jennifer Gillis, Ph.D.

2015 – 2016 **Peer Supervisor**
Vanderbilt University Medical Center (VUMC) | Nashville, TN
Offered mentorship and vertical supervision to doctoral-level practicum students. Received supervision of supervision from VUMC faculty.
[1 hour per week]

Vanderbilt University, Peabody College, Department of Psychology, Doctor of Philosophy (Ph.D.) in Psychological Sciences:

Laura Hieber, M.S.
Jennifer Stewart, M.S.

2017 **Primary Supervisor (Master's Practicum)**
Vanderbilt University Medical Center (VUMC) | Nashville, TN
Provide supervision, consultation, and observation of clinical duties.
[1 hour per week]

Vanderbilt University, Peabody College, Department of Human and Organization Development (HOD), Master of Education (M. Ed.) in Human Development Counseling:

Katelyn Dover
Holly Higgins

2018 – Present **Primary Supervisor (Doctoral Practicum)**
Vanderbilt University Medical Center (VUMC) | Nashville, TN
Provide supervision, consultation, and observation of clinical duties including comprehensive psychological assessments and psychotherapy.
[1 hour per week]

Vanderbilt University, College of Arts and Science, Department of Psychology, Doctor of Philosophy (Ph.D.) in Psychological Sciences:

Lénie Torregrossa, M.S.
Rachel Siciliano, M.S.
Pietra Bruni, M.S.
Sarah Jessup, M.A.

Tennessee State University, College of Education, Psychology Department, Doctor of Philosophy (Ph.D.) in Counseling Psychology:

Allison Hotz, M.S.

2018 – Present **Primary Supervisor (APA Predoctoral Psychology Internship)**
Vanderbilt University Medical Center (VUMC) | Nashville, TN

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Provide supervision, consultation, and observation of clinical duties including comprehensive psychological assessments and psychotherapy. [1 hour per week]

Vanderbilt University Medical Center Internship in Professional Psychology (VUMC-IPP):

Ciera Schoonover, M.A., M.S.W., M.P.H.
Amanda Broderick, Ph.D.
Amy Gorniak, M.A.
Yael Osman, M.A.

OTHER ACTIVITIES

Community & Professional Education

2015 – 2017 **Child Welfare Trauma Training Toolkit 2.0**
Tennessee Department of Children's Services (DCS) | Nashville, TN

2017 **Caring for Children Who Have Experienced Trauma: A Workshop for Resource Parents (RPC)**
Tennessee Department of Children's Services (DCS) | Nashville, TN

2015 – 2020 **Child Protective Services (CPS) Academy**
Tennessee Department of Children's Services (DCS) | Nashville, TN
Collaborated on development and presentation of curriculum to help frontline child welfare workers identify and engage with trauma informed practice. Led series of workshops related to implicit bias and understanding mental health needs. Co-facilitated additional educational experiences to train assessment and investigations workers in content related to trauma-informed care, sexual behavior problems, and managing our emotional responses (i.e., Response Flexibility).

2018 – 2020 **Trauma-Focused Cognitive Behavioral Therapy (TF-CBT)**
Center of Excellence for Children in State Custody | Nashville, TN
Along with colleagues from University of Tennessee Health Sciences Center and Graduate School of Medicine, co-presented various two-day workshops to support implementation of TF-CBT among master's level clinicians in the community.

2020 – 2021 **Child Protective Services (CPS) Supervisor Academy**
Tennessee Department of Children's Services (DCS) | Nashville, TN
Developed and presented curriculum to help child welfare supervisors identify and engage with trauma informed practice and leadership strategies. Led series of workshops related to implicit bias and understanding mental health needs.

2021 – Present **Understanding and Addressing Implicit Bias in Child Welfare**
Tennessee Department of Children's Services (DCS) | Nashville, TN
Developed and implemented two-part webinar series regarding identifying and managing unconscious bias. Delivered to nine cohorts of child welfare professionals.

Invited Lectures & Continuing Education (CE) Presentations

1. German, N., & Cyperski, M. (2014, February). *Emotional CPR*: *Recognizing and responding to students in distress*. Workshop conducted with faculty at Auburn University College of Veterinary Medicine, Auburn, AL.

2. Cyperski, M. (2014, September). *Managing career and family*. Moderator of panel discussion conducted with faculty in Department of Psychology at Auburn University, Auburn, AL.

3. Kuhn, T. & Cyperski, M. (2016, March). *Engaging youth and families: An introduction to motivational interviewing*. Presentation provided during monthly meeting of Tennessee Integrated Court Screening and Referral Program (TICSRP), Nashville, TN.

4. Cyperski, M. & Billings, G. (2016, December). *Ethical considerations for professional practice in an online world.* Workshop conducted for psychologists affiliated with the Tennessee Department of Children's Services (DCS), Nashville, TN.

5. Cyperski, M. (2017, February). *Sexual behavior problems: Toward health & healing for children, adolescents, and families.* Presentation provided for Tennessee Department of Children's Services (DCS) monthly Lunch and Learn series at the Vanderbilt Kennedy Center, Nashville, TN.

6. Cyperski, M. (2017, March). *Sexual behavior problems: Toward health & healing for children, adolescents, and families.* Invited guest lecture provided for biannual meeting of the TennCare*Select* Behavioral Health Advisory Committee, Nashville, TN.

7. Cyperski, M. (2017, December). *When good intentions aren't good enough: Understanding and managing sources of implicit bias in our personal and professional lives.* Workshop conducted for psychologists affiliated with the Tennessee Department of Children's Services (DCS), Nashville, TN.

8. Cyperski, M., Gracey, K., Kuhn, T., & Ebert, J. (2017, December). *Counter response.* Seminar presented at quarterly meeting of Rapid Safety Feedback consultants with the Tennessee Department of Children's Services (DCS), Nashville, TN.

9. Cyperski, M. (2018, February). *Clear eyes, full hearts, can't lose: Understanding and managing unconscious biases in our personal and professional lives.* Invited lecture provided to master's level school based mental health clinicians with Vanderbilt University Medical

Center (VUMC), Nashville, TN.

10. Cyperski, M., Gracey, K., & Ebert, J. (2018, March). *Introduction to motivational interviewing and the transtheoretical model*. Seminar presented at quarterly meeting of Rapid Safety Feedback consultants with the Tennessee Department of Children's Services (DCS), Nashville, TN.

11. Cyperski, M. (2018, July). *Implicit bias*. Seminar presented at quarterly meeting of Rapid Safety Feedback consultants with the Tennessee Department of Children's Services (DCS), Nashville, TN.

12. Cyperski, M., & Cooper, T. (2019, January). *Understanding children with autism spectrum disorder*. Workshop conducted with professionals from the Tennessee Department of Children's Services (DCS), Murfreesboro, TN.

13. Cyperski, M. (2019, April). *Unconscious bias*. Seminar presented at meeting of regional leadership with the Tennessee Department of Children's Services (DCS), Nashville, TN.

14. Cyperski, M. (2019, May). *Explicit and implicit bias in the child welfare system*. Invited webinar presented for professionals in the Tennessee Department of Children's Services (DCS), Nashville, TN.

15. Cyperski, M. (2019, October). *Managing unconscious bias in assessment and consultation practice*. Seminar presented at the annual retreat for assessment consultants in the Tennessee Department of Children's Services (DCS), Nashville, TN.

16. Cyperski, M. (2019, October). *LGBTQ+ family matters*. Invited lecture presented for graduate students enrolled in Marriage and Family Therapy at Vanderbilt University, Department of Human and Organization Development (HOD), Nashville, TN.

17. Cyperski, M. (2020, February). *Trauma-focused cognitive behavioral therapy*. Invited lecture presented for graduate students enrolled in Advanced Practicum Seminar at Vanderbilt University, Department of Psychology, Nashville, TN.

18. Cyperski, M. (2020, October). *Supporting transgender/gender diverse young people*. Invited lecture and consultation provided to Partial Hospitalization Program with Vanderbilt Behavioral Health, Vanderbilt University Medical Center, Nashville, TN.

19. Cyperski, M. (2020, October). *Gender dysphoria*. Invited lecture presented for undergraduate students enrolled in Abnormal Psychology at Middle Tennessee State University (MTSU), Department of Psychology, Murfreesboro, TN.

20. Karabell, A., Caroll, L., Cyperski, M., & Brady, C. (2020, November). *Gender dysphoria*. Invited panelist at Pediatric Advanced Practice Conference with Le Bonheur Children's Hospital, Memphis, TN.

21. Brady, C., Cyperski, M., & Romano, M. (2021, July). *PATH to affirmative medical care for transgender/gender diverse youth*. Invited continuing education presentation at Southeast AIDS Education & Training Center (AETC).

22. Brady, C., Romano, M. & Cyperski, M. (2021, August). *Ways to support and advocate for transgender/gender diverse youth in a non-affirming environment: Perspectives from a team of providers*. Presentation provided at annual Southern LGBTQ Health Symposium.

23. Cyperski, M. (2021, December). *Caring for LGBTQ+ children and adolescents*. Invited presentation for nursing staff at Monroe Carell Jr. Children's Hospital at Vanderbilt, Nashville, TN.

24. French, W. & Cyperski, M. (2022, April). *Supporting LGBTQ+ students through MTSS*. Invited workshop presented at annual conference of Tennessee Association of School Psychologists (TASP), Online.

25. Cyperski, M., & Reilly, S. (2022, April). *Supporting medical and mental health needs of gender diverse youth in Tennessee*. Invited presentation at LGBT+ College Conference, Middle Tennessee State University (MTSU), Murfreesboro, TN.

SELECTED PROFESSIONAL DEVELOPMENT ACTIVITIES

2008	Summer Treatment Program (STP) for Children with ADHD Cleveland Clinic | Cleveland, OH
March 2011	fMRI Visiting Fellowship Harvard, MIT, & Massachusetts General Hospital | Boston, MA Instructors: Robert L. Savoy, Ph.D. and Bruce R. Rosen, M.D., Ph.D.
2013 – 2015	Parent-Child Interaction Therapy (PCIT) Auburn University Psychological Services Center (AUPSC) | Auburn, AL Supervisor: Elizabeth Brestan-Knight, Ph.D., PCIT Master Trainer
Nov. 2015	Attachment, Self-Regulation, and Competency (ARC) Centers of Excellence for Children in State Custody | Memphis, TN Instructor: Jon Ebert, Psy.D.
Jan. 2019	Affirmative Mental Health Care for Transgender & Gender Diverse Youth Oregon Health and Science University (OHSU) | Portland, OR Instructors: Laura Edwards-Leeper, PhD and Kara Connelly, MD
Feb. 2020	Legislative Advocacy 101 GLSEN | Nashville, TN Instructor: Justin Sweatman-Weaver, Co-Chair GLSEN Tennessee

April – Nov. 2021 Trauma-focused Cognitive Behavioral Therapy (TF-CBT)
Centers of Excellence for Children in State Custody | Memphis, TN
Instructor: Melissa Runyon, PhD

PUBLICATIONS & PRESENTATIONS

ARTICLES

1. Fix, R., Cyperski, M., & Burkhart, B. (2017). Disproportionate minority contact: Comparisons across juveniles adjudicated for sexual and non-sexual offenses. *Sexual Abuse: A Journal of Research and Treatment, 29*(3), 291-308.

2. Kuhn, T., Cyperski, M., Shaffer, A., Gracey, K., Adams, M., Billings, G., & Ebert, J. (2019). Installing trauma informed-care through the Tennessee Child Protective Services Academy. *Psychological Services*, *16*(1), 143-152.

3. Newman, J., Larsen, J., Thompson, K., Cyperski, M., & Burkhart, B. (2019). Heterogeneity in male adolescents with illegal sexual behaviors: A latent profile approach to classification. *Sexual Abuse: A Journal of Research and Treatment*, *31*(7), 789-811.

4. Cyperski, M. A., Romano, M. E., & Brady, C. C. (2020). Supporting transgender/gender diverse (TGD) youth across settings and systems of care: Experiences from a pediatric interdisciplinary clinic. *the Behavior Therapist*, *43*(7), 242-247.

PEER-REVIEWED PRESENTATIONS AT SCIENTIFIC MEETINGS

Workshops & Symposia

1. Cyperski, M. (2015, October). Using attachment and the therapeutic relationship to enhance treatment outcomes. In J. E. Newman (Chair), *Viewing the assessment and treatment of adolescents with illegal sexual behaviors through the lens of attachment*. Symposium conducted at the annual meeting of the Association for Treatment of Sexual Abusers (ATSA), Montreal, QC, Canada.

2. Cooper, T. J., & Cyperski, M. (2015, November). *Better explained by another disorder: Diagnostic overlap between autism spectrum disorder and early trauma exposure*. Workshop conducted at annual meeting of Connecting for Children's Justice (CCJ), Nashville, TN.

3. Cyperski, M**.**, Adams, M., Kuhn, T., & Ebert, J. (2018, October). *Beyond compliance: Building "Response Flexibility" in the juvenile justice system*. Workshop conducted at annual conference of Transformational Collaborative Outcomes Management (TCOM), Chicago, IL.

4. Cyperski, M. (2019, November). *Caring for transgender and gender nonconforming (TGNC) youth with a history of trauma exposure*. Case-based presentation conducted at annual

conference of International Society for Traumatic Stress Studies (ISTSS), Boston, MA.

5. French, W. & Cyperski, M. (2021, September). *Y'all means all: Supporting LGBTQ+ students*. Workshop presented at annual conference of Tennessee School Counselor and Administrator Leadership Institute (SCALI), Murfreesboro, TN.

6. Broderick, A., Siciliano, R., Kuhn, T., Cyperski, M., & Gracey, K. (2021, October). Utilizing CANS ratings to understand co-occurring emotional and behavioral needs upon entrance to state custody. Workshop conducted at annual conference of Transformational Collaborative Outcomes Management (TCOM).

7. Cyperski, M., Brady, C., Romano, M., Bapty, C. & Schmidt, J. (2021, November). *Providing affirmative care and advocating for gender diverse youth in a non-affirming political landscape*. Symposium to be conducted at the annual meeting of the U.S. Professional Association for Transgender Health (USPATH).

Posters

1. Cyperski, M. A., & Weis, R. (2010, April). *Learning disabilities as socioeconomic constructs: Evidence from primary, secondary, and postsecondary schools*. Poster presented at the annual meeting of the Midwestern Psychological Association (MPA), Chicago, IL.

2. Cyperski, M., Shapiro, S., Burkhart, B., & Witte, T. (2012, October). *Examining executive functioning deficits in juvenile delinquents with a history of trauma exposure.* Poster presented at the biennial meeting of the National Conference in Clinical Child and Adolescent Psychology, Lawrence, KS.

3. Cyperski, M., Sevlever, M., & Gillis, J. (2013, March). *Preliminary validation of a computer administered paired-stimulus preference assessment for children with autism spectrum disorders*. Poster presented at the annual meeting of the Southeastern Psychological Association (SEPA), Atlanta, GA.

4. Cyperski, M., Baker, K., & Brestan-Knight, E. (2013, September). *Tailoring treatment for high distress families with complex presentation: Lessons from a training clinic*. Poster presented at the biennial meeting of the Parent-Child Interaction Therapy (PCIT) Convention, Boston, MA.

5. Sevlever, M., Cyperski, M., & Gillis, J. (2013, November). *The impact of Thomas the Tank Engine and other cartoons on the emotion recognition and facial processing skills of children with autism spectrum disorders*. Poster presented at annual convention of the Association for Behavioral and Cognitive Therapies (ABCT), Nashville, TN.

6. Cyperski, M., Resmini, A., & Shapiro, S. (2014, October). *Factor structure of teacher rated DECA-P2 in diverse Head Start sample: Interpret with caution*. Poster presented at the biennial meeting of the National Conference in Clinical Child and Adolescent Psychology, Lawrence, KS.

7. Cyperski, M., Newman, J., & Burkhart, B. (2014, October). *Childhood maltreatment predicts dimensional markers of psychopathy in juvenile offenders.* Poster presented at the biennial meeting of the National Conference in Clinical Child and Adolescent Psychology, Lawrence, KS.

8. Cyperski, M., Norwood-Strickland, A., & Burkhart, B. (2014, November). *Dysfunctional parenting predicts oppositional behavior in juvenile sex offenders*. Poster presented at annual convention of the Association for Behavioral and Cognitive Therapies (ABCT), Philadelphia, PA.

9. Fix, R. L., Burkhart, B. R., Alexander, A. A., & Cyperski, M. (2015, January). *Disproportionate minority contact: Implications for African American juveniles who commit sexual offenses*. Poster presented at the biennial National Multicultural Conference and Summit, Atlanta, GA.

10. Broderick, A. V., Siciliano, R. E., Kuhn, T. M., Cyperski, M. A., Gracey, K. A. (2020, June). *Characterizing youth's emotional and behavioral needs upon entrance to state custody.* Poster presented at the inaugural Vanderbilt University Medical Center Academic Psychiatry Day.

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EXHIBIT 19

IN THE UNITED STATES DISTRICT COURT FOR THE MIDDLE DISTRICT OF TENNESSEE NASHVILLE DIVISION

L.E., by his next friends and parents, SHELLEY ESQUIVEL and MARIO ESQUIVEL, *Plaintiff*, v. BILL LEE, in his official capacity as Governor of Tennessee, *et al.*, *Defendants*.	Case No. 3:21-cv-00835

EXPERT REPORT OF HELEN CARROLL

1. I have been retained by counsel for Plaintiff L.E., by his next friends, Shelley Esquivel and Mario Esquivel, as an expert in connection with the above-captioned litigation.

2. The purpose of this report is to offer my expert opinion on policies for transgender inclusion in athletics in the United States, as well as the benefits of interscholastic athletic participation for students, and the harms to transgender and cisgender students of policies that exclude transgender students from participation in accordance with their gender identity.

3. I have actual knowledge of the matters stated herein and have reviewed the text of Senate Bill 228 as part of my preparation for this report. I have also reviewed the Complaint filed in this case.

4. I am being compensated for my work on this matter at a rate of $400.00 per hour. My compensation does not depend on the outcome of this litigation, the opinions I express, or the testimony I provide.

PROFESSIONAL BACKGROUND

5. I received a Bachelor of Science in Physical Education in 1974 from Middle Tennessee State University, located in Murfreesboro, Tennessee, and a Master of Science in 1976 from Appalachian State University, located in Boone, North Carolina. A current copy of my curriculum vitae is attached as **Exhibit A**.

6. I was the Head Women's Basketball Coach at the University of North Carolina-Asheville ("UNC-Asheville") from 1980-1984. In my last year, the team won the 1984 National Association of Intercollegiate Athletics ("NAIA") National Championship.

7. After coaching, I served as Associate Athletic Director at UNC Asheville from 1985-1988.

8. I was a National Collegiate Athletic Association ("NCAA") and NAIA Athletic Director at Mills College, located in Oakland, California, from 1988-2000.

9. My responsibilities as a coach included athlete recruitment, ensuring my athletes' privacy and safety, and creating team cohesion. These responsibilities also included developing and implementing guidelines that covered, among other things, an atmosphere of inclusion and respect within the team.

10. My responsibilities as athletic director included ensuring that all coaches and teams followed school policies regarding privacy, safety, and inclusion; supporting coaches in implementing policies and in athlete recruitment; team development; ensuring the adequacy of facilities; ensuring compliance with Title IX of the Education Amendments of 1972, 20 U.S.C. § 1681 *et seq*.; implementing nondiscrimination policies designed to ensure the inclusion and safety of athletes; and overseeing athletic department budgets.

11. After spending 30 years as an athlete, coach and athletic director, I joined the National Center for Lesbian Rights ("NCLR") as their Sports Director. There, I specialized in providing training and support to athletic programs, athletes, and institutions to recognize that the inclusion of lesbian, gay, bisexual, and transgender people diversifies and strengthens the sport experience.

12. I have consulted with ten NCAA institutions through their development and implementation of policies providing equal treatment to transgender student athletes, and I have consulted with seven state high school athletic associations through their development and implementation of policies providing equal treatment to transgender student athletes.

13. I am a co-author of the 2011 NCAA Guide for Transgender Student Athlete Inclusion.

14. I have experience working closely with major national sports organizations, including the Women's Sports Foundation and the NCAA, to advance LGBTQ-inclusive policies.

15. I have also been a featured speaker on panels regarding inclusive athletics policies with Nike, ESPN's "Outside the Lines," and the New York Times. I am featured in Dr. Pat Griffin's book, "Strong Women, Deep Closets and The Outports Revolution" by authors Jim Buzinski and Cyd Ziegler Jr.

16. I originally became familiar with transgender student athletes after the International Olympic Committee announced a policy in 2003 that included participation of transgender athletes. After this policy was announced, I worked with transgender athletes and several institutions and individuals—including the Professional Golf Association, United States

Track and Field Association, and the Ladies Professional Golf Association—to determine the best practices for sports organizations for the inclusion of transgender athletes.

17. In October 2010, I co-authored a report (the "Report") with Dr. Pat Griffin entitled "On the Team: Equal Opportunity for Transgender Students Athletes." The Report was co-sponsored by the Women's Sports Foundation and NCLR, and was the result of a 2009 national think tank hosted by the NCAA entitled "Equal Opportunities for Transgender student athletes." Think tank participants included leaders from the NCAA and the National Federation of State High School Associations, transgender student athletes, and an array of experts on transgender issues from a range of disciplines, including law, medicine, advocacy, and athletics. The goals of the initiative were to develop model policies and identify best practices for high school and collegiate athletic programs to ensure the full inclusion of transgender student athletes. The Report also led to the 2011 NCAA Guide for Transgender Athlete Inclusion.

18. I have experience developing policies governing the inclusion of transgender student athletes with high schools and athletic associations to ensure that transgender athletes have access to athletic opportunities as children, adolescents, and young adults. I have also worked with coaches learning how to provide inclusive opportunities to transgender students who want to play on sports teams. These policies often address the standard under which transgender athletes are able to participate, as well as basic accommodations such as knowing what pronouns or names to use when referring to a transgender student, where a transgender student should change clothes for practice or competition, and what restroom or locker room students should use.

19. In preparing this report, I have relied on my training and years of experience as set out in my curriculum vitae, and on the materials listed therein. A true and accurate copy of

my curriculum vitae is attached hereto as Exhibit A. It documents my education, training, research, and years of experience in this field, and includes a list of publications that I have worked on in the last 10 years.

20. I have not provided expert testimony at deposition or trial in any cases in the past four years.

STATE POLICIES REGARDING TRANSGENDER INCLUSION IN INTERSCHOLASTIC ATHLETICS

21. Throughout my career, I have experience developing policies governing the inclusion of transgender student athletes with high schools and athletic associations to ensure that transgender athletes have access to athletic opportunities in all stages of development. I have also worked with coaches learning how to accommodate transgender youth who want to participate in sports.

22. Sixteen states and the District of Columbia have successfully implemented policies through their high school athletic associations that allow transgender student athletes to participate in athletics consistent with their gender identity. Several other local school districts have enacted similar policies as well. These policies have been in place for almost a decade in most cases. Washington State, for example, has had an inclusive policy since 2008. Thousands of transgender students are eligible to participate in accordance with their gender identity in these states and districts.

23. Many state athletic associations have implemented policies that allow transgender student athletes to participate in athletics consistent with their gender identity without requiring the student to demonstrate evidence of medical treatment. Only a very small number of states

require proof of hormone therapy before permitting girls who are transgender to participate in high school athletics for women and girls.

24. These policies have been successful, allowing fuller participation in interscholastic athletics without any negative impacts. I am not aware of any cisgender girls being harmed by the presence of a transgender student athlete participating on their team or in their league. I am not aware of any negative impacts on cisgender boys due to the presence of transgender boys participating on their teams or in their league. I am likewise not aware of cisgender students losing scholarship opportunities as a result of transgender athletes participating on their team or in their league. Athletic scholarship opportunities are awarded based on a range of factors. Coaches look at the entire athlete, not just on what place a person or team comes in at a given race or tournament.

25. Despite the successful implementation of inclusive policies, a number of states—including Tennessee—have recently enacted statutes prohibiting transgender student athletes from participating in interscholastic athletics in accordance with their gender identity, regardless of the circumstances.[1]

INTERNATIONAL OLYMPIC POLICY FOR TRANSGENDER INCLUSION

26. Elite sporting bodies, such as the International Olympic Committee ("IOC"), do not impose categorical bans based on an athlete's transgender status. The IOC has allowed transgender athletes to participate in accordance with their gender identity in elite Olympic level competitions for almost 20 years, and the first transgender athletes to compete in accordance with their gender identity did so in 2020.

[1] In 13 of these states, the prohibition applies only to transgender girls. In Alabama, the prohibition applies to transgender boys unless there is not an equivalent girls' team. Tennessee is the only state that applies a categorical ban to all transgender student athletes.

27. The initial IOC policy, issued in 2003, allowed transgender athletes to participate in accordance with their gender identity on the condition they undergo sex reassignment surgery. That policy was modified in 2015 to allow transgender men to compete in accordance with their gender identity without restriction, and provided that transgender women may compete in accordance with their gender identity if they have been on hormone replacement therapy for one year before competing.

28. The IOC most recently updated this policy in November 2021. The new policy provides that each sport's governing body should develop eligibility criteria for their individual sports. The IOC issued a framework to help inform the development of eligibility criteria among the IOC's sporting bodies. The framework identifies core principles that recognize that eligibility criteria should not systematically exclude athletes on the basis of their transgender status or sex variations. To my knowledge, no Olympic governing body of an individual sport has issued a policy that would categorically ban transgender athletes based on their transgender status.

NCAA POLICY FOR TRANSGENDER INCLUSION

29. Like the IOC, the NCAA also does not prohibit transgender athletes from participating in elite athletic events in accordance with their gender identity. And transgender athletes have been eligible to compete on teams at NCAA member colleges and universities in accordance with their gender identity for over a decade.

30. In 2011, the NCAA published the first Guide for Transgender Student Athlete Inclusion, which is a guide to colleges and universities on how to adopt inclusive policies and practices for transgender student athletes. I am a co-author of the NCAA Guide for Transgender Athlete Inclusion.

31. The 2011 NCAA policy was the result of input from athletes, administrators, and doctors, with significant input from the NCAA's Committee on Competitive Safeguards and Medical Aspects of Sports. The 2011 policy allowed women who are transgender to compete on women's teams in women's sporting events after completing one year of testosterone suppression hormone therapy as part of gender transition.

32. In October 2020, I participated in a transgender student athlete participation summit organized by the NCAA to gather input from NCAA membership and various subject matter experts to inform NCAA policy and practice with regard to gender identity and student athlete participation.

33. In January 2022, the NCAA Board of Governors announced a new transgender participation policy. The new participation policy clarifies—consistent with the most recent IOC policy—that eligibility determination policies will be determined by the national governing body of an individual sport, and that transgender women seeking to participate in accordance with their gender identity will need to document sport-specific testosterone levels at the start of their season, six months after the first documentation, and four weeks before their sport's championship selections. The 2022 policy expressed the NCAA's commitment to transgender student athletes and noted that the Gender Identity and Student-Athlete Participation Summit Report will be used to support NCAA member schools to support fairness and inclusion and the health of transgender and nonbinary student athletes

34. Only one national governing body (USA Swimming) has issued a policy since the 2022 policy was announced. This policy allows transgender athletes to participate in accordance with their gender identity if they meet requirements concerning their testosterone levels.

THE BENEFITS OF INTERSCHOLASTIC ATHLETIC PARTICIPATION

35. School athletic programs are widely accepted as integral parts of the middle school and high school experiences. Athletics provide important opportunities for social, emotional, and physical well-being, confidence, and other positive impacts for student athletes.

36. The benefits of participation in athletics are well-documented. The physical exercise students get through athletics increases their muscle strength, oxygen consumption, and lung capacity. Students who participate in sports in middle school and high school often continue being physically active into adulthood, which helps offset negative long-term health care outcomes from inactivity. Participants in school sports also experience positive mental health outcomes from participation, such as improvements in self-esteem and decreased social anxiety and social isolation.

37. Participation furthers social and emotional development. Student athletes learn to control their emotions in high-pressure situations and they develop key social skills such as sacrifice and the importance of teamwork.

38. Participation in athletics often provides a sense of connection and belonging that is forged through intense experiences that reverberate throughout an athlete's lifetime. Athletics empowers student athletes by providing them with a context in which students learn the importance of teamwork, discipline, and perseverance that is formed by sharing a similar pursuit and objective.

39. Participation in athletics often requires a student to excel in their academic performance because their participation is often contingent upon achieving a minimum grade point average. Academic achievement often serves as the gateway to further academic success by

increasing a student's chances of acceptance into college as well as their professional prospects, often improving dramatically a student's long-term economic outcomes.

40. For some students, playing on high school teams can also lead to scholarship opportunities at the collegiate level. And for some, it leads to future careers in athletics as competitors, coaches, administrators, and athletic trainers.

41. Based on my interaction with numerous student athletes, coaches, and athletic directors for 40 years, it is widely recognized that participation in interscholastic athletics often serves as a pivotal and life-changing experience that helps form young people into who they become as adults.

THE HARMS OF EXCLUSION FROM INTERSCHOLASTIC ATHLETIC PROGRAMS

42. Statewide laws prohibiting transgender students from participating in interscholastic athletics consistent with their gender identity, such as the one Tennessee has enacted, inflict profound harms on transgender students by depriving them of the many benefits that flow from actively participating in sports.

43. When students are excluded from athletics, they are most immediately denied the physical and mental well-being that participation in sports can bring. But more importantly, they are denied the ability to develop meaningful relationships with their peers and are deprived of the many life skills that participation provides.

44. When transgender students are excluded from participating, they also are singled out and stigmatized—exacerbating the discrimination and harassment that many transgender youth already experience.

45. Efforts to exclude transgender students from participation are harmful to transgender and cisgender students because they convey a message that the values of diversity,

nondiscrimination, and inclusion are not important. This can undermine team unity and encourage divisiveness by policing who is “really” a boy or a girl.

46. Student athletics, and the student body as a whole, are harmed by limiting diversity in athletics. Racial diversity, geographic diversity, and transgender and other LGBTQ diversity teach young athletes how to bridge cultural differences and work together toward a common goal. In addition, the team is strongest when it can draw from the largest pool of potential members.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed On: April 15, 2022

/s/ Helen Carroll
Helen Carroll

EXHIBIT A

Helen J. Carroll

Sports Diversity Consultant

Mountain View, CA 94043 hcarroll@nclrights.org 415-595-2123

SUMMARY

Over 40 years of leadership in women's sports including:

- Developing National Think Tank series for LGBT concerns in athletics.
- Coaching a team to the NAIA National Championship title.
- Directing, coaching, and teaching in NCAA I, II, and III athletic programs.
- Maintaining strong, ongoing relationships with coaches, players, ADs, and media at all levels, from junior high school through WNBA.
- Marketing university sports programs to alumni and corporate donors.
- Nationally recognized spokesperson for women's sports issues.
- Nationally recognized spokesperson for LGBT issues in sport.
- Nationally recognized expert for Transgender inclusion in all sports levels.
- Demonstrated ability to recognize and leverage trends impacting women's sports.

EXPERIENCE

Consultant for LGBTQ Policies and Issues in Sport, San Francisco, CA 2016 – Present

National Center For Lesbian Rights, San Francisco, CA 2001 – 2016

Sports Project Director: Maintain relationships at all levels of women's basketball, from high school to the WNBA. Consult with coaches, athletic directors, and academic/administrative staff on sexual orientation and transgender issues that impact women's sports programs. Provide expert commentary for media. Attend NCAA Basketball Finals, WNBA games and playoffs, and other key competitions.

- Created National Think Tank series for issues pertaining to LGBT student athletes, coaches and Administrators with the NCAA.
- Co-authored the 2011 NCAA Guide for Transgender Athlete Inclusion.
- Co-authored the 2010 "On the Team: Equal Opportunity for Transgender Student Athletes." The Report was co-sponsored by the Women's Sports Foundation and NCLR, and was the result of a 2009 national think tank entitled "Equal Opportunities for Transgender Student Athletes," hosted by the NCAA with participation including the National Federation of High Schools.
- Worked closely with major national sports organizations including the Women's Sports Foundation and the NCAA. Featured speaker on panels with Nike, ESPN's "Outside the Lines," and The New York Times.
- Featured in Dr. Pat Griffin's book, "Strong Women, Deep Closets and The Outsports Revolution" by authors Jim Buzinski and Cyd Ziegler Jr.

- Presented “The Gay/Lesbian Athlete’s Place in the Corporate World” at Nike main campus.
- Developed an innovative education program to help NCAA LGBT athletes be included in sports in a positive way.
- Worked with high visibility coaches and administrators to address unethical recruiting practices that negatively impact women’s basketball’s image.
- Working with the NCAA Director of inclusion, on diversity issues affecting student athletes resulting in policy changes on the national level.

Mills College, Oakland, CA 1988 - 2000

Director of Athletics, Physical Education and Recreation
Directed NCAA intercollegiate sports programs. Developed and implemented department vision and strategic plan. Oversaw department budget. Hired, trained and evaluated coaches, lecturers, recreation and support staff. Negotiated contracts and salaries. Oversaw NCAA compliance, eligibility and financial aid for student athletes. Managed sports information, promotion and marketing. Co-partnered with college president to raise funds for sports.

- Guided programs of inclusion, including combatting racism, classism, homophobia, and transphobia.
- Helped maintain academic excellence of student athletes, including two Rhodes Scholar fellowships and Academic All-America Teams.
- Directed construction of new athletic facilities including aquatic center, soccer fields and cross-country trail by working to increase funds commitments from supporters.

University of North Carolina – Asheville, Asheville, NC 1981 - 1988

Interim Athletic Director and Associate Athletic Director (1984-1988)
Led athletic programs including strategic vision, budget, recruiting, hiring. Managed transition from NAIA affiliation to NCAA Division I Big South Conference.

Head Women’s Basketball Coach (1981-1984)

Responsible for total program including player development, hiring/supervising staff, recruitment, budget management and maintaining visibility with alumni and media. Coordinated strategy and provided leadership during games.

- Within four years, build team that won 1984 NAIA National Championship title by setting a strategic vision, recruiting key players, developing innovative game plan, and providing environment for athletes to excel.
- Named NAIA National Coach of year for outstanding achievement in leading a team to national championship within four years.

Basketball and Tennis Coach, University of Tennessee, Martin, TN 1976 - 1978

Basketball, Track and Field Coach, Wayne State College, Wayne, NE 1979 - 1981

EDUCATION

M.A., Athletic Administration, Appalachia State University

- Emphasis in Athletic Administration, Coaching, Recreational Administration

B.S., Health, Physical Education and Recreation, Middle Tennessee University

- Minor in Psychology

PROFESSIONAL AFFILIATIONS

National Association of Collegiate Women Athletic Directors (NACWAA)
National Association of Collegiate Directors of America (NACDA)
America Alliance of Health, Physical Education and Recreation
National Association of Girls and Women in Sport
Women's Sports Foundation
Women's Basketball Coaches Association

EXHIBIT 20

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF TENNESSEE
NASHVILLE DIVISION

L.E.., by his next friend and parents, SHELLEY ESQUIVEL, and MARIO ESQUIVEL, *Plaintiff,*	Case No. 3:21-cv-00835
vs.	Chief Judge Crenshaw
BILL LEE, in his official capacity as Governor of Tennessee, et al., *Defendants.*	Magistrate Judge Newbern

DECLARATION OF GREGORY A. BROWN, PHD., FACSM

I, Dr. Gregory A. Brown, pursuant to 28 U.S. Code § 1746, declare under penalty of perjury under the laws of the United States of America that the facts contained in my Expert Declaration of Gregory A. Brown, Ph.D., FACSM in the Case of L.E. v. Governor Lee et al., attached hereto, are true and correct to the best of my knowledge and belief, and that the opinions expressed therein represent my own expert opinions.

Executed on May 24, 2022.

Gregory A. Brown

Expert Report of

Gregory A Brown, Ph.D. FACSM

In the case of *L.E. v. Governor Lee et al.*

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Personal Qualifications and Disclosure

I serve as Professor of Exercise Science in the Department of Kinesiology and Sport Sciences at the University of Nebraska Kearney, where I teach classes in Exercise Physiology among other topics. I am also the Director of the General Studies program. I have served as a tenured (and nontenured) professor at universities since 2002.

In August 2002, I received a Doctor of Philosophy degree from Iowa State University, where I majored in Health and Human Performance, with an emphasis in the Biological Bases of Physical Activity. In May 1999, I received a Master of Science degree from Iowa State University, where I majored in Exercise and Sport Science, with an emphasis in Exercise Physiology.

I have received many awards over the years, including the Mortar Board Faculty Excellence Honors Award, College of Education Outstanding Scholarship / Research Award, and the College of Education Award for Faculty Mentoring of Undergraduate Student Research. I have authored more than 40 refereed publications and more than 50 refereed presentations in the field of Exercise Science. I have authored chapters for multiple books in the field of Exercise Science. And I have served as a peer reviewer for over 25 professional journals, including *The American Journal of Physiology*, the *International Journal of Exercise Science*, the *Journal of Strength and Conditioning Research*, *Sports Medicine*, and *The Journal of Applied Physiology*.

My areas of research have included the endocrine response to testosterone prohormone supplements in men and women, the effects of testosterone prohormone supplements on health and the adaptations to strength training in men, the effects of energy drinks on the physiological response to exercise, and assessment of various athletic training modes in males and females. Articles that I have published that are closely related to topics that I discuss in this white paper include:

- Studies of the effect of ingestion of a testosterone precursor on circulating testosterone levels in young men. Douglas S. King, Rick L. Sharp, Matthew D. Vukovich, Gregory A. Brown, et al., *Effect of Oral Androstenedione on Serum Testosterone and Adaptations to Resistance Training in Young Men: A Randomized Controlled Trial*, JAMA 281: 2020-2028 (1999); G. A. Brown, M. A. Vukovich, et al., *Effects of Anabolic Precursors on Serum Testosterone Concentrations and Adaptations to Resistance Training in Young Men*, INT J SPORT NUTR EXERC METAB 10: 340-359 (2000).

- A study of the effect of ingestion of that same testosterone precursor on circulating testosterone levels in young women. G. A. Brown, J. C. Dewey, et al., *Changes in Serum Testosterone and Estradiol Concentrations Following Acute Androstenedione Ingestion in Young Women*, HORM METAB RES 36: 62-66 (2004.)

- A study finding (among other things) that body height, body mass, vertical jump height, maximal oxygen consumption, and leg press maximal strength were higher in a group of physically active men than comparably active women, while the women had higher percent body fat. G. A. Brown, Michael W. Ray, et al., *Oxygen Consumption, Heart Rate, and Blood Lactate Responses to an Acute Bout of Plyometric Depth Jumps in College-Aged Men And Women*, J. STRENGTH COND RES 24: 2475-2482 (2010).

- A study finding (among other things) that height, body mass, and maximal oxygen consumption were higher in a group of male NCAA Division 2 distance runners, while women NCAA Division 2 distance runners had higher percent body fat. Furthermore, these male athletes had a faster mean competitive running speed (~3.44 min/km) than women (~3.88 min/km), even though the men ran 10 km while the women ran 6 km. Katherine Semin, Alvah C. Stahlnecker, Kate A. Heelan, G. A. Brown, et al, *Discrepancy Between Training, Competition and Laboratory Measures of Maximum Heart Rate in NCAA Division 2 Distance Runners*, JOURNAL OF SPORTS SCIENCE AND MEDICINE 7: 455-460 (2008).

- A presentation at the 2021 American Physiological Society New Trends in Sex and Gender Medicine Conference entitled "Transwomen Competing in Women's Sports: What We Know and What We Don't". I have also authored an August 2021 entry for the American Physiological Society Physiology Educators Community of Practice Blog (PECOP Blog) titled "The Olympics, Sex, and Gender in the Physiology Classroom."

A list of my published scholarly work for the past 10 years appears as an Appendix.

Purpose of this Declaration

I have been asked by counsel for Defendant State of Tennessee in the matter of *L.E. v. Governor Lee et al.,* to offer my opinions about the following: (a) whether males have inherent advantages in athletic performance over females, and if so the scale and physiological basis of those advantages, to the extent currently understood by science and (b) whether the sex-based performance advantage enjoyed by males is eliminated if feminizing hormones are administered to male athletes who identify as transgender (and in the case of prepubertal children, whether puberty blockers eliminate the advantage). In this declaration, when I use the terms “boy” or “male,” I am referring to biological males based on the individual’s reproductive biology and genetics as determined at birth. Similarly, when I use the terms “girl” or “female,” I am referring to biological females based on the individual’s reproductive biology and genetics as determined at birth. When I use the term transgender, I am referring to persons who are males or females, but who identify as a member of the opposite sex.

I have previously provided expert information in cases similar to this one in the form of a written declaration and a deposition in the case of *Soule vs. CIAC* in the state of Connecticut, in the form of a written declaration in the case of *Hecox vs. Little* in the state of Idaho, and in the case of *B.P.J. by her next friend and mother Heather Jackson, v. State of West Virginia State Board of Education, et al.* I have not previously testified as an expert in any trials.

The opinions I express in this declaration are my own, and do not necessarily reflect the opinions of my employer, the University of Nebraska.

I have been compensated for my time serving as an expert in this case at the rate of $200 per hour. My compensation does not depend on the outcome in the case.

Overview

In this declaration, I explore three important questions relevant to current discussions and policy decisions concerning inclusion of transgender individuals in women's athletic competitions. Based on my professional familiarity with exercise physiology and my review of the currently available science, including that contained in the many academic sources I cite in this report, I set out and explain three basic conclusions:

- At the level of (a) elite, (b) collegiate, (c) scholastic, and (d) recreational competition, men, adolescent boys, or male children, have an advantage over equally aged, gifted, and trained women, adolescent girls, or female children in almost all athletic events;

- Biological male physiology is the basis for the performance advantage that men, adolescent boys, or male children have over women, adolescent girls, or female children in almost all athletic events; and

- The administration of androgen inhibitors and cross-sex hormones to men or adolescent boys after the onset of male puberty does not eliminate the performance advantage that men and adolescent boys have over women and adolescent girls in almost all athletic events. Likewise, there is no published scientific evidence that the administration of puberty blockers to males before puberty eliminates the pre-existing athletic advantage that prepubertal males have over prepubertal females in almost all athletic events.

In short summary, men, adolescent boys, and prepubertal male children perform better in almost all sports than women, adolescent girls, and prepubertal female children because of their inherent physiological advantages. In general, men, adolescent boys, and prepubertal male children, can run faster, output more muscular power, jump higher, and possess greater muscular endurance than women, adolescent girls, and prepubertal female children. These advantages become greater during and after male puberty, but they exist before puberty.

Further, while after the onset of puberty males are on average taller and heavier than females, a male performance advantage over females has been measured in weightlifting competitions even between males and females matched for body mass.

Male advantages in measurements of body composition, tests of physical fitness, and athletic performance have also been shown in children before puberty. These advantages are magnified during puberty, triggered in large part by the higher testosterone concentrations in men, and adolescent boys, after the onset of male puberty. Under the influence of these higher testosterone levels, adolescent boys and young men develop even more muscle mass, greater muscle strength, less body fat, higher bone mineral density, greater bone strength, higher hemoglobin concentrations, larger hearts and larger coronary blood vessels, and larger overall statures than women. In addition, maximal oxygen consumption (VO_2max), which correlates to ~30-40% of success in endurance sports, is higher in both elite and average men and boys than in comparable women and girls when measured in regard to absolute volume of oxygen consumed and when measured relative to body mass.

Although androgen deprivation (that is, testosterone suppression) may modestly decrease some physiological advantages that men and adolescent boys have over women and adolescent girls, it cannot fully or even largely eliminate those physiological advantages once an individual has passed through male puberty.

Evidence and Conclusions

I. The scientific reality of biological sex

1. The scientific starting point for the issues addressed in this report is the biological fact of dimorphic sex in the human species. It is now well recognized that dimorphic sex is so fundamental to human development that, as stated in a recent position paper issued by the Endocrine Society, it "must be considered in the design and analysis of human and animal research. . . . Sex is dichotomous, with sex determination in the fertilized zygote stemming from unequal expression of sex chromosomal genes." (Bhargava et al. 2021 at 220). As stated by Sax (2002 at 177), "More than 99.98% of humans are either male or female." All humans who do not suffer from some genetic or developmental disorder are unambiguously male or female.

2. Although sex and gender are used interchangeably in common conversation, government documents, and in the scientific literature, the American Psychological Association defines sex as "physical and biological traits" that "distinguish between males and females" whereas gender "implies the psychological, behavioral, social, and cultural aspects of being male or female (i.e., masculinity or femininity)" (https://dictionary.apa.org, accessed January 14, 2022). The concept that sex is an important biological factor determined at conception is a well-established scientific fact that is supported by statements from a number of respected organizations including, but not limited to, the Endocrine Society (Bhargava et al. 2021 at 220), the American Physiological Society (Shah 2014), the Institute of Medicine, and the National Institutes of Health (Miller 2014 at H781-82). Collectively, these and other organizations have stated that every cell has a sex

and every system in the body is influenced by sex. Indeed, "sex often influences gender, but gender cannot influence sex." (Bhargava 2021 at 228.)

3. To further explain: "The classical biological definition of the **2 sexes** is that females have ovaries and make larger female gametes (eggs), whereas males have testes and make smaller male gametes (sperm) … the definition can be extended to the ovaries and testes, and in this way the categories—female and male—can be applied also to individuals who have gonads but do not make gametes … sex is dichotomous because of the different roles of each sex in reproduction." (Bhargava 2021 at 221.) Furthermore, "sex determination begins with the inheritance of XX or XY chromosomes" (Bhargava 2021 at 221.) And, "Phenotypic sex differences develop in XX and XY embryos as soon as transcription begins. The categories of X and Y genes that are unequally represented or expressed in male and female mammalian zygotes … cause phenotypic sex differences" (Bhargava 2021 at 222.)

4. Although disorders of sexual development (DSDs) are sometimes confused with discussions of transgender individuals, the two are different phenomena. DSDs are disorders of physical development. Many DSDs are "associated with genetic mutations that are now well known to endocrinologists and geneticists." (Bhargava 2021 at 225) By contrast, a sense of transgender identity is usually not associated with any physical disorder, and "a clear biological causative underpinning of gender identity remains to be demonstrated." (Bhargava 2021 at 226.)

5. Further demonstrating the biological importance of sex, Gershoni and Pietrokovski (2017) detail the results of an evaluation of "18,670 out of 19,644 informative protein-coding genes in men versus women" and reported that "there are over 6500 protein-coding genes with significant S[ex]D[ifferential] E[xpression] in at least one tissue. Most of these genes have SDE in just one tissue, but about 650 have SDE in two or more tissues, 31 have SDE in more than five tissues, and 22 have SDE in nine or more tissues" (Gershoni 2017 at 2-3.) Some examples of tissues identified by these authors that have SDE genes include breast mammary tissue, skeletal muscle, skin, thyroid gland, pituitary gland, subcutaneous adipose, lung, and heart left ventricle. Based on these observations the authors state "As expected, Y-linked genes that are normally carried only by men show SDE in many tissues" (Gershoni 2017 at 3.) A stated by Heydari et al. (2022, at 1), "Y chromosome harbors male-specific genes, which either solely or in cooperation with their X-counterpart, and independent or in conjunction with sex hormones have a considerable impact on basic physiology and disease mechanisms in most or all tissues development."

6. In a review of 56 articles on the topic of sex-based differences in skeletal muscle, Haizlip et al., (2015) state that "More than 3,000 genes have been identified as being differentially expressed between male and female skeletal

muscle." (Haizlip 2015 at 30.) Furthermore, the authors state that "Overall, evidence to date suggests that skeletal muscle fiber-type composition is dependent on species, anatomical location/function, and sex" (Haizlip 2015 at 30.) The differences in genetic expression between males and females influence the skeletal muscle fiber composition (i.e. fast twitch and fast twitch sub-type and slow twitch), the skeletal muscle fiber size, the muscle contractile rate, and other aspects of muscle function that influence athletic performance. As the authors review the differences in skeletal muscle between males and females they conclude, "Additionally, all of the fibers measured in men have significantly larger cross-sectional areas (CSA) compared with women." (Haizlip 2015 at 31.) The authors also explore the effects of thyroid hormone, estrogen, and testosterone on gene expression and skeletal muscle function in males and females. One major conclusion by the authors is that "The complexity of skeletal muscle and the role of sex adding to that complexity cannot be overlooked." (Haizlip 2015 at 37.) The evaluation of SDE in protein coding genes helps illustrate that the differences between men and women are intrinsically part of the chromosomal and genetic makeup of humans which can influence many tissues that are inherent to the athletic competitive advantages of men compared to women.

II. Biological men, or adolescent boys, have large, well-documented performance advantages over women and adolescent girls in almost all athletic contests.

7. It should scarcely be necessary to invoke scientific experts to "prove" that men are on average larger, stronger, and faster than women. All of us, along with our siblings and our peers and perhaps our children, have passed through puberty, and we have watched that differentiation between the sexes occur. This is common human experience and knowledge.

8. Nevertheless, these differences have been extensively studied and measured. I cited many of these studies in the first paper on this topic that I prepared, which was submitted in litigation in January 2020. Since then, in light of current controversies, several authors have compiled valuable collections or reviews of data extensively documenting this objective fact about the human species, as manifest in almost all sports, each of which I have reviewed and found informative. These include Coleman (2020), Hilton & Lundberg (2021), World Rugby (2020), Harper (2021), Hamilton (2021), and a "Briefing Book" prepared by the Women's Sports Policy Working Group (2021). The important paper by Handelsman et al. (2018) also gathers scientific evidence of the systematic and large male athletic advantage.

9. These papers and many others document that men, adolescent boys, and prepubertal male children, substantially outperform comparably aged women, adolescent girls and prepubertal female children, in competitions involving running

speed, swimming speed, cycling speed, jumping height, jumping distance, and strength (to name a few, but not all, of the performance differences). As I discuss later, it is now clear that these performance advantages for men, adolescent boys, and prepubertal male children, are inherent to the biological differences between the sexes.

10. In fact, I am not aware of any scientific evidence today that disproves that after puberty men possess large advantages in athletic performance over women–so large that they are generally insurmountable for comparably gifted and trained athletes at every level (i.e. (a) elite, (b) collegiate, (c) scholastic, and (d) recreational competition). And I am not aware of any scientific evidence today that disproves that these measured performance advantages are at least largely the result of physiological differences between men and women which have been measured and are reasonably well understood.

11. My use of the term "advantage" in this paper must not be read to imply any normative judgment. The adult female physique is simply different from the adult male physique. Obviously, it is optimized in important respects for the difficult task of childbearing. On average, women require far fewer calories for healthy survival. Evolutionary biologists can and do theorize about the survival value or "advantages" provided by these and other distinctive characteristics of the female physique, but I will leave that to the evolutionary biologists. I use "advantage" to refer merely to performance advantages in athletic competitions.

12. I find in the literature a widespread consensus that the large performance and physiological advantages possessed by males–rather than social considerations or considerations of identity–are precisely the *reason* that most athletic competitions are separated by sex, with women treated as a "protected class." To cite only a few statements accepting this as the justification:

- Handelsman et al. (2018) wrote, "Virtually all elite sports are segregated into male and female competitions. The main justification is to allow women a chance to win, as women have major disadvantages against men who are, on average, taller, stronger, and faster and have greater endurance due to their larger, stronger, muscles and bones as well as a higher circulating hemoglobin level." (803)

- Millard-Stafford et al. (2018) wrote "Current evidence suggests that women will not swim or run as fast as men in Olympic events, which speaks against eliminating sex segregation in these individual sports" (530) "Given the historical context (2% narrowing in swimming over 44 y), a reasonable assumption might be that no more than 2% of the current performance gap could still potentially be attributed to sociocultural influences.", (533) and "Performance gaps between US men and women stabilized within less than a decade after federal legislation provided equal opportunities for female participation, but only modestly closed the overall gap in Olympic swimming by 2% (5% in running)." (533) Dr. Millard-Stafford, a full professor at Georgia Tech, holds a Ph.D. in Exercise Physiology and is a past President of the American College of Sports Medicine.

- In 2021, Hilton et al. wrote, "most sports have a female category the purpose of which is the protection of both fairness and, in some sports, safety/welfare of athletes who do not benefit from the physiological changes induced by male levels of testosterone from puberty onwards." (204)

- In 2020 the Swiss High Court ("Tribunal Fédéral") observed that "in most sports . . . women and men compete in two separate categories, because the latter possess natural advantages in terms of physiology."[1]

- The members of the Women's Sports Policy Working Group wrote that "If sports were not sex-segregated, female athletes would rarely be seen in finals or on victory podiums," and that "We have separate sex sport and eligibility criteria based on biological sex because this is the only way we can assure that female athletes have the same opportunities as male athletes not only to participate but to win in competitive sport. . . . If we did not separate athletes on the basis of biological sex–if we used any other physical criteria–we would never see females in finals or on podiums." (WSPWG Briefing Book 2021 at 5, 20.)

- In 2020, the World Rugby organization stated that "the women's category exists to ensure protection, safety and equality for those who do not benefit from the biological advantage created by these biological performance attributes." (World Rugby Transgender Women Guidelines 2020.)

- In 2021 Harper et al. stated "…the small decrease in strength in transwomen after 12–36 months of GAHT [Gender Affirming Hormone Therapy] suggests that transwomen likely retain a strength advantage over cisgender women." (7) and "…observations in trained transgender

[1] "dans la plupart des sports . . . les femmes et les hommes concourent dans deux catégories séparées, ces derniers étant naturellement avantagés du point de vue physique." Tribunal Fédéral decision of August 25, 2020, Case 4A_248/2019, 4A_398/2019, at §9.8.3.3.

individuals are consistent with the findings of the current review in untrained transgender individuals, whereby 30 months of GAHT may be sufficient to attenuate some, but not all, influencing factors associated with muscular endurance and performance." (8)

- Hamilton et al. (2021), in a consensus statement for the International Federation of Sports Medicine (FIMS) concluded that "Transwomen have the right to compete in sports. However, cisgender women have the right to compete in a protected category." (1409)

13. While the sources I mention above gather more extensive scientific evidence of this uncontroversial truth, I provide here a brief summary of representative facts concerning the male advantage in athletic performance.

A. Men are stronger.

14. Males exhibit greater strength throughout the body. Both Handelsman et al. (2018) and Hilton & Lundberg (2021) have gathered multiple literature references that document this fact in various muscle groups.

15. Men have in the neighborhood of 60%-100% greater **arm strength** than women. (Handelsman 2018 at 812.)[2] One study of elbow flexion strength (basically, bringing the fist up towards the shoulder) in a large sample of men and women found that men exhibited 109% greater isometric strength, and 89% higher strength in a single repetition. (Hilton 2021 at 204, summarizing Hubal (2005) at Table 2.)

16. **Grip strength** is often used as a useful proxy for strength more generally. In one study, men showed on average 57% greater grip strength than women. (Bohannon 2019.) A wider meta-analysis of multiple grip-strength studies not limited to athletic populations found that 18- and 19-year-old males exhibited in the neighborhood of 2/3 greater grip strength than females. (Handelsman 2017 Figure 3, summarizing Silverman 2011 Table 1.)[3]

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[2] Handelsman expresses this as women having 50% to 60% of the "upper limb" strength of men. Handelsman cites Sale, *Neuromuscular function*, for this figure and the "lower limb" strength figure. Knox et al., *Transwomen in elite sport* (2018) are probably confusing the correct way to state percentages when they state that "differences lead to decreased trunk and lower body strength by 64% and 72% respectively, in women" (397): interpreted literally, this would imply that men have **almost 4x as much** lower body strength as do women.

[3] Citing Silverman, *The secular trend for grip strength in Canada and the United States*, J. Ports Sci. 29:599-606 (2011).

17. In an evaluation of maximal isometric handgrip strength in 1,654 healthy men, 533 healthy women aged 20-25 years and 60 "highly trained elite female athletes from sports known to require high hand-grip forces (judo, handball)," Leyk et al. (2007) observed that, "The results of female national elite athletes even indicate that the strength level attainable by extremely high training will rarely surpass the 50th percentile of untrained or not specifically trained men." (Leyk 2007 at 415.)

18. Men have in the neighborhood of 25%-60% greater **leg strength** than women. (Handelsman 2018 at 812.) In another measure, men exhibit 54% greater knee extension torque and this male leg strength advantage is consistent across the lifespan. (Neder 1999 at 120-121.)

19. When male and female Olympic weightlifters of the same body weight are compared, the top males lift weights between 30% and 40% greater than the females of the same body weight. But when top male and female performances are compared in powerlifting, without imposing any artificial limitations on bodyweight, the male record is 65% higher than the female record. (Hilton 2021 at 203.)

20. In another measure that combines many muscle groups as well as weight and speed, moderately trained males generated 162% greater punching power than females even though men do not possess this large an advantage in any single bio-mechanical variable. (Morris 2020.) This objective reality was subjectively summed up by women's mixed-martial arts fighter Tamikka Brents, who suffered significant facial injuries when she fought against a biological male who identified as female and fought under the name of Fallon Fox. Describing the experience, Brents said:

> "I've fought a lot of women and have never felt the strength that I felt in a fight as I did that night. I can't answer whether it's because she was born a man or not because I'm not a doctor. I can only say, I've never felt so overpowered ever in my life, and I am an abnormally strong female in my own right."[4]

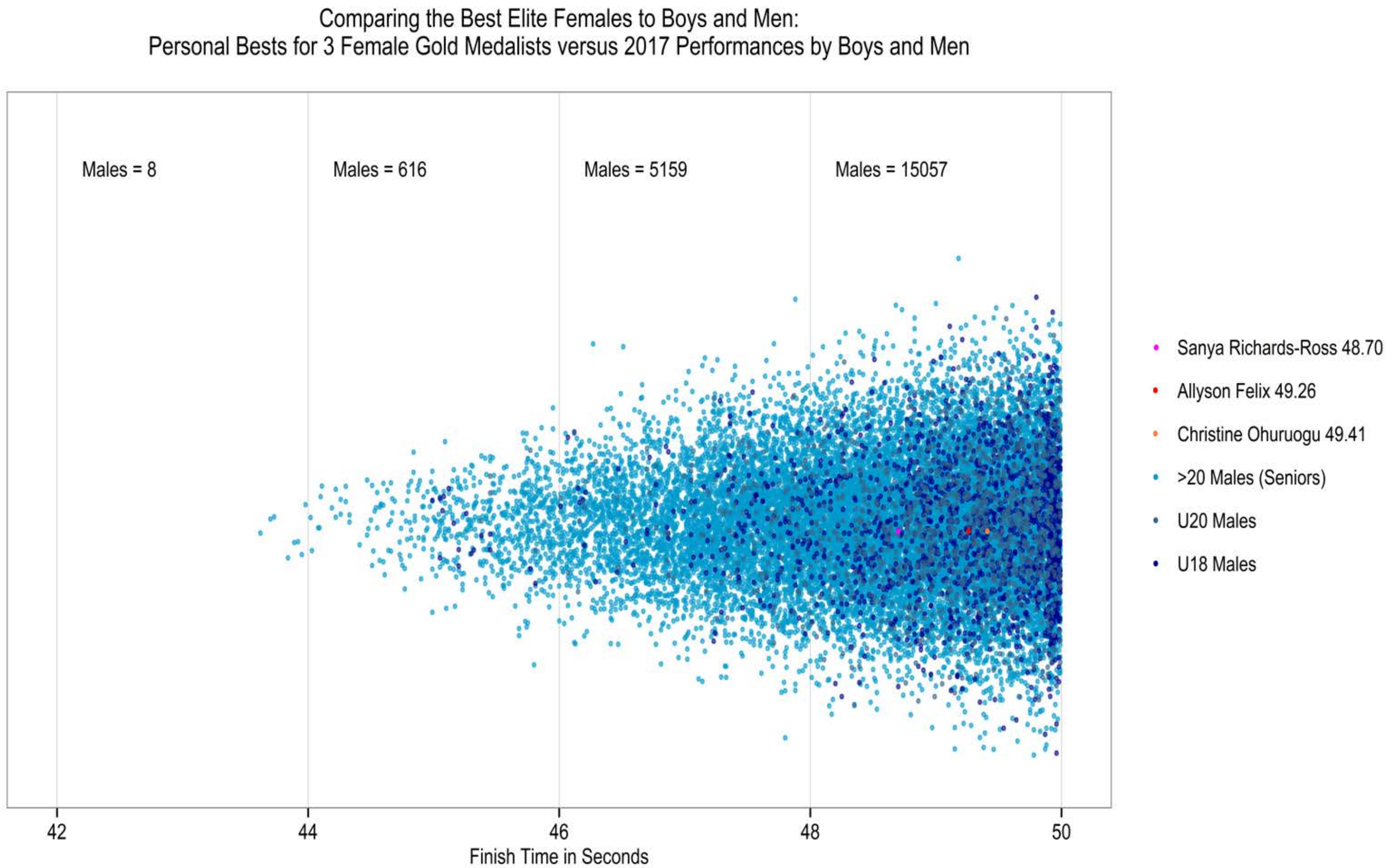
B. Men run faster.

21. Many scholars have detailed the wide performance advantages enjoyed by men in running speed. One can come at this reality from a variety of angles.

[4] http://whoatv.com/exclusive-fallon-foxs-latest-opponent-opens-up-to-whoatv/ (last accessed October 5, 2021).

22. Multiple authors report a male speed advantage in the neighborhood of 10%-13% in a variety of events, with a variety of study populations. Handelsman et al. 2018 at 813 and Handelsman 2017 at 70 both report a male advantage of about 10% by age 17. Thibault et al. 2010 at 217 similarly reported a stable 10% performance advantage across multiple events at the Olympic level. Tønnessen et al. (2015 at 1-2) surveyed the data and found a consistent male advantage of 10%-12% in running events after the completion of puberty. They document this for both short sprints and longer distances. One group of authors found that the male advantage increased dramatically in ultra-long-distance competition (Lepers & Knechtle 2013.)

23. A great deal of current interest has been focused on track events. It is worth noting that a recent analysis of publicly available sports federation and tournament records found that men enjoy the *least* advantage in running events, as compared to a range of other events and metrics, including jumping, pole vaulting, tennis serve speed, golf drives, baseball pitching speed, and weightlifting. (Hilton 2021 at 201-202.) Nevertheless, as any serious runner will recognize, the approximately 10% male advantage in running is an overwhelming difference. Dr. Hilton calculates that "approximately 10,000 males have personal best times that are faster than the current Olympic 100m female champion." (Hilton 2021 at 204.) Professors Doriane Coleman, Jeff Wald, Wickliffe Shreve, and Richard Clark dramatically illustrated this by compiling the data and creating the figure below (last accessed on February 10, 2022, at https://bit.ly/35yOyS4), which shows that the *lifetime best performances* of three female Olympic champions in the 400m event—including Team USA's Sanya Richards-Ross and Allyson Felix—would not match the performances of "literally thousands of boys and men, including thousands who would be considered second tier in the men's category" *just in 2017 alone*: (data were drawn from the International Association of Athletics Federations (IAAF) website which provides complete, worldwide results for individuals and events, including on an annual and an all-time basis).


Comparing the Best Elite Females to Boys and Men:
Personal Bests for 3 Female Gold Medalists versus 2017 Performances by Boys and Men
Males = 8
Males = 616
Males = 5159
Males = 15057
Sanya Richards-Ross 48.70
Allyson Felix 49.26
Christine Ohuruogu 49.41
>20 Males (Seniors)
U20 Males
U18 Males
42
44
46
48
50
Finish Time in Seconds

24. Professor Coleman and her colleague Wicklyffe Shreve also created the table below (last accessed on February 10, 2022, at https://bit.ly/37E1s2X), which "compares the number of men—males over 18—competing in events reported to the International Association of Athletics Federation whose results in each event in 2017 would have ranked them above the very best elite woman that year."

TABLE 2 – World's Best Woman v. Number of Men Outperforming			
Event	Best Women's Result	Best Men's Result	# of Men Outperforming
100 Meters	10.71	9.69	2,474
200 Meters	21.77	19.77	2,920
400 Meters	49.46	43.62	4,341
800 Meters	1:55.16*	1:43.10	3,992+
1500 Meters	3:56.14	3:28.80	3,216+
3000 Meters	8:23.14	7:28.73	1307+
5000 Meters	14:18.37	12:55.23	1,243
High Jump	2.06 meters	2.40 meters	777
Pole Vault	4.91 meters	6.00 meters	684
Long Jump	7.13 meters	8.65 meters	1,652
Triple Jump	14.96 meters	18.11 meters	969

25. The male advantage becomes insuperable well before the developmental changes of puberty are complete. Dr. Hilton documents that even "schoolboys"–defined as age 15 and under–have beaten the female world records in running, jumping, and throwing events. (Hilton 2021 at 204.)

26. Similarly, Coleman and Shreve created the table below (last accessed on February 10, 2022, at https://bit.ly/37E1s2X), which "compares the number of boys—males under the age of 18—whose results in each event in 2017 would rank them above the single very best elite [adult] woman that year:" data were drawn from the International Association of Athletics Federations (IAAF) website

TABLE 1 – World's Best Woman v. Under 18 Boys			
Event	Best Women's Result	Best Boys' Result	# of Boys Outperforming
100 Meters	10.71	10.15	124+
200 Meters	21.77	20.51	182
400 Meters	49.46	45.38	285
800 Meters	1:55.16*	1:46.3	201+
1500 Meters	3:56.14	3:37.43	101+
3000 Meters	8:23.14	7:38.90	30
5000 Meters	14:18.37	12:55.58	15
High Jump	2.06 meters	2.25 meters	28
Pole Vault	4.91 meters	5.31 meters	10
Long Jump	7.13 meters	7.88 meters	74
Triple Jump	14.96 meters	17.30 meters	47

27. In an analysis I have performed of running events (consisting of the 100 m, 200 m, 400 m, 800 m, 1500 m, 5000 m, and 10000 m) in the Division 1, Division 2, and Division 3 NCAA Outdoor track championships for the years of 2010-2019, the average performance across all events of the 1st place man was 14.1% faster than the 1st place woman, with the smallest difference being a 10.2% advantage for men in the Division 1 100 m race. The average 8th place man across all events (the last place to earn the title of All American) was 11.2% faster than 1st place woman, with the smallest difference being a 6.5% advantage for men in the Division 1 100 m race. (Brown et al. Unpublished observations, to be presented at the 2022 Annual Meeting of the American College of Sports Medicine.)

28. Athletic.net® is an internet-based resource providing "results, team, and event management tools to help coaches and athletes thrive." Among the resources available on Athletic.net are event records that can be searched by nationally or by state age group, school grade, and state. Higerd (2021) in an evaluation of high school track running performance records from five states(CA, FL, MN, NY, WA), over three years (2017 – 2019) observed that males were 14.38% faster than females in the 100M (at 99), 16.17% faster in the 200M (at 100), 17.62% faster in the 400M (at 102), 17.96% faster in the 800M (at 103), 17.81% faster in the 1600M (at 105), and 16.83% faster in the 3200M (at 106).

C. Men jump higher and farther.

29. Jumping involves both leg strength and speed as positive factors, with body weight of course a factor working against jump height. Despite their substantially greater body weight, males enjoy an even greater advantage in jumping than in running. Handelsman 2018 at 813, looking at youth and young adults, and Thibault 2010 at 217, looking at Olympic performances, both found male advantages in the range of 15%-20%. See also Tønnessen 2015 (approximately 19%); Handelsman 2017 (19%); Hilton 2021 at 201 (18%). Looking at the vertical jump called for in volleyball, research on elite volleyball players found that males jumped on average 50% higher during an "attack" at the net than did females. (Sattler 2015; see also Hilton 2021 at 203 (33% higher vertical jump).)

30. Higerd (2021) in an evaluation of high school high jump performance available through the track and field database athletic.net®, which included five states (CA, FL, MN, NY, WA), over three years (2017 – 2019) (at 82) observed that in 23,390 females and 26,843 males, females jumped an average of 1.35 m and males jumped an average of 1.62 m, for an 18.18% performance advantage for males (at 96). In an evaluation of long jump performance in 45,705 high school females and 54,506 high school males the females jumped an average of 4.08 m and males jumped an average of 5.20 m, for a 24.14% performance advantage for males (at 97).

31. The combined male advantage of body height and jump height means, for example, that a total of seven women in the WNBA have ever dunked a basketball in the regulation 10 foot hoop,[5] while the ability to dunk appears to be almost universal among NBA players: "Since the 1996–97 season (the earliest data is available from Basketball-Reference.com), 1,801 different [NBA] players have combined for 210,842 regular-season dunks, and 1,259 out of 1,367 players (or 92%) who have played at least 1,000 minutes have dunked at least once."[6]

D. Men throw, hit, and kick faster and farther.

32. Strength, arm-length, and speed combine to give men a large advantage over women in throwing. This has been measured in a number of studies.

33. One study of elite male and female baseball pitchers showed that men throw baseballs 35% faster than women—81 miles/hour for men vs. 60 miles/hour for women. (Chu 2009.) By age 12, "boys' throwing velocity is already between 3.5 and 4 standard deviation units higher than the girls'." (Thomas 1985 at 276.) By age seventeen, the *average* male can throw a ball farther than 99% of seventeen-year-old females. (Lombardo 2018; Chu 2009; Thomas 1985 at 268.) Looking at publicly available data, Hilton & Lundberg found that in both baseball pitching and the field hockey "drag flick," the *record* ball speeds achieved by males are more than 50% higher than those achieved by females. (Hilton 2021 at 202-203.)

34. Men achieve serve speeds in tennis more that 15% faster than women; and likewise in golf achieve ball speeds off the tee more than 15% faster than women. (Hilton 2021 at 202.)

35. More specifically, Marshall and Llewellyn (at 957) reported that female collegiate golfers at an NCAA Division 3 school have an average drive distance that is 46 yards (16.5%) fewer than males, a maximal drive distance of 33.2 yards (11.1%) fewer, an average club head speed that is 21.9 mph (20.4%) slower, and a maximum club head speed that is 18 mph (15.3%) slower. Using 3D motion analysis to evaluate the kinematics of 7 male and 5 female golfers with a mean handicap of 6, Egret (at 463) concluded that "The results of this study show that there is a specific swing for women." Horan used 3D motion analysis to evaluate the kinematics of 19 male and 19 female golfers with a handicap less than or equal to 4 and concluded "the results suggest that male and female skilled golfers have different kinematics for thorax and pelvis motion" and "What might be considered

[5] https://www.espn.com/wnba/story/_/id/32258450/2021-wnba-playoffs-brittney-griner-owns-wnba-dunking-record-coming-more.

[6] https://www.si.com/nba/2021/02/22/nba-non-dunkers-patty-mills-tj-mcconnell-steve-novak-daily-cover

optimal swing characteristics for male golfers should not be generalized to female golfers." (at 1456).

36. Males are able to throw a javelin more than 30% farther than females. (Lombardo 2018 Table 2; Hilton 2021 at 203.)

37. Men serve and spike volleyballs with higher velocity than women, with a performance advantage in the range of 29-34%. (Hilton 2021 at 204 Fig. 1.)

38. Men are also able to kick balls harder and faster. A study comparing collegiate soccer players found that males kick the ball with an average 20% greater velocity than females. (Sakamoto 2014.)

E. Males exhibit faster reaction times.

39. Interestingly, men enjoy an additional advantage over women in reaction time–an attribute not obviously related to strength or metabolism (e.g. $V0_2max$). "Reaction time in sports is crucial in both simple situations such as the gun shot in sprinting and complex situations when a choice is required. In many team sports this is the foundation for tactical advantages which may eventually determine the outcome of a game." (Dogan 2009 at 92.) "Reaction times can be an important determinant of success in the 100m sprint, where medals are often decided by hundredths or even thousandths of a second." (Tønnessen 2013 at 885.)

40. The existence of a sex-linked difference in reaction times is consistent over a wide range of ages and athletic abilities. (Dykiert 2012.) Even by the age of 4 or 5, in a ruler-drop test, males have been shown to exhibit 4% to 6% faster reaction times than females. (Latorre-Roman 2018.) In high school athletes taking a common baseline "ImPACT" test, males showed 3% faster reaction times than females. (Mormile 2018.) Researchers have found a 6% male advantage in reaction times of both first-year medical students (Jain 2015) and world-class sprinters (Tønnessen 2013).

41. Most studies of reaction times use computerized tests which ask participants to hit a button on a keyboard or to say something in response to a stimulus. One study on NCAA athletes measured "reaction time" by a criterion perhaps more closely related to athletic performance–that is, how fast athletes covered 3.3 meters after a starting signal. Males covered the 3.3 meters 10% faster than females in response to a visual stimulus, and 16% faster than females in response to an auditory stimulus. (Spierer 2010.)

42. Researchers have speculated that sex-linked differences in brain structure, as well as estrogen receptors in the brain, may be the source of the observed male advantage in reaction times, but at present this remains a matter of speculation and hypothesis. (Mormile at 19; Spierer at 962.)

III. Men have large measured physiological differences compared to women which demonstrably or likely explain their performance advantages.

43. No single physiological characteristic alone accounts for all or any one of the measured advantages that men enjoy in athletic performance. However, scientists have identified and measured a number of physiological factors that contribute to superior male performance.

A. Men are taller and heavier than women

44. In some sports, such as basketball and volleyball, height itself provides competitive advantage. While some women are taller than some men, based on data from 20 countries in North America, Europe, East Asia, and Australia, the 50th percentile for body height for women is 164.7 cm (5 ft 5 inches) and the 50th percentile for body height for men is 178.4 cm (5 ft 10 inches). Helping to illustrate the inherent height difference between men and women, from the same data analysis, the 95th percentile for body height for women is 178.9 cm (5 feet 10.43 inches), which is only 0.5 cm taller than the 50th percentile for men (178.4 cm; 5 feet 10.24 inches), while the 95th percentile for body height for men is 193.6 cm (6 feet 4.22 inches). (Roser 2013.)

45. To look at a specific athletic population, an evaluation of NCAA Division 1 basketball players compared 68 male guards and 59 male forwards to 105 female guards and 91 female forwards, and found that on average the male guards were 187.4 ± 7.0 cm tall and weighed 85.2 ± 7.4 kg while the female guards were 171.6 ± 5.0 cm tall and weighed 68.0 ± 7.4 kg. The male forwards were 201.7 ± 4.0 cm tall and weighed 105.3 ± 5.9 kg while the female forwards were 183.5 ± 4.4 cm tall and weighed 82.2 ± 12.5 kg. (Fields 2018 at 3.)

B. Males have larger and longer bones, stronger bones, and different bone configuration.

46. Obviously, males on average have longer bones. "Sex differences in height have been the most thoroughly investigated measure of bone size, as adult height is a stable, easily quantified measure in large population samples. Extensive twin studies show that adult height is highly heritable with predominantly additive genetic effects that diverge in a sex-specific manner from the age of puberty onwards." (Handelsman 2018 at 818.) "Pubertal testosterone exposure leads to an ultimate average greater height in men of 12–15 centimeters, larger bones, greater muscle mass, increased strength and higher hemoglobin levels." (Gooren 2011 at 653.)

47. “Men have distinctively greater bone size, strength, and density than do women of the same age. As with muscle, sex differences in bone are absent prior to puberty but then accrue progressively from the onset of male puberty due to the sex difference in exposure to adult male circulating testosterone concentrations.” (Handelsman 2018 at 818.)

48. “[O]n average men are 7% to 8% taller with longer, denser, and stronger bones, whereas women have shorter humerus and femur cross-sectional areas being 65% to 75% and 85%, respectively, those of men.” (Handelsman 2018 at 818.)

49. Greater height, leg, and arm length themselves provide obvious advantages in several sports. But male bone geometry also provides less obvious advantages. “The major effects of men’s larger and stronger bones would be manifest via their taller stature as well as the larger fulcrum with greater leverage for muscular limb power exerted in jumping, throwing, or other explosive power activities.” (Handelsman 2018 at 818.)

50. Male advantage in bone size is not limited to length, as larger bones provide the mechanical framework for larger muscle mass. “From puberty onwards, men have, on average, 10% more bone providing more surface area. The larger surface area of bone accommodates more skeletal muscle so, for example, men have broader shoulders allowing more muscle to build. This translates into 44% less upper body strength for women, providing men an advantage for sports like boxing, weightlifting and skiing. In similar fashion, muscle mass differences lead to decreased trunk and lower body strength by 64% and 72%, respectively in women. These differences in body strength can have a significant impact on athletic performance, and largely underwrite the significant differences in world record times and distances set by men and women.” (Knox 2019 at 397.)

51. Meanwhile, distinctive aspects of the female pelvis geometry cut against athletic performance. “[T]he widening of the female pelvis during puberty, balancing the evolutionary demands of obstetrics and locomotion, retards the improvement in female physical performance.” (Handelsman 2018 at 818.) “[T]he major female hormones, oestrogens, can have effects that disadvantage female athletic performance. For example, women have a wider pelvis changing the hip structure significantly between the sexes. Pelvis shape is established during puberty and is driven by oestrogen. The different angles resulting from the female pelvis leads to decreased joint rotation and muscle recruitment ultimately making them slower.” (Knox 2019 at 397.)

52. There are even sex-based differences in foot size and shape. Wunderlich & Cavanaugh (2001) observed that a “foot length of 257 mm represents a value that is … approximately the 20th percentile men’s foot lengths and the 80th

percentile women's foot lengths." (607) and "For a man and a woman, both with statures of 170 cm (5 feet 7 inches), the man would have a foot that was approximately 5 mm longer and 2 mm wider than the woman." (608). Based on these, and other analyses, they conclude that "female feet and legs are not simply scaled-down versions of male feet but rather differ in a number of shape characteristics, particularly at the arch, the lateral side of the foot, the first toe, and the ball of the foot." (605) Further, Fessler et al. (2005) observed that "female foot length is consistently smaller than male foot length" (44) and concludes that "proportionate foot length is smaller in women" (51) with an overall conclusion that "Our analyses of genetically disparate populations reveal a clear pattern of sexual dimorphism, with women consistently having smaller feet proportionate to stature than men." (53)

53. Beyond simple performance, the greater density and strength of male bones provide higher protection against stresses associated with extreme physical effort: "[S]tress fractures in athletes, mostly involving the legs, are more frequent in females, with the male protection attributable to their larger and thicker bones." (Handelsman 2018 at 818.)

C. Males have much larger muscle mass.

54. A key tenet of exercise science is that having more lean body mass, and thus muscle mass, is advantageous in sports. As stated by the National Strength and Conditioning Association "An increase in lean body mass contributes to strength and power development. … Thus, an increase in lean body mass enables the athlete to generate more force in a specific period of time. A sufficient level of lean body mass also contributes to speed, quickness, and agility performance (in the development of force applied to the ground for maximal acceleration and deceleration)." [7]

55. The fact that, on average, men have substantially larger muscles than women is as well known to common observation as men's greater height. But the male advantage in muscle size has also been extensively measured. The differential is large.

56. "On average, women have 50% to 60% of men's upper arm muscle cross-sectional area and 65% to 70% of men's thigh muscle cross-sectional area, and women have 50% to 60% of men's upper limb strength and 60% to 80% of men's leg strength. Young men have on average a skeletal muscle mass of >12 kg greater

[7] https://www.nsca.com/education/articles/kinetic-select/sport-performance-and-body-composition/

than age-matched women at any given body weight." (Handelsman 2018 at 812. See also Gooren 2011 at 653, Thibault 2010 at 214.)

57. "There is convincing evidence that the sex differences in muscle mass and strength are sufficient to account for the increased strength and aerobic performance of men compared with women and is in keeping with the differences in world records between the sexes." (Handelsman 2018 at 816.)

58. Once again, looking at specific and comparable populations of athletes, an evaluation of NCAA Division 1 basketball players consisting of 68 male guards and 59 male forwards, compared to 105 female guards and 91 female forwards, reported that on average the male guards had 77.7 ± 6.4 kg of fat free mass and 7.4 ± 3.1 kg fat mass while the female guards had 54.6 ± 4.4 kg fat free mass and 13.4 ± 5.4 kg fat mass. The male forwards had 89.5 ± 5.9 kg fat free mass and 15.9 ± 5.6 kg fat mass while the female forwards had 61.8 ± 5.9 kg fat free mass and 20.5 ± 7.7 kg fat mass. (Fields 2018 at 3.)

D. Females have a larger proportion of body fat.

59. While women have smaller muscles, they have proportionately more body fat, in general a negative for athletic performance. "Oestrogens also affect body composition by influencing fat deposition. Women, on average, have higher percentage body fat, and this holds true even for highly trained healthy athletes (men 5%–10%, women 8%–15%). Fat is needed in women for normal reproduction and fertility, but it is not performance-enhancing. This means men with higher muscle mass and less body fat will normally be stronger kilogram for kilogram than women." (Knox 2019 at 397.)

60. "[E]lite females have more (<13 vs. <5 %) body fat than males. Indeed, much of the difference in [maximal oxygen uptake] between males and females disappears when it is expressed relative to lean body mass. . . . Males possess on average 7–9 % less percent body fat than females." (Lepers 2013 at 853.)

61. Knox et al. observe that both female pelvis shape and female body fat levels "disadvantage female athletes in sports in which speed, strength and recovery are important," (Knox 2019 at 397), while Tønnessen et al. describe the "ratio between muscular power and total body mass" as "critical" for athletic performance. (Tønnessen 2015 at 7.)

E. Males are able to metabolize and release energy to muscles at a higher rate due to larger heart and lung size, and higher hemoglobin concentrations.

62. While advantages in bone size, muscle size, and body fat are easily perceived and understood by laymen, scientists also measure and explain the male athletic advantage at a more abstract level through measurements of metabolism, or the ability to deliver energy to muscles throughout the body.

63. Energy release at the muscles depends centrally on the body's ability to deliver oxygen to the muscles, where it is essential to the complex chain of biochemical reactions that make energy available to power muscle fibers. Men have multiple distinctive physiological attributes that together give them a large advantage in oxygen delivery.

64. Oxygen is taken into the blood in the lungs. Men have greater capability to take in oxygen for multiple reasons. "**[L]ung capacity** [is] larger in men because of a lower diaphragm placement due to Y-chromosome genetic determinants." (Knox 2019 at 397.) Supporting larger lung capacity, men have "greater cross-sectional area of the trachea"; that is, they can simply move more air in and out of their lungs in a given time. (Hilton 2021 at 201.)

65. More, male lungs provide superior oxygen exchange even for a given volume: "The greater lung volume is complemented by testosterone-driven **enhanced alveolar multiplication** rate during the early years of life. Oxygen exchange takes place between the air we breathe and the bloodstream at the alveoli, so more alveoli allows more oxygen to pass into the bloodstream. Therefore, the greater lung capacity allows more air to be inhaled with each breath. This is coupled with an improved uptake system allowing men to absorb more oxygen." (Knox 2019 at 397.)

66. "Once in the blood, oxygen is carried by haemoglobin. **Haemoglobin concentrations** are directly modulated by testosterone so men have higher levels and can carry more oxygen than women." (Knox 2019 at 397.) "It is well known that levels of circulating hemoglobin are androgen-dependent and consequently higher in men than in women by 12% on average…. Increasing the amount of hemoglobin in the blood has the biological effect of increasing oxygen transport from lungs to tissues, where the increased availability of oxygen enhances aerobic energy expenditure." (Handelsman 2018 at 816.) (See also Lepers 2013 at 853; Handelsman 2017 at 71.) "It may be estimated that as a result the average maximal oxygen transfer will be ~10% greater in men than in women, which has a direct impact on their respective athletic capacities." (Handelsman 2018 at 816.)

67. But the male metabolic advantage is further multiplied by the fact that men are also able to **circulate more blood per second** than are women.

"Oxygenated blood is pumped to the active skeletal muscle by the heart. The left ventricle chamber of the heart is the reservoir from which blood is pumped to the body. The larger the left ventricle, the more blood it can hold, and therefore, the more blood can be pumped to the body with each heartbeat, a physiological parameter called 'stroke volume'.The female heart size is, on average, 85% that of a male resulting in the stroke volume of women being around 33% less." (Knox 2018 at 397.) Hilton cites different studies that make the same finding, reporting that men on average can pump 30% more blood through their circulatory system per minute ("cardiac output") than can women. (Hilton 2021 at 202.)

68. Finally, at the cell where the energy release is needed, men appear to have yet another advantage. "Additionally, there is experimental evidence that testosterone increases . . . **mitochondrial biogenesis**, myoglobin expression, and IGF-1 content, which may augment energetic and power generation of skeletal muscular activity." (Handelsman 2018 at 811.)

69. "Putting all of this together, men have a much more efficient cardiovascular and respiratory system." (Knox 2019 at 397.) A widely accepted measurement that reflects the combined effects of all these respiratory, cardiovascular, and metabolic advantages is referred to as "$V0_2$max," which refers to the maximum rate at which an individual can consume oxygen during aerobic exercise.[8] Looking at 11 separate studies, including both trained and untrained individuals, Pate et al. concluded that men have a 50% higher $V0_2$max than women on average, and a 25% higher $V0_2$max in relation to body weight. (Pate 1984 at 92. See also Hilton 2021 at 202.)

IV. The role of testosterone in the development of male advantages in athletic performance.

70. The following tables of reference ranges for circulating testosterone in males and females are presented to help provide context for some of the subsequent information regarding athletic performance and physical fitness in children, youth, and adults, and regarding testosterone suppression in transwomen and athletic regulations. These data were obtained from the Mayo Clinic Laboratories (available

[8] $V0_2$max is "based on hemoglobin concentration, total blood volume, maximal stroke volume, cardiac size/mass/compliance, skeletal muscle blood flow, capillary density, and mitochondrial content." International Statement, *The Role of Testosterone in Athletic Performance* (January 2019), available at https://law.duke.edu/sites/default/files/centers/sportslaw/Experts_T_Statement_2019.pdf.

at https://www.mayocliniclabs.com/test-catalog/overview/83686#Clinical-and-Interpretive, accessed January 14, 2022).

Reference ranges for serum testosterone concentrations in males and females.

Age	Males	Females
0 – 5 months	2.6 – 13.9 nmol/l	0.7 – 2.8 nmol/l
6 months – 9 years	0.2 – 0.7 nmol/l	0.2 – 0.7 nmol/l
10 – 11 years	0.2 – 4.5 nmol/l	0.2 – 1.5 nmol/l
12 -13 years	0.2 – 27.7 nmol/l	0.2 – 2.6 nmol/l
14 years	0.2 – 41.6 nmol/l	0.2 – 2.6 nmol/l
15 – 16 years	3.5 – 41.6 nmol/l	0.2 – 2.6 nmol/l
17 – 18 years	10.4 – 41.6 nmol/l	0.7 – 2.6 nmol/l
19 years and older	8.3 – 32.9 nmol/l	0.3 – 2.1 nmol/l

Please note that testosterone concentrations are sometimes expressed in units of ng/dl, and 1 nmol/l = 28.85 ng/dl.

71. Tanner Stages can be used to help evaluate the onset and progression of puberty and may be more helpful in evaluating normal testosterone concentrations than age in adolescents. "Puberty onset (transition from Tanner stage I to Tanner stage II) occurs for boys at a median age of 11.5 years and for girls at a median age of 10.5 years. . . . Progression through Tanner stages is variable. Tanner stage V (young adult) should be reached by age 18." (https://www.mayocliniclabs.com/test-catalog/overview/83686#Clinical-and-Interpretive, accessed January 14, 2022).

Reference Ranges for serum testosterone concentrations by Tanner stage

Tanner Stage	Males	Females
I (prepubertal)	0.2 – 0.7 nmol/l	0.7 – 0.7 nmol/l
II	0.3 – 2.3 nmo/l	0.2 – 1.6 nmol/l
III	0.9 – 27.7 nmol/l	0.6 – 2.6 nmol/l
IV	2.9 – 41.6 nmol/l	0.7 – 2.6 nmol/l
V (young adult)	10.4 – 32.9 nmol/	0.4 – 2.1 nmol/l

72. Senefeld et al. (2020 at 99) state that "Data on testosterone levels in children and adolescents segregated by sex are scarce and based on convenience samples or assays with limited sensitivity and accuracy." They therefore "analyzed the timing of the onset and magnitude of the divergence in testosterone in youths aged 6 to 20 years by sex using a highly accurate assay" (isotope dilution liquid chromatography tandem mass spectrometry). Senefeld observed a significant difference beginning at age 11, which is to say about fifth grade.

Serum testosterone concentrations (nmol/L) in youths aged 6 to 20 years measured using isotope dilution liquid chromatography tandem mass spectrometry (Senefeld et al. ,2020, at 99)

	Boys			Girls		
Age (y)	**5th**	**50th**	**95th**	**5th**	**50th**	**95th**
6	0.0	0.1	0.2	0.0	0.1	0.2
7	0.0	0.1	0.2	0.0	0.1	0.3
8	0.0	0.1	0.3	0.0	0.1	0.3
9	0.0	0.1	0.3	0.1	0.2	0.6
10	0.1	0.2	2.6	0.1	0.3	0.9
11	0.1	0.5	11.3	0.2	0.5	1.3
12	0.3	3.6	17.2	0.2	0.7	1.4
13	0.6	9.2	21.5	0.3	0.8	1.5
14	2.2	11.9	24.2	0.3	0.8	1.6
15	4.9	13.2	25.8	0.4	0.8	1.8
16	5.2	14.9	24.1	0.4	0.9	2.0
17	7.6	15.4	27.0	0.5	1.0	2.0
18	9.2	16.3	25.5	0.4	0.9	2.1
19	8.1	17.2	27.9	0.4	0.9	2.3
20	6.5	17.9	29.9	0.4	1.0	3.4

A. Boys exhibit advantages in athletic performance even before puberty.

73. It is often said or assumed that boys enjoy no significant athletic advantage over girls before puberty. However, this is not true. Writing in their seminal work on the physiology of elite young female athletes, McManus and Armstrong (2011) reviewed the differences between boys and girls regarding bone density, body composition, cardiovascular function, metabolic function, and other physiologic factors that can influence athletic performance. They stated, "At birth, boys tend to have a greater lean mass than girls. This difference remains small but detectable throughout childhood with about a 10% greater lean mass in boys than girls prior to puberty." (28) "Sexual dimorphism underlies much of the physiologic response to exercise," and most importantly these authors concluded that, "Young girl athletes are not simply smaller, less muscular boys." (23)

74. Certainly, boys' physiological and performance advantages increase rapidly from the beginning of puberty until around age 17-19. But much data and multiple studies show that significant physiological differences, and significant male athletic performance advantages in certain areas, exist before significant developmental changes associated with male puberty have occurred.

75. Starting at birth, girls have more body fat and less fat-free mass than boys. Davis et al. (2019) in an evaluation of 602 infants reported that at birth and age 5 months, infant boys have larger total body mass, body length, and fat-free mass while having lower percent body fat than infant girls. In an evaluation of 20 boys and 20 girls ages 3-8 years old, matched for age, height, and body weight Taylor et al. (Taylor 1997) reported that the "boys had significantly less fat, a lower % body fat and a higher bone-free lean tissue mass than the girls" when "expressed as a percentage of the average fat mass of the boys", the girls' fat mass was 52% higher than the boys "…while the bone-free lean tissue mass was 9% lower" (at 1083.) In an evaluation of 376 prepubertal [Tanner Stage 1] boys and girls, Taylor et al. (2010) observed that the boys had 21.6% more lean mass, and 13% less body fat (when expressed as percent of total body mass) than did the girls. In a review of 22 peer reviewed publications on the topic, Staiano and Katzmarzyk (2012) conclude that "… girls have more T[otal]B[ody]F[at] than boys throughout childhood and adolescence." (at 4.)

76. In the seminal textbook, *Growth, Maturation, and Physical Activity*, Malina et al. (2004) present a summary of data from Gauthier et al. (1983) which present data from "a national sample of Canadian children and youth" demonstrating that from ages 7 to 17, boys have a higher aerobic power output than do girls of the same ages when exercise intensity is measured using heart rate (Malina at 242.) That is to say, that at a heart rate of 130 beats per minute, or 150, or 170, a 7 to 17 year old boy should be able to run, bike, or swim faster than a similarly aged girl.

77. Physical fitness is often a prerequisite for successful athletic performance. As stated by the National Strength & Conditioning Association "Sport performance is highly dependent on the health- and skill-related components of fitness (power, speed, agility, reaction time, balance, and Body Composition coordination) in addition to the athlete's technique and level of competency in sport-specific motor skills." [9]

78. Considerable data from school-based fitness testing exists showing that prepubertal boys outperform comparably aged girls in tests of muscular strength, muscular endurance, and running speed. These sex-based differences in physical fitness are relevant to the current issue of sex-based sports categories because, as stated by Lesinski et al. (2020), in an evaluation "of 703 male and female elite young athletes aged 8–18" (1) "fitness development precedes sports specialization" (2) and further observed that "males outperformed females in

[9] https://www.nsca.com/education/articles/kinetic-select/sport-performance-and-body-composition/ Accessed May 9, 2022.

C[ounter]M[ovement]J[ump], D[rop]J[ump], C[hange]o[f]D[irection speed] performances and hand grip strength." (5).

79. Tambalis et al. (2016) states that "based on a large data set comprising 424,328 test performances" (736) using standing long jump to measure lower body explosive power, sit and reach to measure flexibility, timed 30 second sit ups to measure abdominal and hip flexor muscle endurance, 10 x 5 meter shuttle run to evaluate speed and agility, and multi-stage 20 meter shuttle run test to estimate aerobic performance (738). "For each of the fitness tests, performance was better in boys compared with girls ($p < 0.001$), except for the S[it and] R[each] test ($p < 0.001$)." (739) In order to illustrate that the findings of Tambalis (2016) are not unique to children in Greece, the authors state "Our findings are in accordance with recent studies from Latvia [ ] Portugal [ ] and Australia [Catley & Tomkinson (2013)]."(744).

80. The 20-m multistage fitness test is a commonly used maximal running aerobic fitness test used in the Eurofit Physical Fitness Test Battery and the FitnessGram Physical Fitness test. It is also known as the 20-meter shuttle run test, PACER test, or beep test (among other names; this is not the same test as the shuttle run in the Presidential Fitness Test). This test involves continuous running between two lines 20 meters apart in time to recorded beeps. The participants stand behind one of the lines facing the second line and begin running when instructed by the recording. The speed at the start is quite slow. The subject continues running between the two lines, turning when signaled by the recorded beeps. After about one minute, a sound indicates an increase in speed, and the beeps will be closer together. This continues each minute (level). If the line is reached before the beep sounds, the subject must wait until the beep sounds before continuing. If the line is not reached before the beep sounds, the subject is given a warning and must continue to run to the line, then turn and try to catch up with the pace within two more 'beeps'. The subject is given a warning the first time they fail to reach the line (within 2 meters) and eliminated after the second warning.

81. To illustrate the sex-based performance differences observed by Tambalis, I have prepared the following table showing the number of laps completed in the 20 m shuttle run for children ages 6-18 years for the low, middle, and top decile (Tambalis 2016 at 740 & 742), and have calculated the percent difference between the boys and girls using the same equation as Millard-Stafford (2018).

Performance difference between boys and girls ÷ Girls performance

Number of laps completed in the 20m shuttle run for children ages 6-18 years

	Male			Female			Male-Female % Difference		
Age	**10th %ile**	**50th %ile**	**90th %ile**	**10th %ile**	**50th %ile**	**90th %ile**	**10th %ile**	**50th %ile**	**90th %ile**
6	4	14	31	4.0	12.0	26.0	0.0%	16.7%	19.2%
7	8	18	38	8.0	15.0	29.0	0.0%	20.0%	31.0%
8	9	23	47	9.0	18.0	34.0	0.0%	27.8%	38.2%
9	11	28	53	10.0	20.0	40.0	10.0%	40.0%	32.5%
10	12	31	58	11.0	23.0	43.0	9.1%	34.8%	34.9%
11	15	36	64	12.0	26.0	48.0	25.0%	38.5%	33.3%
12	15	39	69	12.0	26.0	49.0	25.0%	50.0%	40.8%
13	16	44	76	12.0	26.0	50.0	33.3%	69.2%	52.0%
14	19	50	85	12.0	26.0	50.0	58.3%	92.3%	70.0%
15	20	53	90	12.0	25.0	47.0	66.7%	112.0%	91.5%
16	20	54	90	11.0	24.0	45.0	81.8%	125.0%	100.0%
17	18	50	86	10.0	23.0	50.0	80.0%	117.4%	72.0%
18	13	48	87	8.0	23.0	39.5	62.5%	108.7%	120.3%

82. The Presidential Fitness Test was widely used in schools in the United States from the late 1950s until 2013 (when it was phased out in favor of the Presidential Youth Fitness Program and FitnessGram, both of which focus on health-related physical fitness and do not present data in percentiles). Students participating in the Presidential Fitness Test could receive "The National Physical Fitness Award" for performance equal to the 50th percentile in five areas of the fitness test, "while performance equal to the 85th percentile could receive the Presidential Physical Fitness Award." Tables presenting the 50th and 85th percentiles for the Presidential Fitness Test for males and females ages 6 – 17, and differences in performance between males and females, for curl-ups, shuttle run, 1 mile run, push-ups, and pull-ups appear in the Appendix.

83. For both the 50th percentile (The National Physical Fitness Award) and the 85th percentile (Presidential Physical Fitness Award), with the exception of curl-ups in 6-year-old children, boys outperform girls. The difference in pull-ups for the 85th percentile for ages 7 through 17 are particularly informative with boys outperforming girls by 100% – 1200%, highlighting the advantages in upper body strength in males.

84. A very recent literature review commissioned by the five United Kingdom governmental Sport Councils concluded that while "[i]t is often assumed that children have similar physical capacity regardless of their sex, . . . large-scale data reports on children from the age of six show that young males have significant advantage in cardiovascular endurance, muscular strength, muscular endurance,

speed/agility and power tests," although they "score lower on flexibility tests." (UK Sports Councils' Literature Review 2021 at 3.)

85. Hilton et al., also writing in 2021, reached the same conclusion: "An extensive review of fitness data from over 85,000 Australian children aged 9–17 years old showed that, compared with 9-year-old females, 9-year-old males were faster over short sprints (9.8%) and 1 mile (16.6%), could jump 9.5% further from a standing start (a test of explosive power), could complete 33% more push-ups in 30 [seconds] and had 13.8% stronger grip." (Hilton 2021 at 201, summarizing the findings of Catley & Tomkinson 2013.)

86. The following data are taken from Catley & Tomkinson (2013 at 101) showing the low, middle, and top decile for 1.6 km run (1.0 mile) run time for 11,423 girls and boys ages 9-17.

1.6 km run (1.0 mile) run time for 11,423 girls and boys ages 9-17

	Male			Female			Male-Female % Difference		
Age	10th %ile	50th %ile	90th %ile	10th %ile	50th %ile	90th %ile	10th %ile	50th %ile	90th %ile
9	684	522	423	769.0	609.0	499.0	11.1%	14.3%	15.2%
10	666	511	420	759.0	600.0	494.0	12.3%	14.8%	15.0%
11	646	500	416	741.0	586.0	483.0	12.8%	14.7%	13.9%
12	621	485	408	726.0	575.0	474.0	14.5%	15.7%	13.9%
13	587	465	395	716.0	569.0	469.0	18.0%	18.3%	15.8%
14	556	446	382	711.0	567.0	468.0	21.8%	21.3%	18.4%
15	531	432	373	710.0	570.0	469.0	25.2%	24.2%	20.5%
16	514	423	366	710.0	573.0	471.0	27.6%	26.2%	22.3%
17	500	417	362	708.0	575.0	471.0	29.4%	27.5%	23.1%

87. Tomkinson et al. (2018) performed a similarly extensive analysis of literally millions of measurements of a variety of strength and agility metrics from the "Eurofit" test battery on children from 30 European countries. They provide detailed results for each metric, broken out by decile. Sampling the low, middle, and top decile, 9-year-old boys performed better than 9-year-old girls by between 6.5% and 9.7% in the standing broad jump; from 11.4% to 16.1% better in handgrip; and from 45.5% to 49.7% better in the "bent-arm hang." (Tomkinson 2018.)

88. The Bent Arm Hang test is a measure of upper body muscular strength and endurance used in the Eurofit Physical Fitness Test Battery. To perform the Bent Arm Hang, the child is assisted into position with the body lifted to a height so that the chin is level with the horizontal bar (like a pull up bar). The bar is grasped with the palms facing away from body and the hands shoulder width apart. The timing starts when the child is released. The child then attempts to hold this position for as long as possible. Timing stops when the child's chin falls below the

level of the bar, or the head is tilted backward to enable the chin to stay level with the bar.

89. Using data from Tomkinson (2018; table 7 at 1452), the following table sampling the low, middle, and top decile for bent arm hang for 9- to 17-year-old children can be constructed:

Bent Arm Hang time (in seconds) for children ages 9 - 17 years

	Male			Female			Male-Female % Difference		
Age	**10th %ile**	**50th %ile**	**90th %ile**	**10th %ile**	**50th %ile**	**90th %ile**	**10th %ile**	**50th %ile**	**90th %ile**
9	2.13	7.48	25.36	1.43	5.14	16.94	48.95%	45.53%	49.70%
10	2.25	7.92	26.62	1.42	5.15	17.06	58.45%	53.79%	56.04%
11	2.35	8.32	27.73	1.42	5.16	17.18	65.49%	61.24%	61.41%
12	2.48	8.79	28.99	1.41	5.17	17.22	75.89%	70.02%	68.35%
13	2.77	9.81	31.57	1.41	5.18	17.33	96.45%	89.38%	82.17%
14	3.67	12.70	38.39	1.40	5.23	17.83	162.14%	142.83%	115.31%
15	5.40	17.43	47.44	1.38	5.35	18.80	291.30%	225.79%	152.34%
16	7.39	21.75	53.13	1.38	5.63	20.57	435.51%	286.32%	158.29%
17	9.03	24.46	54.66	1.43	6.16	23.61	531.47%	297.08%	131.51%

90. Evaluating these data, a 9-year-old boy in the 50th percentile (that is to say a 9-year-old boy of average upper body muscular strength and endurance) will perform better in the bent arm hang test than 9 through 17-year-old girls in the 50th percentile. Similarly, a 9-year-old boy in the 90th percentile will perform better in the bent arm hang test than 9 through 17-year-old girls in the 90th percentile.

91. Using data from Tomkinson et al. (2017; table 1 at 1549), the following table sampling the low, middle, and top decile for running speed in the last stage of the 20 m shuttle run for 9- to 17-year-old children can be constructed.

20 m shuttle Running speed (km/h at the last completed stage)

	Male			Female			Male-Female % Difference		
Age	**10th %ile**	**50th %ile**	**90th %ile**	**10th %ile**	**50th %ile**	**90th %ile**	**10th %ile**	**50th %ile**	**90th %ile**
9	8.94	10.03	11.13	8.82	9.72	10.61	1.36%	3.19%	4.90%
10	8.95	10.13	11.31	8.76	9.75	10.74	2.17%	3.90%	5.31%
11	8.97	10.25	11.53	8.72	9.78	10.85	2.87%	4.81%	6.27%
12	9.05	10.47	11.89	8.69	9.83	10.95	4.14%	6.51%	8.58%
13	9.18	10.73	12.29	8.69	9.86	11.03	5.64%	8.82%	11.42%
14	9.32	10.96	12.61	8.70	9.89	11.07	7.13%	10.82%	13.91%
15	9.42	11.13	12.84	8.70	9.91	11.11	8.28%	12.31%	15.57%
16	9.51	11.27	13.03	8.71	9.93	11.14	9.18%	13.49%	16.97%
17	9.60	11.41	13.23	8.72	9.96	11.09	10.09%	14.56%	19.30%

92. Evaluating these data, a 9-year-old boy in the 50th percentile (that is to say a 9-year-old boy of average running speed) will run faster in the final stage of the 20 m shuttle run than 9 through 17-year-old girls in the 50th percentile. Similarly, a 9-year-old boy in the 90th percentile will run faster in the final stage of the 20-m shuttle run than 9 through 15, and 17-year-old girls in the 90th percentile and will be 0.01 km/h (0.01%) slower than 16-year-old girls in the 90th percentile.

93. Just using these two examples for bent arm hang and 20-m shuttle running speed (Tomkinson 2107, Tomkinson 2018) based on large sample sizes (thus having tremendous statistical power) it becomes apparent that a 9-year-old boy will be very likely to outperform similarly trained girls of his own age and older in athletic events involving upper body muscle strength and/or running speed.

94. Another report published in 2014 analyzed physical fitness measurements of 10,302 children aged 6 -10.9 years of age, from the European countries of Sweden, Germany, Hungary, Italy, Cyprus, Spain, Belgium, and Estonia. (De Miguel-Etayo et al. 2014.) The authors observed "… that boys performed better than girls in speed, lower- and upper-limb strength and cardiorespiratory fitness." (57) The data showed that for children of comparable fitness (i.e. 99th percentile boys vs. 99th percentile girls, 50th percentile boys vs. 50th percentile girls, etc.) the boys outperform the girls at every age in measurements of handgrip strength, standing long jump, 20-m shuttle run, and predicted VO_2max (pages 63 and 64, respectively). For clarification, VO_2max is the maximal oxygen consumption, which correlates to 30-40% of success in endurance sports.

95. The standing long jump, also called the Broad Jump, is a common and easy to administer test of explosive leg power used in the Eurofit Physical Fitness Test Battery and in the NFL Combine. In the standing long jump, the participant stands behind a line marked on the ground with feet slightly apart. A two-foot take-off and landing is used, with swinging of the arms and bending of the knees to

provide forward drive. The participant attempts to jump as far as possible, landing on both feet without falling backwards. The measurement is taken from takeoff line to the nearest point of contact on the landing (back of the heels) with the best of three attempts being scored.

96. Using data from De Miguel-Etayo et al. (2014, table 3 at 61), which analyzed physical fitness measurements of 10,302 children aged 6 -10.9 years of age, from the European countries of Sweden, Germany, Hungary, Italy, Cyprus, Spain, Belgium, and Estonia, the following table sampling the low, middle, and top decile for standing long jump for 6- to 9-year-old children can be constructed:

Standing Broad Jump (cm) for children ages 6-9 years

	Male			Female			Male-Female % Difference		
Age	10th %ile	50th %ile	90th %ile	10th %ile	50th %ile	90th %ile	10th %ile	50th %ile	90th %ile
6-<6.5	77.3	103.0	125.3	69.1	93.8	116.7	11.9%	9.8%	7.4%
6.5-<7	82.1	108.0	130.7	73.6	98.7	121.9	11.5%	9.4%	7.2%
7-<7.5	86.8	113.1	136.2	78.2	103.5	127.0	11.0%	9.3%	7.2%
7.5-<8	91.7	118.2	141.6	82.8	108.3	132.1	10.7%	9.1%	7.2%
8-<8.5	96.5	123.3	146.9	87.5	113.1	137.1	10.3%	9.0%	7.1%
8.5-<9	101.5	128.3	152.2	92.3	118.0	142.1	10.0%	8.7%	7.1%

97. Another study of Eurofit results for over 400,000 Greek children reported similar results. "[C]ompared with 6-year-old females, 6-year-old males completed 16.6% more shuttle runs in a given time and could jump 9.7% further from a standing position." (Hilton 2021 at 201, summarizing findings of Tambalis et al. 2016.)

98. Silverman (2011) gathered hand grip data, broken out by age and sex, from a number of studies. Looking only at the nine direct comparisons within individual studies tabulated by Silverman for children aged 7 or younger, in eight of these the boys had strength advantages of between 13 and 28 percent, with the remaining outlier recording only a 4% advantage for 7-year-old boys. (Silverman 2011 Table 1.)

99. To help illustrate the importance of one specific measure of physical fitness in athletic performance, Pocek (2021) stated that to be successful, volleyball "players should distinguish themselves, besides in skill level, in terms of above-average body height, upper and lower muscular power, speed, and agility. Vertical jump is a fundamental part of the spike, block, and serve." (8377) Pocek further stated that "relative vertical jumping ability is of great importance in volleyball regardless of the players' position, while absolute vertical jump values can differentiate players not only in terms of player position and performance level but in their career trajectories." (8382)

100. Using data from Ramírez-Vélez (2017; table 2 at 994) which analyzed vertical jump measurements of 7,614 healthy Colombian schoolchildren aged 9 -17.9 years of age the following table sampling the low, middle, and top decile for vertical jump can be constructed:

Vertical Jump Height (cm) for children ages 9 - 17 years

	Male			Female			Male-Female % Difference		
Age	10th %ile	50th %ile	90th %ile	10th %ile	50th %ile	90th %ile	10th %ile	50th %ile	90th %ile
9	18.0	24.0	29.5	16.0	22.3	29.0	12.5%	7.6%	1.7%
10	19.5	25.0	32.0	18.0	24.0	29.5	8.3%	4.2%	8.5%
11	21.0	27.0	32.5	19.5	25.0	31.0	7.7%	8.0%	4.8%
12	22.0	27.5	34.5	20.0	25.5	31.5	10.0%	7.8%	9.5%
13	23.0	30.5	39.0	19.0	25.5	32.0	21.1%	19.6%	21.9%
14	23.5	32.0	41.5	20.0	25.5	32.5	17.5%	25.5%	27.7%
15	26.0	35.5	43.0	20.2	26.0	32.5	28.7%	36.5%	32.3%
16	28.0	36.5	45.1	20.5	26.5	33.0	36.6%	37.7%	36.7%
17	28.0	38.0	47.0	21.5	27.0	35.0	30.2%	40.7%	34.3%

101. Similarly, using data from Taylor (2010; table 2, at 869) which analyzed vertical jump measurements of 1,845 children aged 10 -15 years in primary and secondary schools in the East of England, the following table sampling the low, middle, and top decile for vertical jump can be constructed:

Vertical Jump Height (cm) for children 10 -15 years

	Male			Female			Male-Female % Difference		
Age	10th %ile	50th %ile	90th %ile	10th %ile	50th %ile	90th %ile	10th %ile	50th %ile	90th %ile
10	16.00	21.00	29.00	15.00	22.00	27.00	6.7%	-4.5%	7.4%
11	20.00	27.00	34.00	19.00	25.00	32.00	5.3%	8.0%	6.3%
12	23.00	30.00	37.00	21.00	27.00	33.00	9.5%	11.1%	12.1%
13	23.00	32.00	40.00	21.00	26.00	34.00	9.5%	23.1%	17.6%
14	26.00	36.00	44.00	21.00	28.00	34.00	23.8%	28.6%	29.4%
15	29.00	37.00	44.00	21.00	28.00	39.00	38.1%	32.1%	12.8%

102. As can be seen from the data from Ramírez-Vélez (2017) and Taylor (2010), males consistently outperform females of the same age and percentile in vertical jump height. Both sets of data show that an 11-year-old boy in the 90th percentile for vertical jump height will outperform girls in the 90th percentile at ages 11 and 12, and will be equal to girls at ages 13, 14, and possibly 15. These data indicate that an 11-year-old would be likely to have an advantage over girls of the same age and older in sports such as volleyball where “absolute vertical jump

values can differentiate players not only in terms of player position and performance level but in their career trajectories." (Pocek 2021 at 8382.)

103. Boys also enjoy an advantage in throwing well before puberty. "Boys exceed girls in throwing velocity by 1.5 standard deviation units as early as 4 to 7 years of age. . . The boys exceed the girls [in throwing distance] by 1.5 standard deviation units as early as 2 to 4 years of age." (Thomas 1985 at 266.) This means that the average 4- to 7-year-old boy can out-throw approximately 87% of all girls of his age.

104. Record data from USA Track & Field indicate that boys outperform girls in track events even in the youngest age group for whom records are kept (age 8 and under).[10]

American Youth Outdoor Track & Field Record times in age groups 8 and under (time in seconds)

Event	**Boys**	**Girls**	**Difference**
100M	13.65	13.78	0.95%
200M	27.32	28.21	3.26%
400M	62.48	66.10	5.79%
800M	148.59	158.11	6.41%
1500M	308.52	314.72	2.01%
Mean			3.68%

105. Looking at the best times within a single year shows a similar pattern of consistent advantage for even young boys. I consider the 2018 USATF Region 8 Junior Olympic Championships for the youngest age group (8 and under).[11]

2018 USATF Region 8 Junior Olympic Championships for the 8 and under age group

Event	**Boys**	**Girls**	**Difference**
100M	15.11	15.64	3.51%
200M	30.79	33.58	9.06%
400M	71.12	77.32	8.72%
800M	174.28	180.48	3.56%
1500M	351.43	382.47	8.83%
Mean			6.74%

[10] http://legacy.usatf.org/statistics/records/view.asp?division=american&location=outdoor%20track%20%26%20field&age=youth&sport=TF

[11] https://www.athletic.net/TrackAndField/meet/384619/results/m/1/100m

[9] https://www.athletic.net/CrossCountry/Division/List.aspx?DivID=62211

106. Using Athletic.net[9], for 2021 Cross Country and Track & Field data for boys and girls in the 7-8, 9-10, and 11-12 year old age group club reports, and for 5th, 6th, and 7th grade for the whole United States I have compiled the tables for 3000 m events, and for the 100-m, 200-m, 400-m, 800-m, 1600-m, 3000-m, long jump, and high jump Track and Field data to illustrate the differences in individual athletic performance between boys and girls, all of which appear in the Appendix. The pattern of males outperforming females was consistent across events, with rare anomalies, only varying in the magnitude of difference between males and females.

107. Similarly, using Athletic.net, for 2021 Track & Field data for boys and girls in the 6th grade for the state of Tennessee, I have compiled the following tables comparing the performance of boys and girls for the 100-m, 200-m, 400-m, 800-m, and 1600-m running events in which the 1st place boy was consistently faster than the 1st place girl, and the average performance of the top 10 boys was consistently faster than the average performance for the top 10 girls (there were no data for 3200-m for this age group for the state of Tennessee). Based on the finishing times for the 1st place boy and girl in the 6th grade in Tennessee 1600-m race, and extrapolating the running time to a running pace, the 1st place boy would be expected to finish 102-m in front of the 1st place girl, which is roughly 1/4 of a lap on a standard 400-m track, or slightly more than the length of a football field. In comparison, the 1st place boy would finish 15 m in front of the 2nd place boy, and the 1st place girl would finish 12 m in front of the 2nd place girl.

Top 10 Tennessee boys and girls 6th grade outdoor track for 2021 (time in seconds)

	100 m			**200 m**			**400 m**		
	Boys	**Girls**		**Boys**	**Girls**		**Boys**	**Girls**	
1	11.82	13.13	Difference	23.94	26.91	Difference	59.16	63.54	Difference
2	12.54	13.62	between #1	27.04	27.89	between #1	62.25	64.03	between #1
3	12.84	13.64	boy and # 1	27.44	28.64	boy and # 1	63.14	64.64	boy and # 1
4	13.14	13.74	girl	27.94	28.71	girl	64.00	65.51	girl
5	13.32	13.77	10.0%	28.49	29.56	11.0%	64.28	66.81	6.9%
6	13.44	14.34		28.53	29.83		65.65	67.66	
7	13.52	14.44	Average	28.54	29.84	Average	66.83	68.60	Average
8	13.54	14.46	difference boys vs	28.80	29.84	difference boys vs	67.67	68.65	difference boys vs
9	13.54	14.60	girls	28.98	29.92	girls	68.22	68.85	girls
10	13.56	14.69	6.5%	29.02	30.66	4.5%	69.02	69.74	2.7%

	800 m			**1600 m**		
	Boys	**Girls**		**Boys**	**Girls**	
1	144.7	146.4	Difference	310.7	330.5	Difference
2	145.0	154.7	between #1	313.7	333.2	between #1
3	145.2	156.1	boy and # 1	314.2	338.5	boy and # 1
4	148.2	157.0	girl	324.0	341.2	girl
5	152.3	157.0	1.1%	330.5	346.1	6.0%
6	153.6	157.5		332.4	351.7	
7	154.1	161.0	Average	337.5	352.9	Average
8	158.0	161.0	difference boys vs	348.1	352.9	difference boys vs
9	158.6	163.5	girls	348.5	353.9	girls
10	158.8	164.2	3.8%	356.8	359.7	4.2%

108. As serious runners will recognize, differences of 3%, 5%, or 8% are not easily overcome. During track competition the difference between first and second place, or second and third place, or third and fourth place (and so on) is often 0.5 - 0.7%, with some contests being determined by as little as 0.01%.

109. I performed an analysis of running events (consisting of the 100-m, 200-m, 400-m, 800-m, 1500-m, 5000-m, and 10,000-m) in the Division 1, Division 2, and Division 3 NCAA Outdoor championships for the years of 2010-2019: the mean difference between 1st and 2nd place was 0.48% for men and 0.86% for women. The mean difference between 2nd and 3rd place was 0.46% for men and 0.57% for women. The mean difference between 3rd place and 4th place was 0.31% for men and 0.44% for women. The mean difference between 1st place and 8th place (the last place to earn the title of All American) was 2.65% for men and 3.77% for women. (Brown et al. Unpublished observations, to be presented at the 2022 Annual Meeting of the American College of Sports Medicine.)

110. A common response to empirical data showing pre-pubertal performance advantages in boys is the argument that the performance of boys may represent a social–cultural bias for boys to be more physically active, rather than representing inherent sex-based differences in pre-pubertal physical fitness. However, the younger the age at which such differences are observed, and the more egalitarian the culture within which they are observed, the less plausible this hypothesis becomes. Eiberg et al. (2005) measured body composition, VO_2max, and physical activity in 366 Danish boys and 332 Danish girls between the ages of 6 and 7 years old. Their observations indicated that VO_2max was 11% higher in boys than girls. When expressed relative to body mass the boys' VO_2max was still 8% higher than the girls. The authors stated that "…no differences in haemoglobin or sex hormones[12] have been reported in this age group," yet "… when children with the same VO_2max were compared, boys were still more active, and in boys and girls with the same P[hysical] A[ctivity] level, boys were fitter." (728). These data indicate that in pre-pubertal children, in a very egalitarian culture regarding gender roles and gender norms, boys still have a measurable advantage in regards to aerobic fitness when known physiological and physical activity differences are accounted for.

111. And, as I have mentioned above, even by the age of 4 or 5, in a ruler-drop test, boys exhibit 4% to 6% faster reaction times than girls. (Latorre-Roman 2018.)

112. When looking at the data on testosterone concentrations previously presented, along with the data on physical fitness and athletic performance presented, boys have advantages in athletic performance and physical fitness before there are marked differences in testosterone concentrations between boys and girls.

113. For the most part, the data I review above relate to pre-pubertal children. Today, we also face the question of inclusion in female athletics of males who have undergone "puberty suppression." The UK Sport Councils Literature Review notes that, "In the UK, so-called 'puberty blockers' are generally not used until Tanner maturation stage 2-3 (i.e. after puberty has progressed into early sexual maturation)." (9) For clarification, puberty blockers are more correctly known as gonadotropin-releasing hormone (GnRH) agonists, or GnRH analogues, which prevent the pituitary gland from producing gonadotropins, which in turn prevents the gonads from producing estrogen (in the case of ovaries) or testosterone (in the case of testes) [13]. While it is outside my expertise, my understanding is that current practice with regard to administration of puberty blockers is similar in the

[12] This term would include testosterone and estrogens.

[13] https://www.mayoclinic.org/diseases-conditions/gender-dysphoria/in-depth/pubertal-blockers/art-20459075

Unites States. Tanner stages 2 and 3 generally encompass an age range from 10 to 14 years old, with significant differences between individuals. Like the authors of the UK Sports Council Literature Review, I am "not aware of research" directly addressing the implications for athletic capability of the use of puberty blockers. (UK Sport Councils Literature Review at 9.) As Handelsman documents, the male advantage begins to increase rapidly–along with testosterone levels–at about age 11, or "very closely aligned to the timing of the onset of male puberty." (Handelsman 2017.) It seems likely that males who have undergone puberty suppression will have physiological and performance advantages over females somewhere between those possessed by pre-pubertal boys, and those who have gone through full male puberty, with the degree of advantage in individual cases depending on that individual's development and the timing of the start of puberty blockade.

114. Klaver et al. (2018 at 256) demonstrated that the use of puberty blockers did not eliminate the differences in lean body mass between biological male and female teenagers. Subsequent use of puberty blockers combined with cross-sex hormone use (in the same subjects) still did not eliminate the differences in lean body mass between biological male and female teenagers. Furthermore, by 22 years of age, the use of puberty blockers, and then puberty blockers combined with cross sex hormones, and then cross hormone therapy alone for over 8 total years of treatment still had not eliminated the difference in lean body mass between biological males and females.

115. The effects of puberty blockers on growth and development, including muscle mass, fat mass, or other factors that influence athletic performance, have been minimally researched. Indeed, Klaver et al. (2018) is the only published research that I am aware of that has evaluated the use of puberty blockers on body composition. As stated by Roberts and Carswell (2021), "No published studies have fully characterized the impact of [puberty blockers on] final adult height or current height in an actively growing TGD youth." (1680). Likewise, "[n]o published literature provides guidance on how to best predict the final adult height for TGD youth receiving GnRHa and gender- affirming hormonal treatment." (1681). Thus, the effect of prescribing puberty blockers to a male child before the onset of puberty on the physical components of athletic performance is largely unknown. There is not any scientific evidence that such treatment eliminates the pre-existing performance advantages that prepubertal males have over prepubertal females.

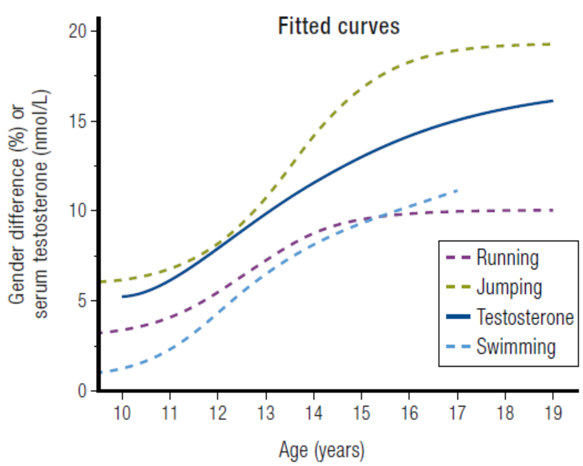
116. Tack et al. (2018) observed that in 21 transgender-identifying biological males, administration of antiandrogens for 5-31 months (commencing at 16.3 ± 1.21 years of age), resulted in nearly, but not completely, halting of normal age-related *increases* in muscle strength. Importantly, muscle strength did not decrease after administration of antiandrogens. Rather, despite antiandrogens, these individuals retained higher muscle mass, lower percent body fat, higher body

mass, higher body height, and higher grip strength than comparable girls of the same age. (Supplemental tables).

B. The rapid increase in testosterone across male puberty drives characteristic male physiological changes and the increasing performance advantages.

117. While boys exhibit some performance advantage even before puberty, it is both true and well known to common experience that the male advantage increases rapidly, and becomes much larger, as boys undergo puberty and become men. Empirically, this can be seen by contrasting the modest advantages reviewed immediately above against the large performance advantages enjoyed by men that I have detailed in Section II.

118. Multiple studies (along with common observation) document that the male performance advantage begins to increase during the early years of puberty, and then increases rapidly across the middle years of puberty (about ages 12-16). (Tønnessen 2015; Handelsman 2018 at 812-813.) Since it is well known that testosterone levels increase by more than an order of magnitude in boys across puberty, it is unsurprising that Handelsman finds that these increases in male performance advantage correlate to increasing testosterone levels, as presented in his chart reproduced below. (Handelsman 2018 at 812-13.)



119. Handelsman further finds that certain characteristic male changes including boys' increase in muscle mass do not begin at all until "circulating testosterone concentrations rise into the range of males at mid-puberty, which are higher than in women at any age." (Handelsman 2018 at 810.)

120. Knox et al. (2019) agree that "[i]t is well recognised that testosterone contributes to physiological factors including body composition, skeletal structure,

and the cardiovascular and respiratory systems across the life span, with significant influence during the pubertal period. These physiological factors underpin strength, speed, and recovery with all three elements required to be competitive in almost all sports." (Knox 2019 at 397.) "High testosterone levels and prior male physiology provide an all-purpose benefit, and a substantial advantage. As the IAAF says, 'To the best of our knowledge, there is no other genetic or biological trait encountered in female athletics that confers such a huge performance advantage.'" (Knox 2019 at 399.)

121. However, the undisputed fact that high (that is, normal male) levels of testosterone drive the characteristically male physiological changes that occur across male puberty does not at all imply that artificially *depressing* testosterone levels after those changes occur will reverse all or most of those changes so as to eliminate the male athletic advantage. This is an empirical question. As it turns out, the answer is that while some normal male characteristics can be changed by means of testosterone suppression, others cannot be, and all the reliable evidence indicates that males retain large athletic advantages even after long-term testosterone suppression.

V. The available evidence shows that suppression of testosterone in a male after puberty has occurred does <u>not</u> substantially eliminate the male athletic advantage.

122. The 2011 "NCAA Policy on Transgender Student-Athlete Participation" requires only that males who identify as transgender be on unspecified and unquantified "testosterone suppression treatment" for "one calendar year" prior to competing in women's events. In supposed justification of this policy, the NCAA's Office of Inclusion asserts that, "It is also important to know that any strength and endurance advantages a transgender woman arguably may have as a result of her prior testosterone levels dissipate after about one year of estrogen or testosterone-suppression therapy." (NCAA 2011 at 8.)

123. Similarly, writing in 2018, Handelsman et al. could speculate that even though some male advantages established during puberty are "fixed and irreversible (bone size)," "[t]he limited available prospective evidence . . . suggests that the advantageous increases in muscle and hemoglobin due to male circulating testosterone concentrations are induced or reversed during the first 12 months." (Handelsman 2018 at 824.)

124. But these assertions or hypotheses of the NCAA and Handelsman are now strongly contradicted by the available science. In this section, I examine what is known about whether suppression of testosterone in males can eliminate the male physiological and performance advantages over females.

A. Empirical studies find that males retain a strong performance advantage even after lengthy testosterone suppression.

125. As my review in Section II indicates, a very large body of literature documents the large performance advantage enjoyed by males across a wide range of athletics. To date, only a limited number of studies have directly measured the effect of testosterone suppression and the administration of female hormones on the athletic performance of males. These studies report that testosterone suppression for a full year (and in some cases much longer) does not come close to eliminating male advantage in strength (hand grip, leg strength, and arm strength) or running speed.

Hand Grip Strength

126. As I have noted, hand grip strength is a well-accepted proxy for general strength. Multiple separate studies, from separate groups, report that males retain a large advantage in hand strength even after testosterone suppression to female levels.

127. In a longitudinal study, Van Caenegem et al. reported that males who underwent standard testosterone suppression protocols lost only 7% hand strength after 12 months of treatment, and only a cumulative 9% after two years. (Van Caenegem 2015 at 42.) As I note above, on average men exhibit in the neighborhood of 60% greater hand grip strength than women, so these small decreases do not remotely eliminate that advantage. Van Caenegem et al. document that their sample of males who elected testosterone suppression began with less strength than a control male population. Nevertheless, after one year of suppression, their study population still had hand grip only 21% less than the control male population, and thus still far higher than a female population. (Van Caenegem 2015 at 42.)

128. Scharff et al. (2019) measured grip strength in a large cohort of male-to-female subjects from before the start of hormone therapy through one year of hormone therapy. The hormone therapy included suppression of testosterone to less than 2 nml/L "in the majority of the transwomen," (1024), as well as administration of estradiol (1021). These researchers observed a small decrease in grip strength in these subjects over that time (Fig. 2), but mean grip strength of this group remained far higher than mean grip strength of females—specifically, "After 12 months, the median grip strength of transwomen [male-to-female subjects] still falls in the 95th percentile for age-matched females." (1026).

129. Still a third longitudinal study, looking at teen males undergoing testosterone suppression, "noted no change in grip strength after hormonal treatment (average duration 11 months) of 21 transgender girls." (Hilton 2021 at 207, summarizing Tack 2018.)

130. In a fourth study, Lapauw et al. (2008) looked at the extreme case of testosterone suppression by studying a population of 23 biologically male individuals who had undergone at least two years of testosterone suppression, followed by sex reassignment surgery that included "orchidectomy" (that is, surgical castration), and then at least an additional three years before the study date. Comparing this group against a control of age- and height-matched healthy males, the researchers found that the individuals who had gone through testosterone suppression and then surgical castration had an average hand grip (41 kg) that was 24% weaker than the control group of healthy males. But this remains at least 25% *higher* than the average hand-grip strength of biological females as measured by Bohannon et al. (2019).

131. Summarizing these and a few other studies measuring strength loss (in most cases based on hand grip) following testosterone suppression, Harper et al. (2021) conclude that "strength loss with 12 months of [testosterone suppression] . . . ranged from non-significant to 7%. . . . [T]he small decrease in strength in transwomen after 12-36 months of [testosterone suppression] suggests that transwomen likely retain a strength advantage over cisgender women." (Hilton 2021 at 870.)

Arm Strength

132. Lapauw et al. (2008) found that 3 years after surgical castration, preceded by at least two years of testosterone suppression, biologically male subjects had 33% less bicep strength than healthy male controls. (Lapauw (2008) at 1018.) Given that healthy men exhibit between 89% and 109% greater arm strength than healthy women, this leaves a very large residual arm strength advantage over biological women.

133. Roberts et al. (2020) have recently published an interesting longitudinal study, one arm of which considered biological males who began testosterone suppression and cross-sex hormones while serving in the United States Air Force. One measured performance criterion was pushups per minute, which, while not exclusively, primarily tests arm strength under repetition. *Before* treatment, the biological male study subjects who underwent testosterone suppression could do 45% more pushups per minute than the average for all Air Force women under the age of 30 (47.3 vs. 32.5). *After* between one and two years of testosterone suppression, this group could still do 33% more pushups per minute. (Table 4.) Further, the body weight of the study group did not decline at all after one to two years of testosterone suppression (in fact rose slightly) (Table 3), and was approximately 24 pounds (11.0 kg) higher than the average for Air Force women under the age of 30. (Roberts 2020 at 3.) This means that the individuals who had undergone at least one year of testosterone suppression were not only doing 1/3

more pushups per minute, but were lifting significantly more weight with each pushup.

134. After two years of testosterone suppression, the study sample in Roberts et al. was only able to do 6% more pushups per minute than the Air Force female average. But their weight remained unchanged from their pre-treatment starting point, and thus about 24 pounds higher than the Air Force female average. As Roberts et al. explain, “as a group, transwomen weigh more than CW [cis-women]. Thus, transwomen will have a higher power output than CW when performing an equivalent number of push-ups. Therefore, our study may underestimate the advantage in strength that transwomen have over CW.” (Roberts 2020 at 4.)

Leg Strength

135. Wiik et al. (2020), in a longitudinal study that tracked 11 males from the start of testosterone suppression through 12 months after treatment initiation, found that isometric strength levels measured at the knee “were maintained over the [study period].”[14] (808) “At T12 [the conclusion of the one-year study], the absolute levels of strength and muscle volume were greater in [male-to-female subjects] than in . . . CW [women who had not undergone any hormonal therapy].” (Wiik 2020 at 808.) In fact, Wiik et al. reported that “muscle strength after 12 months of testosterone suppression was comparable to baseline strength. As a result, transgender women remained about 50% stronger than . . . a reference group of females.” (Hilton 2021 at 207, summarizing Wiik 2020.)

136. Lapauw et al. (2008) found that 3 years after surgical castration, preceded by at least two years of testosterone suppression, subjects had peak knee torque only 25% lower than healthy male controls. (Lapauw 2008 at 1018.) Again, given that healthy males exhibit 54% greater maximum knee torque than healthy females, this leaves these individuals with a large average strength advantage over females even years after sex reassignment surgery.

Running speed

137. The most striking finding of the recent Roberts et al. study concerned running speed over a 1.5 mile distance–a distance that tests midrange endurance. Before suppression, the MtF study group ran 21% faster than the Air Force female average. After at least 2 year of testosterone suppression, these subjects still ran 12% faster than the Air Force female average. (Roberts 2020 Table 4.)

[14] Isometric strength measures muscular force production for a given amount of time at a specific joint angle but with no joint movement.

138. The specific experience of the well-known case of NCAA athlete Cece Telfer is consistent with the more statistically meaningful results of Roberts et al., further illustrating that male-to-female transgender treatment does not negate the inherent athletic performance advantages of a post-pubertal male. In 2016 and 2017 Cece Telfer competed as Craig Telfer on the Franklin Pierce University men's track team, being ranked 200th and 390th (respectively) against other NCAA Division 2 men. "Craig" Telfer did not qualify for the National Championships in any events. Telfer did not compete in the 2018 season while undergoing testosterone suppression (per NCAA policy). In 2019 Cece Telfer competed on the Franklin Pierce University *women's* team, qualified for the NCAA Division 2 Track and Field National Championships, and placed 1st in the women's 400 meter hurdles and placed third in the women's 100 meter hurdles. (For examples of the media coverage of this please see https://www.washingtontimes.com/news/2019/jun/3/cece-telfer-franklin-pierce-transgenderhurdler-wi/ last accessed May 29, 2020. https://www.newshub.co.nz/home/sport/2019/06/athletics-transgender-woman-cece-telfer-whopreviously-competed-as-a-man-wins-ncaa-track-championship.html (last accessed May 29, 2020.)

139. The table below shows the best collegiate performance times from the combined 2015 and 2016 seasons for Cece Telfer when competing as a man in men's events, and the best collegiate performance times from the 2019 season when competing as a woman in women's events. Comparing the times for the running events (in which male and female athletes run the same distance) there is no statistical difference between Telfer's "before and after" times. Calculating the difference in time between the male and female times, Telfer performed an average of 0.22% *faster* as a female. (Comparing the performance for the hurdle events (marked with H) is of questionable validity due to differences between men's and women's events in hurdle heights and spacing, and distance for the 110m vs. 100 m.) While this is simply one example, and does not represent a controlled experimental analysis, this information provides some evidence that male-to-female transgender treatment does not negate the inherent athletic performance advantages of a postpubertal male. (These times were obtained from https://www.tfrrs.org/athletes/6994616/Franklin_Pierce/CeCe_Telfer.html and https://www.tfrrs.org/athletes/5108308.html, last accessed May 29, 2020).

As Craig Telfer (male athlete)		As Cece Telfer (female athlete)	
Event	Time (seconds)	Event	Time (seconds)
55	7.01	55	7.02
60	7.67	60	7.63
100	12.17	100	12.24
200	24.03	200	24.30
400	55.77	400	54.41
55 H †	7.98	55 H†	7.91
60 H †	8.52	60 H†	8.33
110 H†	15.17	100 H†	13.41*
400 H‡	57.34	400 H‡	57.53**

* women's 3rd place, NCAA Division 2 National Championships
** women's 1st place, NCAA Division 2 National Championships
† men's hurdle height is 42 inches with differences in hurdle spacing between men and women
‡ men's hurdle height is 36 inches, women's height is 30 inches with the same spacing between hurdles

140. Similarly, University of Pennsylvania swimmer Lia Thomas began competing in the women's division in the fall of 2021, after previously competing for U. Penn. in the men's division. Thomas has promptly set school, pool, and/or league women's records in 200 yard freestyle, 500 yard freestyle, and 1650 yard freestyle competitions, beating the nearest female in the 1650 yard by an unheard-of 38 seconds.

141. In a pre-peer review article, Senefeld, Coleman, Hunter, and Joyner (doi: https://doi.org/10.1101/2021.12.28.21268483, accessed January 12, 2022) "compared the gender-related differences in performance of a transgender swimmer who competed in both the male and female NCAA (collegiate) categories to the sex-related differences in performance of world and national class swimmers" and observed that this athlete [presumably Lia Thomas based on performance times and the timing of this article] was unranked in 2018-2019 in the 100-yard, ranked 551st in the 200-yard, 65th in the 500-yard 32nd in the 1650-yards men's freestyle. After following the NCAA protocol for testosterone suppression and competing as a woman in 2021-2022, this swimmer was ranked 94th in the 100-yard, 1st in the 200-yard, 1st in the 500-yard, and 6th in the 1650-yard women's freestyle. The performance times swimming as a female, when compared to swimming as a male, were 4.6% slower in the 100-yard, 2.6% slower in the 200-yard, 5.6% slower in the 500-yard, and 6.8% slower in the 1650-yard events than when swimming as a male. *It is important to note that these are mid-season race times and do not represent season best performance times or in a championship event where athletes often set their personal record times*. The authors concluded "…that for middle distance events (100, 200 and 400m or their imperial equivalents) lasting between about one and five minutes, the decrements in performance of the transgender woman

swimmer are less than expected on the basis of a comparison of a large cohort of world and national class performances by female and male swimmers" and "it is possible that the relative improvements in this swimmer's rankings in the women's category relative to the men's category are due to legacy effects of testosterone on a number of physiological factors that can influence athletic performance."

142. Harper (2015) has often been cited as "proving" that testosterone suppression eliminates male advantage. And indeed, hedged with many disclaimers, the author in that article does more or less make that claim with respect to "distance races," while emphasizing that "the author makes no claims as to the equality of performances, pre and post gender transition, in any other sport." (Harper 2015 at 8.) However, Harper (2015) is in effect a collection of unverified anecdotes, not science. It is built around self-reported race times from just eight self-selected transgender runners, recruited "mostly" online. How and on what websites the subjects were recruited is not disclosed, nor is anything said about how those not recruited online were recruited. Thus, there is no information to tell us whether these eight runners could in any way be representative, and the recruitment pools and methodology, which could bear on ideological bias in their self-reports, is not disclosed.

143. Further, the self-reported race times relied on by Harper (2015) *span 29 years*. It is well known that self-reported data, particularly concerning emotionally or ideologically fraught topics, is unreliable, and likewise that memory of distant events is unreliable. Whether the subjects were responding from memory or from written records, and if so what records, is not disclosed, and does not appear to be known to the author. For six of the subjects, the author claims to have been able to verify "approximately half" of the self-reported times. Which scores these are is not disclosed. The other two subjects responded only anonymously, so nothing about their claims could be or was verified. In short, neither the author nor the reader knows whether the supposed "facts" on which the paper's analysis is based are true.

144. Even if we could accept them at face value, the data are largely meaningless. Only two of the eight study subjects reported (undefined) "stable training patterns," and even with consistent training, athletic performance generally declines with age. As a result, when the few data points span 29 years, it is not possible to attribute declines in performance to asserted testosterone suppression. Further, distance running is usually not on a track, and race times vary significantly depending on the course and the weather. Only one reporting subject who claimed a "stable training pattern" reported "before and after" times on the same course within three years' time," which the author acknowledges would "represent the best comparison points."

145. Harper (2015) to some extent acknowledges its profound methodological flaws, but seeks to excuse them by the difficulty of breaking new ground. The author states that, "The first problem is how to formulate a study to create a meaningful measurement of athletic performance, both before and after testosterone suppression. No methodology has been previously devised to make meaningful measurements." (2) This statement was not accurate at the time of publication, as there are innumerable publications with validated methodology for comparing physical fitness and/or athletic performance between people of different ages, sexes, and before and after medical treatment, any of which could easily have been used with minimal or no adaptation for the purposes of this study. Indeed, well before the publication of Harper (2015), several authors that I have cited in this review had performed and published disciplined and methodologically reliable studies of physical performance and physiological attributes "before and after" testosterone suppression.

146. More recently, and to her credit, Harper has acknowledged the finding of Roberts (2020) regarding the durable male advantage in running speed in the 1.5 mile distance, even after two years of testosterone suppression. She joins with co-authors in acknowledging that this study of individuals who (due to Air Force physical fitness requirements) "could at least be considered exercise trained," agrees that Roberts' data shows that "transwomen ran significantly faster during the 1.5 mile fitness test than ciswomen," and declares that this result is "consistent with the findings of the current review in untrained transgender individuals" that even 30 months of testosterone suppression does not eliminate all male advantages "associated with muscle endurance and performance." (Harper 2021 at 8.) The Harper (2021) authors conclude overall "that strength may be well preserved in transwomen during the first 3 years of hormone therapy," and that [w]hether transgender and cisgender women can engage in meaningful sport [in competition with each other], even after [testosterone suppression], is a highly debated question." (Harper 2021 at 1, 8.)

147. Higerd (2021) "[a]ssess[ed] the probability of a girls' champion being biologically male" by evaluating 920,11 American high school track and field performances available through the track and field database Athletic.net in five states (CA, FL, MN, NY, WA), over three years (2017 – 2019),in eight events; high jump, long jump, 100M, 200M, 400M, 800M, 1600M, and 3200M and estimated that "there is a simulated 81%-98% probability of transgender dominance occurring in the female track and field event" and further concluded that "in the majority of cases, the entire podium (top of the state) would be MTF [transgender athletes]" (at xii).

B. Testosterone suppression does not reverse important male physiological advantages.

148. We see that, once a male has gone through male puberty, later testosterone suppression (or even castration) leaves large strength and performance advantages over females in place. It is not surprising that this is so. What is now a fairly extensive body of literature has documented that many of the specific male physiological advantages that I reviewed in Section II are not reversed by testosterone suppression after puberty, or are reduced only modestly, leaving a large advantage over female norms still in place.

149. Handelsman has well documented that the large increases in physiological and performance advantages characteristic of men develop in tandem with, and are likely driven by, the rapid and large increases in circulating testosterone levels that males experience across puberty, or generally between the ages of about 12 through 18. (Handelsman 2018.) Some have misinterpreted Handelsman as suggesting that all of those advantages are and remain entirely dependent–on an ongoing basis–on *current* circulating testosterone levels. This is a misreading of Handelsman, who makes no such claim. As the studies reviewed above demonstrate, it is also empirically false with respect to multiple measures of performance. Indeed, Handelsman himself, referring to the Roberts et al. (2020) study which I describe below, has recently written that "transwomen treated with estrogens after completing male puberty experienced only minimal declines in physical performance over 12 months, substantially surpassing average female performance for up to 8 years." (Handelsman 2020.)

150. As to individual physiological advantages, the more accurate and more complicated reality is reflected in a statement titled "The Role of Testosterone in Athletic Performance," published in 2019 by several dozen sports medicine experts and physicians from many top medical schools and hospitals in the U.S. and around the world. (Levine et al. 2019.) This expert group concurs with Handelsman regarding the importance of testosterone to the male advantage, but recognizes that those advantages depend not only on *current* circulating testosterone levels in the individual, but on the "exposure in biological males to much higher levels of testosterone <u>during growth, development</u>, and throughout the athletic career." (*Emphasis added*.) In other words, both past and current circulating testosterone levels affect physiology and athletic capability.

151. Available research enables us to sort out, in some detail, which specific physiological advantages are immutable once they occur, which can be reversed only in part, and which appear to be highly responsive to later hormonal manipulation. The bottom line is that very few of the male physiological advantages I have reviewed in Section II above are largely reversible by testosterone suppression once an individual has passed through male puberty.

Skeletal Configuration

152. It is obvious that some of the physiological changes that occur during "growth and development" across puberty cannot be reversed. Some of these irreversible physiological changes are quite evident in photographs that have recently appeared in the news of transgender competitors in female events. These include skeletal configuration advantages including:

- Longer and larger bones that give height, weight, and leverage advantages to men;

- More advantageous hip shape and configuration as compared to women.

Cardiovascular Advantages

153. Developmental changes for which there is no apparent means of reversal, and no literature suggesting reversibility, also include multiple contributors to the male cardiovascular advantage, including diaphragm placement, lung and trachea size, and heart size and therefore pumping capacity.[15]

154. On the other hand, the evidence is mixed as to hemoglobin concentration, which as discussed above is a contributing factor to $V0_2$ max. Harper (2021) surveyed the literature and found that "Nine studies reported the levels of Hgb [hemoglobin] or HCT [red blood cell count] in transwomen before and after [testosterone suppression], from a minimum of three to a maximum of 36 months post hormone therapy. Eight of these studies. . . found that hormone therapy led to a significant (4.6%–14.0%) decrease in Hgb/HCT ($p<0.01$), while one study found no significant difference after 6 months," but only one of those eight studies returned results at the generally accepted 95% confidence level. (Harper 2021 at 5-6 and Table 5.)

155. I have not found any study of the effect of testosterone suppression on the male advantage in mitochondrial biogenesis.

Muscle mass

156. Multiple studies have found that muscle mass decreases modestly or not at all in response to testosterone suppression. Knox et al. report that "healthy

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[15] "[H]ormone therapy will not alter … lung volume or heart size of the transwoman athlete, especially if [that athlete] transitions postpuberty, so natural advantages including joint articulation, stroke volume and maximal oxygen uptake will be maintained." (Knox 2019 at 398.)

young men did not lose significant muscle mass (or power) when their circulating testosterone levels were reduced to 8.8 nmol/L (lower than the 2015 IOC guideline of 10 nmol/L) for 20 weeks." (Knox 2019 at 398.) Gooren found that "[i]n spite of muscle surface area reduction induced by androgen deprivation, after 1 year the mean muscle surface area in male-to- female transsexuals remained significantly greater than in untreated female-to-male transsexuals." (Gooren 2011 at 653.) An earlier study by Gooren found that after one year of testosterone suppression, muscle mass at the thigh was reduced by only about 10%, exhibited "no further reduction after 3 years of hormones," and "remained significantly greater" than in his sample of untreated women. (Gooren 2004 at 426-427.) Van Caenegem et al. found that muscle cross section in the calf and forearm decreased only trivially (4% and 1% respectively) after two years of testosterone suppression. (Van Caenegem 2015 Table 4.)

157. Taking measurements one month after start of testosterone suppression in male-to-female (non-athlete) subjects, and again 3 and 11 months after start of feminizing hormone replacement therapy in these subjects, Wiik et al. found that total lean tissue (i.e. primarily muscle) did not decrease significantly across the entire period. Indeed, "some of the [subjects] did not lose any muscle mass at all." (Wiik 2020 at 812.) And even though they observed a small decrease in thigh muscle mass, they found that isometric strength levels measured at the knee "were maintained over the [study period]." (808) "At T12 [the conclusion of the one-year study], the absolute levels of strength and muscle volume were greater in [male-to-female subjects] than in [female-to-male subjects] and CW [women who had not undergone any hormonal therapy]." (808)

158. Hilton & Lundberg summarize an extensive survey of the literature as follows:

> "12 longitudinal studies have examined the effects of testosterone suppression on lean body mass or muscle size in transgender women. The collective evidence from these studies suggests that 12 months, which is the most commonly examined intervention period, of testosterone suppression to female typical reference levels results in a modest (approximately− 5%) loss of lean body mass or muscle size. . . .
>
> "Thus, given the large baseline differences in muscle mass between males and females (Table 1; approximately 40%), the reduction achieved by 12 months of testosterone suppression can reasonably be assessed as small relative to the initial superior mass. We, therefore, conclude that the muscle mass advantage males possess over females, and the performance implications thereof, are not removed by the currently studied

durations (4 months, 1, 2 and 3 years) of testosterone suppression in transgender women. (Hilton 2021 at 205-207.)

159. When we recall that "women have 50% to 60% of men's upper arm muscle cross-sectional area and 65% to 70% of men's thigh muscle cross-sectional area" (Handelsman 2018 at 812), it is clear that Hilton's conclusion is correct. In other words, biologically male subjects possess substantially larger muscles than biologically female subjects after undergoing a year or even three years of testosterone suppression.

160. While testosterone suppression may result in slightly reduced muscle mass and strength, testosterone suppression does not prevent a male from experiencing positive adaptations to a strength training program. For example, it has been demonstrated that men undergoing testosterone suppression experienced increases in muscle size and strength due to an 8 week resistance training program. Hilton and Lundberg (at 209, summarizing Kvorning et al.), state "Despite testosterone suppression to female levels of 2 nmol/L, there was a significant + 4% increase in leg lean mass and a + 2% increase in total lean body mass, and a measurable though insignificant increase in isometric knee extension strength. Moreover, in select exercises used during the training program, 10R[epetition]M[aximum] leg press and bench press increased + 32% and + 17%, respectively."

161. Furthermore, in older men undergoing testosterone suppression as part of prostate cancer treatment, 12 weeks of resistance training "resulted in significantly increased lean body mass (+ 3%), thigh muscle volume (+ 6%), knee extensor 1RM strength (+ 28%) and leg press muscle endurance (+ 110%)." (Hilton and Lindberg at 210, summarizing Hanson).

162. I note that outside the context of transgender athletes, the testosterone-driven increase in muscle mass and strength enjoyed by these male-to-female subjects would constitute a disqualifying doping violation under all league anti-doping rules with which I am familiar.

C. Responsible voices internationally are increasingly recognizing that suppression of testosterone in a male after puberty has occurred does not substantially reverse the male athletic advantage.

163. The previous very permissive NCAA policy governing transgender participation in women's collegiate athletics was adopted in 2011, and the previous IOC guidelines were adopted in 2015. At those dates, much of the scientific analysis of the actual impact of testosterone suppression had not yet been performed, much less any wider synthesis of that science. In fact, a series of important peer-reviewed

studies and literature reviews have been published only very recently, since I prepared my first paper on this topic, in early 2020.

164. These new scientific publications reflect a remarkably consistent consensus: once an individual has gone through male puberty, testosterone suppression does not substantially eliminate the physiological and performance advantages that that individual enjoys over female competitors.

165. Importantly, I have found no peer-reviewed scientific paper, nor any respected scientific voice, that is now asserting the contrary–that is, that testosterone suppression can eliminate or even largely eliminate the male biological advantage once puberty has occurred.

166. I excerpt the key conclusions from important recent peer-reviewed papers below.

167. Roberts 2020: "In this study, we confirmed that . . . the pretreatment differences between transgender and cis gender women persist beyond the 12-month time requirement currently being proposed for athletic competition by the World Athletics and the IOC." (6)

168. Wiik 2020: The muscular and strength changes in males undergoing testosterone suppression "were modest. The question of when it is fair to permit a transgender woman to compete in sport in line with her experienced gender identity is challenging." (812)

169. Harper 2021: "[V]alues for strength, LBM [lean body mass], and muscle area in transwomen remain above those of cisgender women, even after 36 months of hormone therapy." (1)

170. Hilton & Lundberg 2021: "evidence for loss of the male performance advantage, established by testosterone at puberty and translating in elite athletes to a 10–50% performance advantage, is lacking. . . . These data significantly undermine the delivery of fairness and safety presumed by the criteria set out in transgender inclusion policies . . ." (211)

171. Hamilton et al. 2020, "Response to the United Nations Human Rights Council's Report on Race and Gender Discrimination in Sport: An Expression of Concern and a Call to Prioritize Research": "There is growing support for the idea that development influenced by high testosterone levels may result in retained anatomical and physiological advantages . . . . If a biologically male athlete self-identifies as a female, legitimately with a diagnosis of gender dysphoria or illegitimately to win medals, the athlete already possesses a physiological advantage that undermines fairness and safety. This is not equitable, nor consistent with the fundamental principles of the Olympic Charter."

172. Hamilton et al. 2021, "Consensus Statement of the Fédération Internationale de Médecine du Sport" (International Federation of Sports Medicine, or FIMS), signed by more than 60 sports medicine experts from prestigious institutions around the world: The available studies "make it difficult to suggest that the athletic capabilities of transwomen individuals undergoing HRT or GAS are comparable to those of cisgender women." The findings of Roberts et al. "question the required testosterone suppression time of 12 months for transwomen to be eligible to compete in women's sport, as most advantages over ciswomen were not negated after 12 months of HRT."

173. Outside the forum of peer-reviewed journals, respected voices in sport are reaching the same conclusion.

174. The **Women's Sports Policy Working Group** identifies among its members and "supporters" many women Olympic medalists, former women's tennis champion and LGBTQ activist Martina Navratilova, Professor Doriane Coleman, a former All-American women's track competitor, transgender athletes Joanna Harper and Dr. Renee Richards, and many other leaders in women's sports and civil rights. I have referenced other published work of Joanna Harper and Professor Coleman. In early 2021 the Women's Sports Policy Working Group published a "Briefing Book" on the issue of transgender participation in women's sports,[16] in which they reviewed largely the same body of literature I have reviewed above, and analyzed the implications of that science for fairness and safety in women's sports.

175. Among other things, the Women's Sports Policy Working Group concluded:

- "[T]he evidence is increasingly clear that hormones do not eliminate the legacy advantages associated with male physical development" (8) due to "the considerable size and strength advantages that remain even after hormone treatments or surgical procedures." (17)
- "[T]here is convincing evidence that, depending on the task, skill, sport, or event, trans women maintain male sex-linked (legacy) advantages even after a year on standard gender-affirming hormone treatment." (26, citing Roberts 2020.)
- "[S]everal peer-reviewed studies, including one based on data from the U.S. military, have confirmed that trans women retain their male sex-linked advantages even after a year on gender affirming hormones. . . . Because of these retained advantages, USA Powerlifting and World

[16] https://womenssportspolicy.org/wp-content/uploads/2021/02/Congressional-Briefing-WSPWG-Transgender-Women-Sports-2.27.21.pdf

Rugby have recently concluded that it isn't possible fairly and safely to include trans women in women's competition." (32)

176. As has been widely reported, in 2020, after an extensive scientific consultation process, the **World Rugby** organization issued its Transgender Guidelines, finding that it would not be consistent with fairness or safety to permit biological males to compete in World Rugby women's matches, no matter what hormonal or surgical procedures they might have undergone. Based on their review of the science, World Rugby concluded:

- "Current policies regulating the inclusion of transgender women in sport are based on the premise that reducing testosterone to levels found in biological females is sufficient to remove many of the biologically-based performance advantages described above. However, peer-reviewed evidence suggests that this is not the case."

- "Longitudinal research studies on the effect of reducing testosterone to female levels for periods of 12 months or more do not support the contention that variables such as mass, lean mass and strength are altered meaningfully in comparison to the original male-female differences in these variables. The lowering of testosterone removes only a small proportion of the documented biological differences, with large, retained advantages in these physiological attributes, with the safety and performance implications described previously."

- ". . . given the size of the biological differences prior to testosterone suppression, this comparatively small effect of testosterone reduction allows substantial and meaningful differences to remain. This has significant implications for the risk of injury . . . ."

- " . . . bone mass is typically maintained in transgender women over the course of at least 24 months of testosterone suppression, ... Height and other skeletal measurements such as bone length and hip width have also not been shown to change with testosterone suppression, and nor is there any plausible biological mechanism by which this might occur, and so sporting advantages due to skeletal differences between males and females appear unlikely to change with testosterone reduction.

177. In September 2021 the government-commissioned Sports Councils of the United Kingdom and its subsidiary parts (the five Sports Councils responsible for supporting and investing in sport across England, Wales, Scotland and Northern Ireland) issued a formal "Guidance for Transgender Inclusion in Domestic Sport" (UK Sport Councils 2021), following an extensive consultation process, and a

commissioned "International Research Literature Review" prepared by the Carbmill Consulting group (UK Sport Literature Review 2021). The UK Sport Literature Review identified largely the same relevant literature that I review in this paper, characterizes that literature consistently with my own reading and description, and based on that science reaches conclusions similar to mine.

178. The UK Sport Literature Review 2021 concluded:

- "Sexual dimorphism in relation to sport is significant and the most important determinant of sporting capacity. The challenge to sporting bodies is most evident in the inclusion of transgender people in female sport." "[The] evidence suggests that parity in physical performance in relation to gender-affected sport cannot be achieved for transgender people in female sport through testosterone suppression. Theoretical estimation in contact and collision sport indicate injury risk is likely to be increased for female competitors." (10)

- "From the synthesis of current research, the understanding is that testosterone suppression for the mandated one year before competition will result in little or no change to the anatomical differences between the sexes, and a more complete reversal of some acute phase metabolic pathways such as haemoglobin levels although the impact on running performance appears limited, and a modest change in muscle mass and strength: The average of around 5% loss of muscle mass and strength will not reverse the average 40-50% difference in strength that typically exists between the two sexes." (7)

- "These findings are at odds with the accepted intention of current policy in sport, in which twelve months of testosterone suppression is expected to create equivalence between transgender women and females." (7)

179. Taking into account the science detailed in the UK Sport Literature Review 2021, the UK Sports Councils have concluded:

- "[T]he latest research, evidence and studies made clear that there are retained differences in strength, stamina and physique between the average woman compared with the average transgender woman or non-binary person registered male at birth, with or without testosterone suppression." (3)

- "Competitive fairness cannot be reconciled with self-identification into the female category in gender-affected sport." (7)

- "As a result of what the review found, the Guidance concludes that the inclusion of transgender people into female sport cannot be balanced regarding transgender inclusion, fairness and safety in gender-affected sport where there is meaningful competition. This is due to retained differences in strength, stamina and physique between the average woman compared with the average transgender woman or non-binary person assigned male at birth, with or without testosterone suppression." (6)

- "Based upon current evidence, testosterone suppression is unlikely to guarantee fairness between transgender women and natal females in gender-affected sports. . . . Transgender women are on average likely to retain physical advantage in terms of physique, stamina, and strength. Such physical differences will also impact safety parameters in sports which are combat, collision or contact in nature." (7)

180. On January 15, 2022 the American Swimming Coaches Association (ASCA) issued a statement stating, "The American Swimming Coaches Association urges the NCAA and all governing bodies to work quickly to update their policies and rules to maintain fair competition in the women's category of swimming. ASCA supports following all available science and evidenced-based research in setting the new policies, and we strongly advocate for more research to be conducted" and further stated "The current NCAA policy regarding when transgender females can compete in the women's category can be unfair to cisgender females and needs to be reviewed and changed in a transparent manner." (https://swimswam.com/asca-issues-statement-calling-for-ncaa-to-review-transgender-rules/; Accessed January 16, 2022.)

181. On January 19, 2022, the NCAA Board of Governors approved a change to the policy on transgender inclusion in sport and stated that "…the updated NCAA policy calls for transgender participation for each sport to be determined by the policy for the national governing body of that sport, subject to ongoing review and recommendation by the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports to the Board of Governors. If there is no N[ational]G[overning]B[ody] policy for a sport, that sport's international federation policy would be followed. If there is no international federation policy, previously established IOC policy criteria would be followed" (https://www.ncaa.org/news/2022/1/19/media-center-board-of-governors-updates-transgender-participation-policy.aspx; Accessed January 20, 2022.)

182. On February 1, 2022, because "…a competitive difference in the male and female categories and the disadvantages this presents in elite head-to-head competition … supported by statistical data that shows that the top-ranked female in 2021, on average, would be ranked 536th across all short course yards (25 yards)

male events in the country and 326th across all long course meters (50 meters) male events in the country, among USA Swimming members," USA Swimming released its Athlete Inclusion, Competitive Equity and Eligibility Policy. The policy is intended to "provide a level-playing field for elite cisgender women, and to mitigate the advantages associated with male puberty and physiology." (USA Swimming Releases Athlete Inclusion, Competitive Equity and Eligibility Policy, available at https://www.usaswimming.org/news/2022/02/01/usa-swimming-releases-athlete-inclusion-competitive-equity-and-eligibility-policy.) The policy states:

- For biologically male athletes seeking to compete in the female category in certain "elite" level events, the athlete has the burden of demonstrating to a panel of independent medical experts that:
    - "From a medical perspective, the prior physical development of the athlete as Male, as mitigated by any medical intervention, does not give the athlete a competitive advantage over the athlete's cisgender Female competitors" and
    - There is a presumption that the athlete is not eligible unless the athlete "demonstrates that the concentration of testosterone in the athlete's serum has been less than 5 nmol/L . . . continuously for a period of at least thirty-six (36) months before the date of the Application." This presumption may be rebutted "if the Panel finds, in the unique circumstances of the case, that [the athlete's prior physical development does not give the athlete a competitive advantage] notwithstanding the athlete's serum testosterone results (e.g., the athlete has a medical condition which limits bioavailability of the athlete's free testosterone)." (USA Swimming Athlete Inclusion Procedures at 43.)

Conclusions

The research and actual observed data show the following:

- At the level of (a) elite, (b) collegiate, (c) scholastic, and (d) recreational competition, men, adolescent boys, or male children, have an advantage over equally gifted, aged and trained women, adolescent girls, or female children in almost all athletic events;

- Biological male physiology is the basis for the performance advantage that men, adolescent boys, or male children have over women, adolescent girls, or female children in almost all athletic events; and

- The administration of androgen inhibitors and cross-sex hormones to men or adolescent boys after the onset of male puberty does not eliminate the

> performance advantage that men and adolescent boys have over women and adolescent girls in almost all athletic events. Likewise, there is no published scientific evidence that the administration of puberty blockers to males before puberty eliminates the pre-existing athletic advantage that prepubertal males have over prepubertal females in almost all athletic events.

For over a decade sports governing bodies (such as the IOC and NCAA) have wrestled with the question of transgender inclusion in female sports. The previous polices implemented by these sporting bodies had an underlying "premise that reducing testosterone to levels found in biological females is sufficient to remove many of the biologically-based performance advantages." (World Rugby 2020 at 13.) Disagreements centered around what the appropriate threshold for testosterone levels must be–whether the 10nmol/liter value adopted by the IOC in 2015, or the 5nmol/liter value adopted by the IAAF.

But the science that has become available within just the last few years contradicts that premise. Instead, as the UK Sports Councils, World Rugby, the FIMS Consensus Statement, and the Women's Sports Policy Working Group have all recognized the science is now sharply "at odds with the accepted intention of current policy in sport, in which twelve months of testosterone suppression is expected to create equivalence between transgender women and females" (UK Sports Literature Review 2021 at 7), and it is now "difficult to suggest that the athletic capabilities of transwomen individuals undergoing HRT or GAS are comparable to those of cisgender women." (Hamilton, FIMS Consensus Statement 2021.) It is important to note that while the 2021 "IOC Framework on Fairness, Inclusion, and Non-Discrimination on the Basis of Gender Identity and Sex Variations" calls for an "evidence-based approach," that Framework does not actually reference *any* of the now extensive scientific evidence relating to the physiological differences between the sexes, and the inefficacy of hormonal intervention to eliminate male advantages relevant to most sports. Instead, the IOC calls on other sporting bodies to define criteria for transgender inclusion, while demanding that such criteria simultaneously ensure fairness, safety, and inclusion for all. The recently updated NCAA policy on transgender participation also relies on other sporting bodies to establish criteria for transgender inclusion while calling for fair competition and safety.

But what we currently know tells us that these policy goals—fairness, safety, and full transgender inclusion—are irreconcilable for many or most sports. Long human experience is now joined by large numbers of research papers that document that males outperform females in muscle strength, muscular endurance, aerobic and anaerobic power output, VO_2max, running speed, swimming speed, vertical jump height, reaction time, and most other measures of physical fitness and physical performance that are essential for athletic success. The male advantages have been observed in fitness testing in children as young as 3 years old, with the male advantages increasing immensely during puberty. To ignore what we know to be true about males' athletic advantages over females, based on mere hope or speculation that cross sex hormone therapy (puberty blockers, androgen inhibitors, or cross-sex hormones) might neutralize that advantage, when the currently available evidence says it does not, is not science and is not "evidence-based" policy-making.

Because of the recent research and analysis in the general field of transgender athletics, many sports organizations have revised their policies or are in the process of doing so. As a result, there is not any universally recognized policy among sports organizations, and transgender inclusion policies are in a state of flux, likely because of the increasing awareness that the goals of fairness, safety, and full transgender inclusion are irreconcilable.

Sports have been separated by sex for the purposes of safety and fairness for a considerable number of years. The values of safety and fairness are endorsed by numerous sports bodies, including the NCAA and IOC. The existing evidence of durable physiological and performance differences based on biological sex provides a strong evidence-based rationale for keeping rules and policies for such sex-based separation in place (or implementing them as the case may be).

As set forth in detail in this report, there are physiological differences between males and females that result in males having a significant performance advantage over similarly gifted, aged, and trained females in nearly all athletic events before, during, and after puberty. There is not scientific evidence that any amount or duration of cross sex hormone therapy (puberty blockers, androgen inhibitors, or cross-sex hormones) eliminates all physiological advantages that result in males performing better than females in nearly all athletic events. Males who have received such therapy retain sufficient male physiological traits that enhance athletic performance vis-à-vis similarly aged females and are thus, from a physiological perspective, more accurately categorized as male and not female.

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Appendix 1 – Data Tables

Presidential Physical Fitness Results[17]

Curl-Ups (# in 1 minute)

	Male		Female			Male-Female % Difference	
Age	50th %ile	85th %ile	50th %ile	85th %ile	Age	50th %ile	85th %ile
6	22	33	23	32	6	-4.3%	3.1%
7	28	36	25	34	7	12.0%	5.9%
8	31	40	29	38	8	6.9%	5.3%
9	32	41	30	39	9	6.7%	5.1%
10	35	45	30	40	10	16.7%	12.5%
11	37	47	32	42	11	15.6%	11.9%
12	40	50	35	45	12	14.3%	11.1%
13	42	53	37	46	13	13.5%	15.2%
14	45	56	37	47	14	21.6%	19.1%
15	45	57	36	48	15	25.0%	18.8%
16	45	56	35	45	16	28.6%	24.4%
17	44	55	34	44	17	29.4%	25.0%

Shuttle Run (seconds)

[17] This data is available from a variety of sources. including: https://gilmore.gvsd.us/documents/Info/Forms/Teacher%20Forms/Presidentialchallengetest.pdf

	Male		Female			Male-Female % Difference	
Age	50th %ile	85th %ile	50th %ile	85th %ile	Age	50th %ile	85th %ile
6	13.3	12.1	13.8	12.4	6	3.6%	2.4%
7	12.8	11.5	13.2	12.1	7	3.0%	5.0%
8	12.2	11.1	12.9	11.8	8	5.4%	5.9%
9	11.9	10.9	12.5	11.1	9	4.8%	1.8%
10	11.5	10.3	12.1	10.8	10	5.0%	4.6%
11	11.1	10	11.5	10.5	11	3.5%	4.8%
12	10.6	9.8	11.3	10.4	12	6.2%	5.8%
13	10.2	9.5	11.1	10.2	13	8.1%	6.9%
14	9.9	9.1	11.2	10.1	14	11.6%	9.9%
15	9.7	9.0	11.0	10.0	15	11.8%	10.0%
16	9.4	8.7	10.9	10.1	16	13.8%	13.9%
17	9.4	8.7	11.0	10.0	17	14.5%	13.0%

1 mile run (seconds)

	Male		Female			Male-Female % Difference	
Age	50th %ile	85th %ile	50th %ile	85th %ile	Age	50th %ile	85th %ile
6	756	615	792	680	6	4.5%	9.6%
7	700	562	776	636	7	9.8%	11.6%
8	665	528	750	602	8	11.3%	12.3%
9	630	511	712	570	9	11.5%	10.4%
10	588	477	682	559	10	13.8%	14.7%
11	560	452	677	542	11	17.3%	16.6%
12	520	431	665	503	12	21.8%	14.3%
13	486	410	623	493	13	22.0%	16.8%
14	464	386	606	479	14	23.4%	19.4%
15	450	380	598	488	15	24.7%	22.1%
16	430	368	631	503	16	31.9%	26.8%
17	424	366	622	495	17	31.8%	26.1%

Pull Ups (# completed)

	Male		Female			Male-Female % Difference	
Age	50th %ile	85th %ile	50th %ile	85th %ile	Age	50th %ile	85th %ile
6	1	2	1	2	**6**	0.0%	0.0%
7	1	4	1	2	**7**	0.0%	100.0%
8	1	5	1	2	**8**	0.0%	150.0%
9	2	5	1	2	**9**	100.0%	150.0%
10	2	6	1	3	**10**	100.0%	100.0%
11	2	6	1	3	**11**	100.0%	100.0%
12	2	7	1	2	**12**	100.0%	250.0%
13	3	7	1	2	**13**	200.0%	250.0%
14	5	10	1	2	**14**	400.0%	400.0%
15	6	11	1	2	**15**	500.0%	450.0%
16	7	11	1	1	**16**	600.0%	1000.0%
17	8	13	1	1	**17**	700.0%	1200.0%

Data Compiled from Athletic.Net

2021 National 3000 m cross country race time in seconds

	7-8 years old			9-10 years old			11-12 year old		
Rank	Boys	Girls		Boys	Girls		Boys	Girls	
1	691.8	728.4	Difference	607.7	659.8	Difference	608.1	632.6	Difference
2	722.5	739.0	#1 boy vs #	619.6	674.0	#1 boy vs #	608.7	639.8	#1 boy vs #
3	740.5	783.0	1 girl	620.1	674.7	1 girl	611.3	664.1	1 girl
4	759.3	783.5	5.0%	643.2	683.7	7.9%	618.6	664.4	3.9%
5	759.6	792.8		646.8	685.0		619.7	671.6	
6	760.0	824.1		648.0	686.4		631.2	672.1	
7	772.0	825.7	Average	648.8	687.0	Average	631.7	672.3	Average
8	773.0	832.3	difference	658.0	691.0	difference	634.9	678.4	difference
9	780.7	834.3	boys vs girls	659.5	692.2	boys vs girls	635.0	679.3	boys vs girls
10	735.1	844.4	6.2%	663.9	663.3	5.6%	635.1	679.4	6.3%

2021 National 3000 m cross country race time in seconds

5th grade	6th grade	7th grade

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Rank	Boys	Girls		Boys	Girls		Boys	Girls	
1	625.5	667.0	Difference	545.3	582.0	Difference	534.0	560.7	Difference
2	648.8	685.0	#1 boy vs #	553.2	584.3	#1 boy vs #	541.0	567.0	#1 boy vs #
3	653.5	712.9	1 girl	562.3	585.1	1 girl	542.6	581.8	1 girl
4	658.4	719.2	6.2%	562.9	599.8	6.3%	544.6	583.0	4.8%
5	675.3	725.2		571.5	612.9		546.0	595.0	
6	677.4	727.7		588.0	622.0		556.0	599.0	
7	677.6	734.0	Average	591.3	624.9	Average	556.0	604.3	Average
8	679.1	739.4	difference	593.0	626.0	difference	556.0	606.0	difference
9	686.4	739.4	boys vs girls	593.8	628.0	boys vs girls	558.6	606.8	boys vs girls
10	686.4	746.4	7.3%	594.1	645.6	5.8%	563.2	617.0	7.1%

2021 National 100 m Track race time in seconds

	7-8 years old			9-10 years old			11-12 year old		
Rank	Boys	Girls		Boys	Girls		Boys	Girls	
1	13.06	14.24	Difference #1	10.87	12.10	Difference #1	11.37	12.08	Difference #1
2	13.54	14.41	boy vs # 1	10.91	12.24	boy vs # 1	11.61	12.43	boy vs # 1
3	13.73	14.44	girl	11.09	12.63	girl	11.73	12.51	girl
4	14.10	14.48	8.3%	11.25	12.70	10.2%	11.84	12.55	5.9%
5	14.19	14.49		11.27	12.75		11.89	12.57	
6	14.31	14.58		11.33	12.80		11.91	12.62	
7	14.34	14.69	Average	11.42	12.83	Average	11.94	12.65	Average
8	14.35	14.72	difference	11.43	12.84	difference	11.97	12.71	difference
9	14.41	14.77	boys vs girls	11.44	12.88	boys vs girls	12.08	12.71	boys vs girls
10	14.43	14.86	3.6%	11.51	12.91	11.1%	12.12	12.75	5.7%

2021 National 200 m Track race time in seconds

	7-8 years old			9-10 years old			11-12 year old		
Rank	Boys	Girls		Boys	Girls		Boys	Girls	
1	24.02	28.72	Difference #1	21.77	25.36	Difference #1	20.66	25.03	Difference #1
2	24.03	28.87	boy vs # 1	22.25	25.50	boy vs # 1	22.91	25.18	boy vs # 1
3	28.07	29.92	girl	22.48	25.55	girl	23.14	25.22	girl
4	28.44	29.95	16.4%	22.57	25.70	14.2%	23.69	25.49	17.5%
5	28.97	30.04		22.65	26.08		23.84	25.78	
6	29.26	30.09		22.77	26.22		24.23	25.89	
7	29.34	30.27	Average	23.11	26.79	Average	24.35	26.03	Average
8	29.38	30.34	difference	23.16	26.84	difference	24.58	26.07	difference
9	29.65	30.41	boys vs girls	23.28	26.91	boys vs girls	24.59	26.10	boys vs girls
10	29.78	30.54	6.1%	23.47	26.85	13.1%	24.61	26.13	7.9%

2021 National 400 m Track race time in seconds

	7-8 years old	9-10 years old	11-12 year old

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Rank	Boys	Girls		Boys	Girls		Boys	Girls	
1	66.30	67.12	Difference #1	49.29	56.80	Difference #1	51.96	55.70	Difference #1
2	66.88	67.67	boy vs # 1	50.47	58.57	boy vs # 1	55.52	57.08	boy vs # 1
3	67.59	67.74	girl	52.28	60.65	girl	55.58	57.60	girl
4	68.16	68.26	1.2%	52.44	61.45	13.2%	55.59	57.79	6.7%
5	68.51	68.37		53.31	61.81		55.72	58.02	
6	69.13	71.02		53.65	62.03		55.84	58.25	
7	69.75	72.73	Average	53.78	62.32	Average	55.92	59.25	Average
8	69.80	73.25	difference	54.51	62.33	difference	57.12	59.27	difference
9	69.81	73.31	boys vs girls	55.84	62.34	boys vs girls	57.18	59.40	boys vs girls
10	70.32	73.48	2.4%	55.90	62.40	13.0%	57.22	59.49	4.2%

2021 National 800 m Track race time in seconds

	7-8 years old			9-10 years old			11-12 year old		
Rank	Boys	Girls		Boys	Girls		Boys	Girls	
1	152.2	157.9	Difference #1	120.8	141.4	Difference #1	127.8	138.5	Difference #1
2	155.2	164.6	boy vs # 1	124.0	142.2	boy vs # 1	129.7	143.1	boy vs # 1
3	161.0	164.9	girl	125.1	148.8	girl	130.5	144.2	girl
4	161.1	165.9	3.6%	125.6	151.3	14.5%	133.2	144.2	7.7%
5	161.2	168.5		126.5	151.6		136.2	144.9	
6	161.6	169.9		136.5	152.5		136.5	145.0	
7	161.8	171.5	Average	137.1	153.1	Average	136.7	145.2	Average
8	162.2	173.1	difference	138.5	153.7	difference	136.7	145.6	difference
9	165.3	173.4	boys vs girls	139.5	153.8	boys vs girls	137.0	145.6	boys vs girls
10	166.9	174.7	4.5%	140.2	154.2	12.6%	137.9	145.8	6.9%

2021 National 1600 m Track race time in seconds

	7-8 years old			9-10 years old			11-12 year old		
Rank	Boys	Girls		Boys	Girls		Boys	Girls	
1	372.4	397.6	Difference #1	307.4	319.3	Difference #1	297.3	313.8	Difference #1
2	378.3	400.9	boy vs # 1	313.7	322.2	boy vs # 1	298.4	317.1	boy vs # 1
3	378.4	405.6	girl	315.0	322.6	girl	307.0	319.9	girl
4	402.0	435.2	6.3%	318.2	337.5	3.7%	313.9	323.3	5.2%
5	406.4	445.0		318.4	345.2		319.2	325.3	
6	413.4	457.0		320.5	345.7		320.4	326.2	
7	457.4	466.0	Average	327.0	345.9	Average	321.1	327.0	Average
8	473.3	466.8	difference	330.3	347.1	difference	321.9	330.0	difference
9	498.3	492.3	boys vs girls	333.4	347.5	boys vs girls	325.5	331.1	boys vs girls
10	505.0	495.0	4.0%	347.0	355.6	4.7%	327.1	332.5	2.9%

2021 National 3000 m Track race time in seconds

	7-8 years old			9-10 years old			11-12 year old		
Rank	Boys	Girls		Boys	Girls		Boys	Girls	

1	794.2	859.9	Difference #1	602.3	679.2	Difference #1	556.6	623.7	Difference #1
2	856.3		boy vs # 1	644.9	709.7	boy vs # 1	591.6	649.5	boy vs # 1
3			girl	646.6	714.2	girl	600.8	651.6	girl
4			7.6%	648.2	741.9	11.3%	607.1	654.9	10.8%
5		No Further Data		648.4	742.7		609.1	662.9	
6	No further data			652.8	756.6		611.5	664.1	
7			Average	658.9	760.2	Average	615.7	666.3	Average
8			difference	660.1	762.5	difference	617.3	666.8	difference
9			boys vs girls	662.7	780.2	boys vs girls	618.4	673.2	boys vs girls
10			NA%	671.6	792.3	12.7%	620.6	674.4	8.2%

2021 National Long Jump Distance (in inches)

	7-8 years old			9-10 years old			11-12 year old		
Rank	Boys	Girls		Boys	Girls		Boys	Girls	
1	156.0	176.0	Difference #1	256.8	213.8	Difference #1	224.0	201.3	Difference #1
2	156.0	163.8	boy vs # 1	247.0	212.0	boy vs # 1	222.5	197.3	boy vs # 1
3	155.0	153.0	girl	241.0	210.8	girl	220.5	195.8	girl
4	154.3	152.0	-11.4%	236.3	208.8	20.1%	210.3	193.5	11.3%
5	154.0	149.5		231.5	207.0		210.0	193.3	
6	152.8	146.0		225.0	204.8		206.8	192.5	
7	151.5	144.5	Average	224.0	194.5	Average	206.0	192.3	Average
8	150.8	137.5	difference	224.0	192.5	difference	205.5	192.0	difference
9	150.5	137.0	boys vs girls	221.8	192.3	boys vs girls	205.0	191.3	boys vs girls
10		No Further Data	1.4%			13.2%			9.1%
	150.5			219.0	187.5		204.5	189.0	

2021 National High Jump Distance (in inches)

	7-8 years old			9-10 years old			11-12 year old		
Rank	Boys	Girls		Boys	Girls		Boys	Girls	
1	38.0	37.5	Difference #1	72.0	58.0	Difference #1	63.0	56.0	Difference #1
2	38.0	34.0	boy vs # 1	70.0	58.0	boy vs # 1	61.0	56.0	boy vs # 1
3	36.0	32.0	girl	65.8	57.0	girl	60.0	57.0	girl
4	36.0	32.0	1.3	62.0	56.0	24.1%	59.0	56.0	12.5%
5	35.8	32.0		62.0	56.0		59.0	56.0	
6	35.5			62.0	55.0		59.0	55.0	
7	34.0	No further Data	Average	61.0	54.0	Average	59.0	54.0	Average
8	32.0		difference	60.0	54.0	difference	58.0	54.0	difference
9	59.0		boys vs girls	59.0	No Further Data	boys vs girls	57.8	56.0	boys vs girls
10			21.6%			12.5%			6.9%
	56.0			56.0			57.8	56.0	

Appendix 2 – Scholarly Publications

Refereed Publications

1. Brown GA, Shaw BS, Shaw I. How much water is in a mouthful, and how many mouthfuls should I drink? A laboratory exercise to help students understand developing a hydration plan. Adv Physiol Educ 45: 589–593, 2021.
2. Schneider KM and Brown GA (as Faculty Mentor). What's at Stake: Is it a Vampire or a Virus? International Journal of Undergraduate Research and Creative Activities. 11, Article 4. 2019.
3. Christner C and Brown GA (as Faculty Mentor). Explaining the Vampire Legend through Disease. UNK Undergraduate Research Journal. 23(1), 2019. (*This is an on-campus publication.)
4. Schneekloth B and Brown GA. Comparison of Physical Activity during Zumba with a Human or Video Game Instructor. 11(4):1019-1030. International Journal of Exercise Science, 2018.
5. Bice MR, Hollman A, Bickford S, Bickford N, Ball JW, Wiedenman EM, Brown GA, Dinkel D, and Adkins M. Kinesiology in 360 Degrees. International Journal of Kinesiology in Higher Education, 1: 9-17, 2017
6. Shaw I, Shaw BS, Brown GA, and Shariat A. Review of the Role of Resistance Training and Musculoskeletal Injury Prevention and Rehabilitation. Gavin Journal of Orthopedic Research and Therapy. 1: 5-9, 2016
7. Kahle A, Brown GA, Shaw I, & Shaw BS. Mechanical and Physiological Analysis of Minimalist versus Traditionally Shod Running. J Sports Med Phys Fitness. 56(9):974-9, 2016
8. Bice MR, Carey J, Brown GA, Adkins M, and Ball JW. The Use of Mobile Applications to Enhance Learning of the Skeletal System in Introductory Anatomy & Physiology Students. Int J Kines Higher Educ 27(1) 16-22, 2016
9. Shaw BS, Shaw I, & Brown GA. Resistance Exercise is Medicine. Int J Ther Rehab. 22: 233-237, 2015.
10. Brown GA, Bice MR, Shaw BS, & Shaw I. Online Quizzes Promote Inconsistent Improvements on In-Class Test Performance in Introductory Anatomy & Physiology. Adv. Physiol. Educ. 39: 63-6, 2015
11. Brown GA, Heiserman K, Shaw BS, & Shaw I. Rectus abdominis and rectus femoris muscle activity while performing conventional unweighted and weighted seated abdominal trunk curls. Medicina dello Sport. 68: 9-18. 2015
12. Botha DM, Shaw BS, Shaw I & Brown GA. Role of hyperbaric oxygen therapy in the promotion of cardiopulmonary health and rehabilitation. African Journal for

Physical, Health Education, Recreation and Dance (AJPHERD). Supplement 2 (September), 20: 62-73, 2014

13. Abbey BA, Heelan KA, Brown, GA, & Bartee RT. Validity of HydraTrend™ Reagent Strips for the Assessment of Hydration Status. J Strength Cond Res. 28: 2634-9. 2014
14. Scheer KC, Siebrandt SM, Brown GA, Shaw BS, & Shaw I. Wii, Kinect, & Move. Heart Rate, Oxygen Consumption, Energy Expenditure, and Ventilation due to Different Physically Active Video Game Systems in College Students. International Journal of Exercise Science: 7: 22-32, 2014
15. Shaw BS, Shaw I, & Brown GA. Effect of concurrent aerobic and resistive breathing training on respiratory muscle length and spirometry in asthmatics. African Journal for Physical, Health Education, Recreation and Dance (AJPHERD). Supplement 1 (November), 170-183, 2013
16. Adkins M, Brown GA, Heelan K, Ansorge C, Shaw BS & Shaw I. Can dance exergaming contribute to improving physical activity levels in elementary school children? African Journal for Physical, Health Education, Recreation and Dance (AJPHERD). 19: 576-585, 2013
17. Jarvi MB, Brown GA, Shaw BS & Shaw I. Measurements of Heart Rate and Accelerometry to Determine the Physical Activity Level in Boys Playing Paintball. International Journal of Exercise Science: 6: 199-207, 2013
18. Brown GA, Krueger RD, Cook CM, Heelan KA, Shaw BS & Shaw I. A prediction equation for the estimation of cardiorespiratory fitness using an elliptical motion trainer. West Indian Medical Journal. 61: 114-117, 2013.
19. Shaw BS, Shaw I, & Brown GA. Body composition variation following diaphragmatic breathing. African Journal for Physical, Health Education, Recreation and Dance (AJPHERD). 18: 787-794, 2012.

Refereed Presentations

1. Brown GA. Transwomen competing in women's sports: What we know, and what we don't. American Physiological Society New Trends in Sex and Gender Medicine conference. Held virtually due to Covid-19 pandemic. October 19 - 22, 2021, 2021.
2. Shaw BS, Boshoff VE, Coetzee S, Brown GA, Shaw I. A Home-based Resistance Training Intervention Strategy To Decrease Cardiovascular Disease Risk In Overweight Children Med Sci Sport Exerc. 53(5), 742. 68th Annual Meeting of the American College of Sports Medicine. Held virtually due to Covid-19 pandemic. June 1-5, 2021.
3. Shaw I, Cronje M, Brown GA, Shaw BS. Exercise Effects On Cognitive Function And Quality Of Life In Alzheimer's Patients In Long-term Care. Med

Sci Sport Exerc. 53(5), 743. 68th Annual Meeting of the American College of Sports Medicine. Held virtually due to Covid-19 pandemic. June 1-5, 2021.

4. Brown GA, Escalera M, Oleena A, Turek T, Shaw I, Shaw BS. Relationships between Body Composition, Abdominal Muscle Strength, and Well Defined Abdominal Muscles. Med Sci Sport Exerc. 53(5), 197. 68th Annual Meeting of the American College of Sports Medicine. Held virtually due to Covid-19 pandemic. June 1-5, 2021.

5. Brown GA, Jackson B, Szekely B, Schramm T, Shaw BS, Shaw I. A Pre-Workout Supplement Does Not Improve 400 M Sprint Running or Bicycle Wingate Test Performance in Recreationally Trained Individuals. Med Sci Sport Exerc. 50(5), 2932. 65th Annual Meeting of the American College of Sports Medicine. Minneapolis, MN. June 2018.

6. Paulsen SM, Brown GA. Neither Coffee Nor A Stimulant Containing "Pre-workout" Drink Alter Cardiovascular Drift During Walking In Young Men. Med Sci Sport Exerc. 50(5), 2409. 65th Annual Meeting of the American College of Sports Medicine. Minneapolis, MN. June 2018.

7. Adkins M, Bice M, Bickford N, Brown GA. Farm to Fresh! A Multidisciplinary Approach to Teaching Health and Physical Activity. 2018 spring SHAPE America central district conference. Sioux Falls, SD. January 2018.

8. Shaw I, Kinsey JE, Richards R, Shaw BS, and Brown GA. Effect Of Resistance Training During Nebulization In Adults With Cystic Fibrosis. International Journal of Arts & Sciences' (IJAS). International Conference for Physical, Life and Health Sciences which will be held at FHWien University of Applied Sciences of WKW, at Währinger Gürtel 97, Vienna, Austria, from 25-29 June 2017.

9. Bongers M, Abbey BM, Heelan K, Steele JE, Brown GA. Nutrition Education Improves Nutrition Knowledge, Not Dietary Habits In Female Collegiate Distance Runners. Med Sci Sport Exerc. 49(5), 389. 64th Annual Meeting of the American College of Sports Medicine. Denver, CO. May 2017.

10. Brown GA, Steele JE, Shaw I, Shaw BS. Using Elisa to Enhance the Biochemistry Laboratory Experience for Exercise Science Students. Med Sci Sport Exerc. 49(5), 1108. 64th Annual Meeting of the American College of Sports Medicine. Denver, CO. May 2017.

11. Brown GA, Shaw BS, and Shaw I. Effects of a 6 Week Conditioning Program on Jumping, Sprinting, and Agility Performance In Youth. Med Sci Sport Exerc. 48(5), 3730. 63rd Annual Meeting of the American College of Sports Medicine. Boston, MA. June 2016.

12. Shaw I, Shaw BS, Boshoff VE, Coetzee S, and Brown GA. Kinanthropometric Responses To Callisthenic Strength Training In Children. Med Sci Sport Exerc.

48(5), 3221. 63rd Annual Meeting of the American College of Sports Medicine. Boston, MA. June 2016.

13. Shaw BS, Shaw I, Gouveia M, McIntyre S, and Brown GA. Kinanthropometric Responses To Moderate-intensity Resistance Training In Postmenopausal Women. Med Sci Sport Exerc. 48(5), 2127. 63rd Annual Meeting of the American College of Sports Medicine. Boston, MA. June 2016.

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EXHIBIT 21

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF TENNESSEE
NASHVILLE DIVISION**

L.E., by his next friend and parents, SHELLEY ESQUIVEL and MARIO ESQUIVEL, *Plaintiff,* vs. BILL LEE, in his official capacity as Governor of Tennessee, et al., *Defendants.*	Case No. 3:21-cv-00835 Chief Judge Crenshaw Magistrate Judge Newbern

DECLARATION OF DR. CHAD T. CARLSON, M.D., FACSM

I, Dr. Chad T. Carlson, pursuant to 28 U.S. Code § 1746, declare under penalty of perjury under the laws of the United States of America that the facts contained in my Expert Report of Dr. Chad T. Carlson, M.D., FACM prepared for *L.E. v. Governor Bill Lee, et al.*, attached hereto, are true and correct to the best of my knowledge and belief, and that the opinions expressed therein represent my own expert opinions.

Executed on May 25, 2022.

Chad T. Carlson, M.D., FACSM

Expert Report of Dr. Chad Thomas Carlson, M.D., FACSM
prepared for *L.E. v. Governor Bill Lee, et al.,*
May 25, 2022

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INTRODUCTION

Up to the present, the great majority of news, debate, and even scholarship about transgender participation in female athletics has focused on track and field events and athletes, and the debate has largely concerned questions of fairness and inclusion. However, the transgender eligibility policies of many high school athletic associations in the United States apply with equal force to all sports, including sports in which players frequently collide with each other, or can be forcefully struck by balls or equipment such as hockey or lacrosse sticks. And in fact, biologically male transgender athletes have competed in a wide range of high school, collegiate, and professional girls' or women's sports, including, at least, basketball,[1] soccer,[2] volleyball,[3] softball,[4] lacrosse,[5] and even women's tackle football.[6]

The science of sex-specific differences in physiology, intersecting with the physics of sports injury, leaves little doubt that participation by biological males in

[1]https://www.espn.com/espnw/athletes-life/story/_/id/10170842/espnw-gabrielle-ludwig-52-year-old-transgender-women-college-basketball-player-enjoying-best-year-life (accessed 2/17/22)

[2]https://www.unionleader.com/news/education/nh-bill-limits-women-s-sports-to-girls-born-female/article_d1998ea1-a1b9-5ba4-a48d-51a2aa01b910.html (accessed 5/24/22); https://www.outsports.com/2020/1/17/21069390/womens-soccer-mara-gomez-transgender-player-argentina-primera-division-villa-san-marcos (accessed 6/20/21)

[3]https://news.ucsc.edu/2016/09/challenging-assumptions.html (accessed 6/20/21); https://www.outsports.com/2017/3/20/14987924/trans-athlete-volleyball-tia-thompson (accessed 6/20/21)

[4]https://www.foxnews.com/us/californias-transgender-law-allows-male-high-schooler-to-make-girls-softball-team (accessed 6/20/21)

[5]https://savewomenssports.com/f/emilys-story?blogcategory=Our+Stories (accessed 6/20/21)

[6]https://www.outsports.com/2017/12/13/16748322/britney-stinson-trans-football-baseball (accessed 6/20/21); https://www.mprnews.org/story/2018/12/22/transgender-football-player-prevails-in-lawsuit (accessed 6/20/21)

these types of girls' or women's sports, based on gender identity, creates significant additional risk of injury for the biologically female participants competing alongside these transgender athletes.

In 2020, after an extensive review of the scientific literature, consultation with experts, and modeling of expected injuries, World Rugby published revised rules governing transgender participation, along with a detailed explanation of how the new policy was supported by current evidence. World Rugby concluded that "there is currently no basis with which safety and fairness can be assured to biologically female rugby players should they encounter contact situations with players whose biological male advantages persist to a large degree," and that after puberty, "the lowering of testosterone removes only a small proportion of the documented biological differences." Hence, World Rugby concluded that biological men should not compete in women's rugby. (World Rugby Transgender Women Guidelines 2020.) World Rugby has been criticized by some for its new guidelines, but those criticisms have often avoided discussions of medical science entirely, or have asserted that modeling scenarios can overstate true risk. What cannot be denied, however, is that World Rugby's approach is evidence-based, and rooted in concern for athlete safety. As a medical doctor who has spent my career in sports medicine, it is my opinion that World Rugby's assessment of the evidence is scientifically sound, and that injury modeling meaningfully predicts that biologically male transgender athletes do constitute a safety risk for the biologically female athlete in women's sports.

In a similar vein, in 2021, the UK Sports Councils' Equality Group released new guidance for transgender inclusion in organized sports. This guidance was formulated after extensive conversations with stakeholders, a review of scientific findings related to transgender athletes in sport through early 2021, and an assessment of the use by some sport national governing bodies of case-by-case assessment to determine eligibility. Noteworthy within these stakeholder consultations was a lack of consensus on any workable solution, as well as concerns related to athlete safety and "adherence to rules which give sport validity." The Literature Review accompanying the guidance document further noted that "[t]here are significant differences between the sexes which render direct competition between males and females . . . unsafe in sports which allow physical contact and collisions." (UK Sports Councils' Equality Group Literature Review 2021 at 1.) Their review of the science "made clear that there are retained differences in strength, stamina and physique between the average woman compared with the average transgender woman….with or without testosterone suppression." (UK Sports Councils' Equality Group Guidance at 3.) This was also reflected in their ten guiding principles, stating that physical differences between the sexes will "impact safety parameters in sports which are combat, collision or contact in nature." (UK Sports Councils' Equality Group Guidance 2021 at 7.) Ultimately, UK Sport concluded that the full inclusion of transgender athletes in women's sports "cannot be reconciled within the current structure of sport," stating that "the inclusion of transgender people into female sport cannot be balanced regarding transgender inclusion, fairness and safety in gender-affected sport where there is meaningful competition . . . due to retained differences in strength, stamina and physique between the average woman compared with the average transgender woman…, with or without testosterone suppression." (UK

Sports Councils' Equality Group Guidance 2021 at 6.) Finally, UK Sport affirmed the use of sex categorization in sport, along with age and disability, as important for the maintenance of safety and fairness. (UK Sports Councils' Equality Group Guidance 2021 at 7–8.)

Unfortunately, apart from World Rugby's careful review and the recent release of UK Sports Councils' guidance, the public discourse is lacking any careful consideration of the question of safety. As a physician who has spent my career caring for athletes, I find this silence about safety both surprising and concerning. It is my hope to equip and motivate sports leagues and policy makers to give adequate attention to the issue of safety for female athletes when transgender policies are being considered. I first explain the nature and causes of common sports injuries. I then review physiological differences between male and female bodies that affect the risk and severity of injuries to females when biological males compete in the female category, and I explain why testosterone suppression does not eliminate these heightened risks to females. Finally, I explain certain conclusions about those risks.

CREDENTIALS

1. I am a medical doctor practicing Sports Medicine, maintaining an active clinical practice at Stadia Sports Medicine in West Des Moines, Iowa. I received my M.D. from the University of Nebraska College of Medicine in 1994 and completed a residency in family medicine at the University of Michigan in 1997.

2. Following my time in Ann Arbor, I matched to a fellowship in Sports Medicine at Ball Memorial Hospital in Muncie, Indiana, training from 1997 to 1999, with clinical time split between Central Indiana Orthopedics, the Ball State Human

Performance Laboratory, and the Ball State University training room. I received my board certification in Sports Medicine in 1999, which I continue to hold. Since residency training, my practice has focused on Sports Medicine—the treatment and prevention of injuries related to sport and physical activity.

3. Since 1997, I have served in several clinical practices and settings as a treating physician, including time as team physician for both the University of Illinois and Ball State University, where I provided care to athletes in several sports, including football, ice hockey, basketball, field hockey, softball, gymnastics, soccer, and volleyball. In the course of my career, I have provided coverage for NCAA Power Five Conference championships and NCAA National Championship events in basketball, field hockey and gymnastics, among other sports, as well as provided coverage for national championship events for U.S.A. gymnastics, and U.S. Swimming and Diving. I have also covered professional soccer in Des Moines.

4. Since 2006, I have been the physician owner of Stadia Sports Medicine in West Des Moines, Iowa. My practice focuses on treatment of sports and activity-related injury, including concussive injury, as well as problems related to the physiology of sport.

5. I have served in and provided leadership for several professional organizations over the course of my career. In 2004, I was designated a Fellow of the American College of Sports Medicine (ACSM). I have served on ACSM's Health and Science Policy Committee since 2010, and for a time chaired their Clinical Medicine Subcommittee. From 2009 to 2013, I served two elected terms on the Board of Directors of the American Medical Society for Sports Medicine (AMSSM), and during

that time served as Chair of that body's Practice and Policy Committee. I was subsequently elected to a four-year term on AMSSM's executive committee in 2017, and from 2019–20, I served as AMSSM's President. AMSSM is the largest organization of sports medicine physicians in the world. I gained fellowship status through AMSSM in 2020—my first year of eligibility. My work for ACSM and AMSSM has brought with it extensive experience in public policy as relates to Sports Medicine.

6. In 2020, I was named as AMSSM's first board delegate to the newly-constituted Physical Activity Alliance. I am a named member of an NCAA advisory group on COVID-19, through which I provided input regarding the cancellation of the basketball tournament in 2020. I also serve as a member of the Iowa Medical Society's Sports Medicine Subcommittee and have been asked to serve on the Iowa High School Athletic Association's newly-forming Sports Medicine Advisory Committee.

7. I have served as a manuscript reviewer for organizational policy pronouncements, and for several professional publications, most recently a sports medicine board review book just published in 2021. I have published several articles on topics related to musculoskeletal injuries in sports and rehabilitation, which have been published in peer-reviewed journals such as Clinical Journal of Sports Medicine, British Journal of Sports Medicine, Current Reviews in Musculoskeletal Medicine, Athletic Therapy Today, and the Journal of Athletic Training. In conjunction with my work in policy advocacy, I have helped write several pieces of legislation, including the initial draft of what became the Sports Medicine Licensure Clarity Act, signed into law by President Trump in 2018, which eases the restrictions on certain practitioners to provide health services to athletes and athletic teams outside of the

practitioner's home state. A list of my publications over the past ten (10) years is included as an appendix to this report.

8. In the past four years, I testified as an expert witness by deposition in *B.P.J. v. West Virginia*, S.D. W.V., No. 2:21-cv-00316.

9. I am being compensated for my services as an expert witness in this case at the rates of $650 per hour for consultation, $800 per hour for deposition testimony, and $3,200 per half-day of trial testimony.

I. OVERVIEW

10. In this statement, I offer information and my own professional opinion on the potential for increased injury risk to females in sports when they compete against biologically male transgender athletes.[7] At many points in this statement, I provide citations to published, peer-reviewed articles that provide relevant and supporting information to the points I make.

11. The principal conclusions that I set out in this white paper are as follows:

a. Government and sporting organizations have historically considered the preservation of athlete safety as one component of competitive equity.

b. Injury in sport is somewhat predictable based on modeling assumptions that take into account relevant internal and external risk factors.

[7] In the body of this paper, I use the terms "male" and "female" according to their ordinary medical meaning—that is to say, to refer to the two biological sexes. I also use the word "man" to refer to a biologically male human, and "woman" to refer to a biologically female human. In the context of this opinion, I include in these categories non-syndromic, biologically-normal males and females who identify as a member of the opposite sex, including those who use endogenous hormone suppression to alter their body habitus. In contexts that are not focused on questions of biology and physiology, terms of gender are sometimes used to refer to subjective identities rather than to biological categories—something I avoid for purposes of a paper focused on sports science.

c. Males exhibit large average advantages in size, weight, and physical capacity over females—often falling far outside female ranges. Even before puberty, males have a performance advantage over females in most athletic events. Failure to preserve protected female-only categories in contact sports (broadly defined) will ultimately increase both the frequency and severity of injury suffered by female athletes who share playing space with these males.

d. Current research supports the conclusion that suppression of testosterone levels by males who have already begun puberty will not fully reverse the effects of testosterone on skeletal size, strength, or muscle hypertrophy, leading to persistence of sex-based differences in power, speed, and force-generating capacity.

12. In this white paper, I use the term "contact sports" to refer broadly to all sports in which collisions between players, or collisions between equipment such as a stick or ball and the body of a player, occur with some frequency (whether or not permitted by the rules of the game), and are well recognized in the field of sports medicine as causes of sport-related injuries.[8] The 1975 Title IX implementing regulations (34 CFR § 106.41) say that "for purposes of this [regulation] contact sports include boxing, wrestling, rugby, ice hockey, football, basketball, *and other sports* the purpose or major activity of which involves bodily contact." Certainly, all of the sports specifically named in the regulation fall within my definition of "contact sport." Mixed martial arts, field hockey (Barboza 2018), soccer (Kuczinski 2018), rugby (Viviers 2018), lacrosse (Pierpoint 2019), volleyball,[9] baseball, and softball also involve collisions that can and do result in injuries, and so also fall within my definition.

[8] It is common to see, within the medical literature, reference to distinctions between "contact" and "collision" sports. For purposes of clarity, I have combined these terms, since in the context of injury risk modeling, there is no practical distinction between them.

[9] See https://www.latimes.com/sports/story/2020-12-08/stanford-volleyball-hayley-hodson-concussions-cte-lawsuit, and https://volleyballmag.com/corinneatchison/ (both accessed 6/20/21).

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II. A BRIEF HISTORY OF THE RATIONALE FOR SEPARATION OF SPORT BY SEX

13. World Rugby is correct when it notes that "the women's category exists to ensure protection, safety, and equality" for women. (World Rugby Transgender Women Guidelines 2020.) To some extent, those in charge of sport governing bodies in the modern era have always recognized the importance of grouping athletes together based on physical attributes, in order to ensure both safety and competitive balance. Weight classifications have existed in wrestling since it reappeared as an Olympic event in 1904. Women and men have participated in separate categories since the advent of intercollegiate sporting clubs early in the 20th century. When Title IX went into effect in 1975, there were just under 300,000 female high school athletes, and fewer than 10,000 female collegiate athletes. With the changes that resulted from Title IX, it was assumed that newly available funds for women in sport would ensure the maintenance of existing, or creation of new, sex-segregated athletic teams that would foster greater participation by women. This has been borne out subsequently; by the first half of the 1980's these numbers had risen to 1.9 million and nearly 100,000 respectively. (Hult 1989.)

14. The rationale for ongoing "separate but equal" status when it came to sex-segregated sports was made clear within the language of the original implementing regulations of Title IX, which, acknowledging real, biologically-driven differences between the sexes, created carve-out exceptions authorizing sex-separation of sport for reasons rooted in the maintenance of competitive equity. Importantly, the effect of these innate sex-based differences on the health and safety

of the athlete were acknowledged by the express authorization of sex-separated teams for sports with higher perceived injury risk—i.e., "contact sports." (Coleman 2020.)

15. In the almost half century since those regulations were adopted, the persistent reality of sex-determined differences in athletic performance and safety has been recognized by the ongoing and nearly universal segregation of men's and women's teams—even those that are not classically defined as being part of a contact or collision sport.

16. Now, however, many schools and sports leagues in this country are permitting males to compete in female athletics—including in contact sports—based on gender identity. In my view, these policies have been adopted without careful analysis of safety implications. Other researchers and clinicians have addressed questions of the negative impact of such policies on fairness, or equality of athletic experiences for girls and women, in published articles, and in court submissions. One recent review of track and field performances, including sprints, distance races and field events, noted that men surpass the top female performance in each category between 1000 and 10,000 times *each year*, with hundreds or thousands of men beating the top women in each event. (Coleman & Shreve.) Although this was not their primary focus, World Rugby well-summarized the point when it observed that in a ranking list of the top thousand performances in most sports, every year, *every one* will have been achieved by a biological male. (World Rugby Transgender Women Guidelines 2020.) Although most easily documented in athletes who have gone through puberty, these differences are not exclusively limited to post-pubescent athletes either.

17. Global population-based fitness testing over wide geographical regions reveals consistent measurable performance advantages of boys over girls in tests measuring speed, upper and lower body limb strength and power. (Kasovic 2021; De Miguel-Etayo 2014; Tambalis 2016; Catley 2013.) Prospective data involving the training of eight-year-old boys and girls in kicking and throwing ability shows consistently higher performance of boys over girls at baseline, and similar gains from baseline in both sexes after coaching. (Dohrmann 1964.) I have reviewed the expert declaration of Gregory A. Brown, Ph.D., FACM of February 23, 2022, provided in West Virginia's case, which includes evidence from a wide variety of sources, including population-based mass testing data, as well as age-stratified competition results, all of which support the idea that prepubertal males run faster, jump higher and farther, exhibit higher aerobic power output, and have greater upper body strength (evidenced by stronger hand grip and better performance with chin-ups or bent arm hang) than comparably aged females. This performance gap is well-documented in population-based physiologic testing data that exists in databases such as the Presidential Fitness Test, the Eurofit Fitness test, and additional mass testing data from the UK and Australia. Collectively, this data reveals that pre-pubertal males outperform comparably aged females in a wide array of athletic tests including but not limited to the countermovement jump test, drop jump test, change of direction test, long jump, timed sit-up test, the 10 X 5 meter shuttle run test, the 20 meter shuttle run test, curl-ups, pull-ups, push-ups, one mile run, standing broad jump, and bent arm hang test. Dr. Brown further references studies showing a significant difference in the body composition of males and females before puberty. In sum, a large and unbridgeable

performance gap between the sexes is well-studied and equally well-documented, beginning in many cases before puberty. In this white paper, I focus on some of these differences as they touch on the question of athlete safety.

III. UNDERSTANDING THE CAUSES OF SPORTS INJURIES

18. The causes for injury in sport are multifactorial. In recent decades, medical researchers have provided us an evolving understanding of how sports injuries occur, as well as the factors that make them more or less probable, and more or less severe. Broadly speaking, there are two ways of modeling injury: the epidemiological model, and the biomechanical model. These models are not mutually exclusive, but provide complementary conceptual frameworks to help us stratify risk in sport.

A. The epidemiological model of injury

19. From a practical standpoint, sports medicine researchers and clinicians often use the "epidemiological model" to explain, prevent and manage sports injuries. Broadly speaking, this model views an injury in sport as the product of internal and external risk factors, triggered by an inciting event. In other words, a given injury is "caused" by a number of different factors that are unique to a given situation. (Meeuwise 1994.) When the interplay of these factors exceeds the injury threshold, injury occurs. One example of how this interplay might work would be a female distance runner in track who develops a tibial stress fracture, with identified risks of low estrogen state from amenorrhea (suppression of menses), an aggressive winter training program on an indoor tile surface, and shoes that have been used for too many miles, and are no longer providing proper shock absorption. Most risk factors

ebb and flow, with the overall injury risk at any given time fluctuating as well. Proper attention to risk factor reduction *before* the start of the sports season (including appropriate rule-making) is the best way to reduce actual injury rates *during* the season.

20. As alluded to, the risk factors associated with injury can be broadly categorized as internal or external. Internal risk factors are internal to the athlete. These include relatively fixed variables, such as the athlete's age, biological sex, bone mineral density (which affects bone strength) and joint laxity, as well as more mutable variables such as body weight, fitness level, hydration state, current illness, prior injury, or psychosocial factors such as aggression.

21. External risk factors are, as the name suggests, external to the athlete. These include non-human risks such as the condition of the playing surface or equipment, athletic shoe wear, or environmental conditions. Other external risk factors come from opposing competitors, and include such variables as player size, speed, aggressiveness, and overall adherence to the rules of the game. As already mentioned, these risks can be minimized through the proper creation and enforcement of rules, as well as the appropriate grouping of athletes together for purposes of competition. To the latter point, children don't play contact sports with adults and, in the great majority of cases, men and women compete in categories specific to their own biological sex. Certainly these categorical separations are motivated in part by average performance differences and considerations of fairness and opportunity. But they are also motivated by safety concerns. When properly applied, these divisions enhance safety because, when it comes to physical traits such

as body size, weight, speed, muscle girth, and bone strength, although a certain amount of variability exists within each group, the averages and medians differ widely *between* the separated groups.[10]

22. Thus, each of these commonly utilized groupings of athletes represents a pool of individuals with predictable commonalities. Epidemiological risk assessment is somewhat predictable and translatable as long as these pools remain intact. But the introduction of outside individuals into a given pool (e.g. an adult onto a youth football team, or males into most women's sports) would change the balance of risk inside that pool. Simply put, when you introduce larger, faster, and stronger athletes from one pool into a second pool of athletes who are *categorically* smaller (whether as a result of age or sex), you have altered the characteristics of the second pool, and, based on known injury modeling, have statistically increased the injury risk for the original athletes in that pool. This, in a nutshell, is the basis for World Rugby's recommendations.

23. Most clinical studies of the epidemiology of sports injuries use a multivariate approach, identifying multiple independent risk factors and examining how these factors might interact, in order to determine their relative contribution to injury risk, and make educated inferences about causation. (Meeuwise 1994.)

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[10] In some cases, safety requires even further division or exclusion. A welterweight boxer would not compete against a heavyweight, nor a heavyweight wrestle against a smaller athlete. In the case of youth sports, when children are at an age where growth rates can vary widely, leagues will accommodate for naturally-occurring large discrepancies in body size by limiting larger athletes from playing positions where their size and strength is likely to result in injury to smaller players. Thus, in youth football, players exceeding a certain weight threshold may be temporarily restricted to playing on the line and disallowed from carrying the ball, or playing in the defensive secondary, where they could impose high-velocity hits on smaller players.

24. In applying the multivariate approach, the goal is to keep as many variables as possible the same so as to isolate the potential effect of a single variable (such as age or biological sex) on injury risk, as well as to determine how the isolated variable interacts with the other analyzed variables to affect injury risk. Failure to consider relevant independent variables can lead to error. Researchers focusing on differences between male and female athletes, for example, would not compare concussion rates of a high school girls' soccer team to concussion rates of a professional men's soccer team, because differences in the concussion rate might be due to a number of factors besides sex, such as age, body mass, relative differences in skill, speed, or power, as well as differences in training volume and intensity.

25. As indicated earlier, an injury event is usually the end product of a number of different risk factors coming together. (Bahr 2005.) A collision between two soccer players who both attempt to head the ball, for example, might be the inciting event that causes a concussion. Although the linear and angular forces that occur through sudden deceleration would be the proximate cause of this injury, the epidemiological model of injury would also factor in "upstream" risks, predicting the possibility of an injury outcome for each athlete differently depending on the sum of these risks. If the collision injury described above occurs between two disparately-sized players, the smaller athlete will tend to decelerate more abruptly than the larger athlete, increasing the smaller athlete's risk for injury. Additional discrepancies in factors such as neck strength, running speeds, and muscle force generation capacity all result in differing risks and thus, the potential for differing injury outcomes from the same collision. As I discuss later in this white paper, there

are significant statistical differences between the sexes when it comes to each of these variables, meaning that in a collision sport where skeletally mature males and females are playing against one another, there is a higher statistical likelihood that injury will result when collisions occur, and in particular there is a higher likelihood that a female will suffer injury. This again is the basis for the recent decision by World Rugby to disallow the crossover of men into women's rugby, regardless of gender identity. (World Rugby Transgender Women Guidelines 2020.) The decision-making represented by this policy change is rational and rooted in objective facts and objective risks of harm, because it takes real, acknowledged, and documented physical differences between the sexes (in many cases before adolescence), and models expected injury risk on the basis of the known differences that persist even after hormone manipulation.

B. The biomechanical model of injury

26. Sports medicine researchers and clinicians also consider a biomechanical approach when it comes to understanding sports injuries. In the biomechanical model of injury, injury is considered to be analogous to the failure of a machine or other structure. Every bone, muscle, or connective tissue structure in an athlete's body has a certain load tolerance. Conceptually, when an external "load" exceeds the load tolerance of a given structure in the human body, an injury occurs. (Fung 1993 at 1.) Thus, researchers focus on the mechanical load—the force exerted on a bone, ligament, joint or other body part—and the load tolerance of that impacted or stressed body part, to understand what the typical threshold for injury is, and how predictable this might be. (McIntosh 2005 at 2–3.) Biomechanical models of injury

usually consider forces in isolation. The more consistent the movement pattern of an individual, and the fewer the contributions of unexpected outside forces to the athlete, the more accurate biomechanical predictions of injury will be.

27. Biomechanical modeling can be highly predictive in relatively simple settings. For example, in blunt trauma injury from falls, mortality predictably rises the greater the fall. About 50% of people who fall four stories will survive, while only 10% will survive a fall of seven stories. (Buckman 1991.) As complexity increases, predictability in turn decreases. In sport, the pitching motion is highly reproducible, and strain injury to the ulnar collateral ligament (UCL) of the elbow can be modeled. The load tolerance of the UCL of a pitcher's elbow is about 32 Newton-meters, but the failure threshold of a ligament like this in isolation is not the only determinant of whether injury will occur. During the pitching motion, the valgus force imparted to the elbow (gapping stress across the inner elbow that stretches the UCL) routinely reaches 64 Newtons, which is obviously greater than the failure threshold of the ligament. Since not all pitchers tear their UCLs, other variables innate to an athlete must mitigate force transmission to the ligament and reduce risk. The load tolerance of any particular part of an athlete's body is thus determined by other internal factors such as joint stiffness, total ligament support, muscle strength across the joint, or bone mineral density. Injury load can be self-generated, as in the case of a pitcher's elbow, or externally-generated, as in the case of a linebacker hitting a wide receiver. While load tolerance will vary by individual, as described above, and is often reliant on characteristics innate to a given athlete, external load is determined by outside factors such as the nature of the playing surface or equipment used, in combination

with the weight and speed of other players or objects (such as a batted ball) with which the player collides. (Bahr 2005.)

28. As this suggests, the two "models" of sports injuries described above are not in any sense inconsistent or in tension with each other. Instead, they are complementary ways of thinking about injuries that can provide different insights. But the important point to make regarding these models is that in either model, injury risk (or the threshold for injury) rises and falls depending on the size of an externally-applied force, and the ability of a given athlete to absorb or mitigate that force.

IV. THE PHYSICS OF SPORTS INJURY

29. Sports injuries often result from collisions between players, or between a player and a rapidly moving object (e.g. a ball or hockey puck, a lacrosse or hockey stick). In soccer, for example, most head injuries result from collisions with another player's head or body, collision with the goal or ground, or from an unanticipated blow from a kicked ball. (Boden 1998; Mooney 2020.) In basketball, players often collide with each other during screens, while diving for a loose ball, or while driving to the basket. In lacrosse or field hockey, player-to-player, or player-to-stick contact is common.

30. But what are the results of those collisions on the human body? Basic principles of physics can cast light on this question from more than one angle. A general understanding of these principles can help us identify factors that will predictably increase the relative risk, frequency, and severity of sports injuries, given certain assumptions.

31. First, we can consider **energy**. Every collision involves an object or objects that possess energy. The energy embodied in a moving object (whether a human body, a ball, or anything else) is called kinetic energy.

32. Importantly, the kinetic energy of a moving object is expressed as: $\boldsymbol{E_k = \frac{1}{2}mv^2}$. That is, kinetic energy is a function of the mass of the object multiplied by the *square* of its velocity. (Dashnaw 2012.) To illustrate with a simple but extreme example: if athletes A and B are moving at the same speed, but athlete A is twice as heavy, athlete A carries twice as much kinetic energy as athlete B. If the two athletes weigh the same amount, but athlete A is going twice as fast, athlete A carries four times as much kinetic energy as athlete B. But as I have noted, the kinetic energy of a moving object is a function of the mass of the object multiplied by the square of its velocity. Thus, if athlete A is twice as heavy, and moving twice as fast, athlete A will carry eight times the kinetic energy of athlete B into a collision.[11]

33. The implication of this equation means that what appear to be relatively minor discrepancies in size and speed can result in major differences in energy imparted in a collision, to the point that more frequent and more severe injuries can occur. To use figures that correspond more closely to average differences between men and women, if Player M weighs only 20% more than Player F, and runs only 15% faster, Player M will bring *58% more kinetic energy* into a collision than Player F.[12]

[11] $2 \times 2^2 = 8$

[12] $1.2 \times (1.15)^2 = 1.587$

34. The law of conservation of energy tells us that energy is never destroyed or "used up." If kinetic energy is "lost" by one body in a collision, it is inevitably transferred to another body, or into a different form. In the case of collision between players, or between (e.g.) a ball and a player's head, some of the energy "lost" by one player, or by the ball, may be transformed into (harmless) sound; some may result in an increase in the kinetic energy of the player who is struck (through acceleration, which I discuss below); but some of it may result in *deformation* of the player's body—which, depending on its severity, may result in injury. Thus, the greater the kinetic energy brought into a collision, the greater the potential for injury, all other things being equal.

35. Alternately, we can consider force and *acceleration*, which is particularly relevant to concussion injuries.

36. Newton's third law of motion tells us that when two players collide, their bodies experience equal and opposite forces at the point of impact.

37. Acceleration refers to the rate of change in speed (or velocity). When two athletes collide, their bodies necessarily accelerate (or decelerate) rapidly: stopping abruptly, bouncing back, or being deflected in a different direction. Newton's second law of motion tells us that: $\boldsymbol{F} = \boldsymbol{ma}$ (that is, force equals mass multiplied by acceleration). From this equation we see that when a larger and a smaller body collide, and (necessarily) experience equal and opposite forces, the smaller body (or smaller player, in sport) will experience more rapid acceleration. We observe this physical principle in action when we watch a bowling ball strike bowling pins: the

heavy bowling ball only slightly changes its course and speed; the lighter pins go flying.

38. This same equation also tells us that if a given player's body or head is hit with a *larger* force (e.g., from a ball that has been thrown or hit faster), it will experience *greater* acceleration, everything else being equal.

39. Of course, sport is by definition somewhat chaotic, and forces are often not purely linear. Many collisions also involve angular velocities, with the production of rotational force, or torque. Torque can be thought of as force that causes rotation around a central point. A different but similar equation of Newtonian physics governs the principles involved.[13] Torque is relevant to injury in several ways. When torque is applied through joints in directions those joints are not able to accommodate, injury can occur. In addition, rotational force can cause different parts of the body to accelerate at different rates—in some cases, very rapid rates, also leading to injury. For example, a collision where the body is impacted at the waist can result in high torque and acceleration on the neck and head.

40. Sport-related concussion—a common sports injury and one with potentially significant effects—is attributable to linear, angular, or rotational acceleration and deceleration forces that result from impact to the head, or from an impact to the body that results in a whiplash "snap" of the head. (Rowson 2016.) In

[13] In this equation, $\boldsymbol{\tau} = \boldsymbol{I\alpha}$, torque equals moment of inertia multiplied by angular acceleration, where "moment of inertia" is defined as $\boldsymbol{I} = \boldsymbol{mr^2}$, that is, mass multiplied by the square of the distance to the rotational axis.

the case of a concussive head injury, it is the brain that accelerates or decelerates on impact, colliding with the inner surface of the skull. (Barth 2001 at 255.)

41. None of this is mysterious: each of us, if we had to choose between being hit either by a large, heavy athlete running at full speed, or by a small, lighter athlete, would intuitively choose collision with the small, light athlete as the lesser of the two evils. And we would be right. One author referred to the "increase in kinetic energy, and therefore imparted forces" resulting from collision with larger, faster players as "profound." (Dashnaw 2012.)

V. GENDER DIFFERENCES RELEVANT TO INJURY

42. It is important to state up front that it is self-evident to most people familiar with sport and sport injuries that if men and women were to consistently participate together in competitive contact sports, there would be higher rates of injury in women. This is one reason that rule modifications often exist in leagues where co-ed participation occurs.[14] Understanding the physics of sports injuries helps provide a theoretical framework for why this is true, but so does common sense and experience. All of us are familiar with basic objective physiological differences between the sexes, some of which exist in childhood, and some of which become apparent after the onset of puberty, and persist throughout adulthood. And as a result of personal experience, all of us also have some intuitive sense of what types of collisions are likely to cause pain or injury. Not surprisingly, our "common sense" on

[14] For example, see https://www.athleticbusiness.com/college/intramural-coed-basketball-playing-rules-vary-greatly.html (detailing variety of rule modifications applied in co-ed basketball). Similarly, coed soccer leagues often prohibit so-called "slide tackles," which are not prohibited in either men's or women's soccer. See, e.g.., http://www.premiercoedsports.com/pages/rulesandpolicies/soccer.

these basic facts about the human condition is also consistent with the observations of medical science. Below, I provide quantifications of some of these well-known differences between the sexes that are relevant to injury risk, as well as some categorical differences that may be less well known.

A. Height and weight

43. It is an inescapable fact of the human species that males as a group are statistically larger and heavier than females. On average, men are 7% to 8% taller than women. (Handelsman 2018 at 818.) According to the most recently available Centers for Disease Control and Prevention (CDC) statistics, the weight of the average U.S. adult male is 16% greater than that of the average U.S. adult female. (CDC 2018.) This disparity persists into the athletic cohort. Researchers find that while athletes tend on average to be lighter than non-athletes, the weight difference between the average adult male and female athlete remains within the same range—between 14% and 23%, depending on the sport analyzed. (Santos 2014; Fields 2018.) Indeed, World Rugby estimates that the typical male rugby player weighs 20% to 40% more than the typical female rugby player. (World Rugby Transgender Women Guidelines 2020.) This size advantage by itself allows men to bring more force to bear in a collision.

B. Bone and connective tissue strength

44. Men have bones in their arms, legs, feet, and hands that are both larger and stronger per unit volume than those of women, due to greater cross-sectional area, greater bone mineral content, and greater bone density. The advantage in bone size (cross-sectional area) holds true in both upper and lower extremities, even when

adjusted for lean body mass. (Handelsman 2018 at 818; Nieves 2005 at 530.) Greater bone size in men is also correlated with stronger tendons that are more adaptable to training (Magnusson 2007), and an increased ability to withstand the forces produced by larger muscles (Morris 2020 at 5). Male bones are not merely larger, they are stronger per unit of volume. Studies of differences in arm and leg bone mineral density—one component of bone strength—find that male bones are denser, with measured advantages of between 5% and 14%. (Gilsanz 2011; Nieves 2005.)

45. Men also have larger ligaments than women (Lin 2019 at 5), and stiffer connective tissue (Hilton 2021 at Table 1), providing greater protection against joint injury.

C. Speed

46. When it comes to acceleration from a static position to a sprint, men are consistently faster than women. World record sprint performance gaps between the sexes remain significant at between 7% and 10.5%, with world record times in women now exhibiting a plateau (no longer rapidly improving with time) similar to the historical trends seen in men. (Cheuvront 2005.) This performance gap has to do with, among other factors, increased skeletal stiffness, greater cross-sectional muscle area, denser muscle fiber composition and greater limb length. (Handelsman 2018.) Collectively, males, on average, run about 10% faster than females. (Lombardo 2018 at 93.) This becomes important as it pertains to injury risk, because males involved in sport will often be travelling at faster speeds than their female counterparts in comparable settings, with resultant faster speed at impact, and thus greater impact force, in a given collision.

D. Strength/Power

47. In 2014, a male mixed-martial art fighter identifying as female and fighting under the name Fallon Fox fought a woman named Tamikka Brents, and caused significant facial injuries in the course of their bout. Speaking about their fight later, Brents said:

> "I've fought a lot of women and have never felt the strength that I felt in a fight as I did that night. I can't answer whether it's because she was born a man or not because I'm not a doctor. I can only say, I've never felt so overpowered ever in my life, and I am an abnormally strong female in my own right."[15]

48. So far as I am aware, mixed martial arts is not a collegiate or high school interscholastic sport. Nevertheless, what Brent experienced in an extreme setting is true and relevant to safety in all sports that involve contact. In absolute terms, males as a group are substantially stronger than women.

49. Compared to women, men have "larger and denser muscle mass, and stiffer connective tissue, with associated capacity to exert greater muscular force more rapidly and efficiently." (Hilton 2021 at 201.) Research shows that on average, during the prime athletic years (ages 18–29) men have, on average, 54% greater total muscle mass than women (33.7 kg vs. 21.8 kg) including 64% greater muscle mass in the upper body, and 47% greater in the lower body. (Janssen 2000 at Table 1.) The cross-sectional area of muscle in women is only 50% to 60% that of men in the upper arm, and 65% to 70% of that of men in the thigh. This translates to women having only 50% to 60% of men's upper limb strength and 60% to 80% of men's lower limb

[15] https://bjj-world.com/transgender-mma-fighter-fallon-fox-breaks-skull-of-her-female-opponent/

strength. (Handelsman 2018 at 812.) Male weightlifters have been shown to be approximately 30% stronger than female weightlifters of equivalent stature and mass. (Hilton 2021 at 203.) But in competitive athletics, since the stature and mass of the average male exceeds that of the average female, actual differences in strength between average body types will, on average, exceed this. The longer limb lengths of males augment strength as well. Statistically, in comparison with women, men also have lower total body fat, differently distributed, and greater lean muscle mass, which increases their power-to-weight ratios and upper-to-lower limb strength ratios as a group. Looking at another common metric of strength, males average 57% greater grip strength (Bohannon 2019) and 54% greater knee extension torque (Neder 1999). Research shows that sex-based discrepancies in lean muscle mass begin to be established from infancy, and persist through childhood to adolescence. (Davis 2019; Kirchengast 2001; Taylor 1997; Taylor 2010; McManus 2011.)

50. Using their legs and torso for power generation, men can apply substantially larger forces with their arms and upper body, enabling them to generate more ball velocity through overhead motions, as well as to generate more pushing or punching power. In other words, isolated sex-specific differences in muscle strength in one region (even differences that in isolation seem small) can, and do combine to generate even greater sex-specific differences in more complex sport-specific functions. One study looking at moderately-trained individuals found that males can generate 162% more punching power than females. (Morris 2020.) Thus, multiple small advantages aggregate into larger ones.

E. Throwing and kicking speed

51. One result of the combined effects of these sex-determined differences in skeletal structure is that men are, on average, able to throw objects faster than women. (Lombardo 2018; Chu 2009; Thomas 1985.) By age seventeen, the *average* male can throw a ball farther than 99% of seventeen-year-old females—which necessarily means at a faster initial speed assuming a similar angle of release—despite the fact that factors such as arm length, muscle mass, and joint stiffness individually don't come close to exhibiting this degree of sex-defined advantage. One study of elite male and female baseball pitchers showed that men throw baseballs 35% faster than women—81 miles/hour for men vs. 60 miles/hour for women. The authors of this study attribute this to a sex-specific difference in the ability to generate muscle torque and power. (Chu 2009.) A study showing greater throwing velocity in male versus female handball players attributed it to differences in body size, including height, muscle mass, and arm length. (Van Den Tillaar 2012.) Interestingly, significant sex-related difference in throwing ability has been shown to manifest even before puberty, but the difference increases rapidly during and after puberty. (Thomas 1985 at 266.) These sex-determined differences in throwing speed are not limited to sports where a ball is thrown. Males have repeatedly been shown to throw a javelin more than 30% farther than females. (Lombardo 2018 Table 2; Hilton 2021 at 203.) Even in preadolescent children, differences exist. International

youth records for 5- to 12-year-olds in the javelin show 34–55% greater distance in males vs. females using a 400g javelin.[16]

52. Men also serve and spike volleyballs with higher velocity than women, with a performance advantage in the range of 29–34%. (Hilton 2021.) Analysis of first and second tier Belgian national elite male volleyball players shows ball spike speeds of 63 mph and 56 mph respectively. (Forthomme 2005.) NCAA Division I female volleyball players—roughly comparable to the second-tier male elite group referenced above—average a ball spike velocity of approximately 40 mph (18.1 m/s). (Ferris 1995 at Table 2.) Notably, based on the measurements of these studies, male spiking speed in *lower* elite divisions is almost 40% greater than that of NCAA Division I female collegiate players. Separate analyses of serving speed between elite men and women Spanish volleyball players showed that the average power serving speed in men was 54.6 mph (range 45.3–64.6 mph), with maximal speed of 76.4 mph. In women, average power serving speed was 49 mph (range 41–55.3 mph) with maximal speed of 59 mph. This translates to an almost 30% advantage in maximal serve velocity in men. (Palao 2014.)

53. Recall that kinetic energy is dependent on mass and the square of velocity. A volleyball (with fixed mass) struck by a male, and traveling an average 35% faster than one struck by a female, will deliver 82% more energy to a head upon impact.

[16] http://age-records.125mb.com/.

54. The greater leg strength and jumping ability of men confer a further large advantage in volleyball that is relevant to injury risk. In volleyball, an "attack jump" is a jump to position a player to spike the ball downward over the net against the opposing team. Research on elite national volleyball players found that on average, males exhibited a 50% greater vertical jump height during an "attack" than did females. (Sattler 2015.) Similar data looking at countermovement jumps (to block a shot) in national basketball players reveals a 35% male advantage in jump height. (Kellis 1999.) In volleyball, this dramatic difference in jump height means that male players who are competing in female divisions will more often be able to successfully perform a spike, and this will be all the more true considering that the women's net height is seven inches lower than that used in men's volleyball. Confirming this inference, research also shows that the successful attack percentage (that is, the frequency with which the ball is successfully hit over the net into the opponent's court in an attempt to score) is so much higher with men than women that someone analyzing game statistics can consistently identify games played by men as opposed to women on the basis of this statistic alone. These enhanced and more consistently successful attacks by men directly correlate to their greater jumping ability and attack velocity at the net. (Kountouris 2015.)

55. The combination of the innate male-female differences cited above, along with the lower net height in women's volleyball, means that if a reasonably athletic male is permitted to compete against women, the participating female players will likely be exposed to higher ball velocities that are outside the range of what is typically seen in women's volleyball. When we recall that ball-to-head impact is a

common cause of concussion among women volleyball players, this fact makes it clear that participation in girls' or women's volleyball by biologically male individuals will increase concussion injury risk for participating girls or women.

56. Male sex-based advantages in leg strength also lead to greater kick velocity. In comparison with women, men kick balls harder and faster. A study comparing kicking velocity between university-level male and female soccer players found that males kick the ball with an average 20% greater velocity than females. (Sakamoto 2014.) Applying the same principles of physics we have just used above, we see that a soccer ball kicked by a male, travelling an average 20% faster than a ball kicked by a female, will deliver 44% more energy on head impact. Greater force-generating capacity will thus increase the risk of an impact injury such as concussion.

VI. ENHANCED FEMALE VULNERABILITY TO CERTAIN INJURIES

57. Above, I have reviewed physiological differences that result in the male body bringing greater weight, speed, and force to the athletic field or court, and how these differences can result in a greater risk of injury to females when males compete against them. It is also true that the female body is more vulnerable than the male body to certain types of injury even when subject to comparable forces. This risk appears to extend to the younger age cohorts as well. An analysis of Finnish student athletes from 1987–1991, analyzing over 600,000 person-years of activity exposures, found, in students under fifteen years of age, higher rates of injury in girls than boys in soccer, volleyball, judo and karate. (Kujala 1995.) Another epidemiological study looking specifically at injury rates in over 14,000 middle schoolers over a 20 year period showed that "in sex-matched sports, middle school girls were more likely to

sustain *any* injury (RR = 1.15, 95% CI = 1.1, 1.2) or a time-loss injury (RR = 1.09, 95% CI = 1.0, 1.2) than middle school boys." In analyzed both-sex sports (i.e., sex-separated sports that both girls and boys play, like soccer), girls sustained higher injury rates, and greater rates of time-loss injury. (Beachy 2014.) Another study of over 2000 middle school students at nine schools showed that the injury rate was higher for girls' basketball than for football (39.4 v 30.7/1000 AEs), and injury rates for girls' soccer were nearly double that of boys' soccer (26.3 v. 14.7/1000 AEs). (Caswell 2017.) In this regard, I will focus on two areas of heightened female vulnerability to collision-related injury which have been extensively studied: concussions, and anterior cruciate ligament injuries.

A. Concussions

58. Females are more likely than males to suffer concussions in comparable sports, and on average suffer more severe and longer lasting disability once a concussion does occur. (Harmon 2013 at 4; Berz 2015; Blumenfeld 2016; Covassin 2003; Rowson 2016.) Females also seem to be at higher risk for post-concussion syndrome than males. (Berz 2015; Blumenfeld 2016; Broshek 2005; Colvin 2009; Covassin 2012; Dick 2009; Marar 2012; Preiss-Farzanegan 2009.)

59. The most widely-accepted definition of sport-related concussion comes from the Consensus Statement on Concussion in Sport (see below).[17] (McCrory 2018.)

[17] "Sport related concussion is a traumatic brain injury induced by biomechanical forces. Several common features that may be utilised in clinically defining the nature of a concussive head injury include:

SRC may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an impulsive force transmitted to the head.

To summarize, concussion is “a traumatically induced transient disturbance of brain function and involves a complex pathophysiological process” that can manifest in a variety of ways. (Harmon 2013 at 1.)

60. Sport-related concussions have undergone a significant increase in societal awareness and concurrent injury reporting since the initial passage of the Zachery Lystedt Concussion Law in Washington State in 2009 (Bompadre 2014), and the subsequent passage of similar legislation governing return-to-play criteria for concussed athletes in most other states in the United States. (Nat’l Cnf. of State Leg’s 2018.) Concussion is now widely recognized as a common sport-related injury, occurring in both male and female athletes. (CDC 2007.) Sport-related concussions can result from player-surface contact or player-equipment contact in virtually any sport. However, sudden impact via a player-to-player collision, with rapid deceleration and the transmission of linear or rotational forces through the brain, is also a common cause of concussion injury. (Covassin 2012; Marar 2012; Barth 2001; Blumenfeld 2016; Boden 1998; Harmon 2013 at 4.)

SRC typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously. However, in some cases, signs and symptoms evolve over a number of minutes to hours.

SRC may result in neuropathological changes, but the acute clinical signs and symptoms largely reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies.

SRC results in a range of clinical signs and symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive features typically follows a sequential course. However, in some cases symptoms may be prolonged.

The clinical signs and symptoms cannot be explained by drug, alcohol, or medication use, other injuries (such as cervical injuries, peripheral vestibular dysfunction, etc) or other comorbidities (e.g., psychological factors or coexisting medical conditions).”

61. A large retrospective study of U.S. high school athletes showed a higher rate of female concussions in soccer (79% higher), volleyball (0.6 concussions/10,000 exposures, with 485,000 reported exposures, vs. no concussions in the male cohort), basketball (31% higher), and softball/baseball (320% higher). (Marar 2012.) A similarly-sized, similarly-designed study comparing concussion rates between NCAA male and female collegiate athletes showed, overall, a concussion rate among females 40% higher than that of males. Higher rates of injury were seen across individual sports as well, including ice hockey (10% higher); soccer (54% higher); basketball (40% higher); and softball/baseball (95% higher). (Covassin 2016.) The observations of these authors, my own observations from clinical practice, and the acknowledgment of our own Society's Position Statement (Harmon 2013), all validate the higher frequency and severity of sport-related concussions in women and girls.

62. Most epidemiological studies to date looking at sport-related concussion in middle schoolers show that more boys than girls are concussed. There are fewer studies estimating concussion *rate*. This is, in part, because measuring injury rate is more time and labor-intensive. Researchers at a childrens' hospital, for example, could analyze the number of children presenting to the emergency department with sport-related concussion and publish findings of absolute number. However, to study concussion incidence, athlete exposures also have to be recorded. Generally speaking, an athlete exposure is a single practice or game where an athlete is exposed to playing conditions that could reasonably supply the necessary conditions for an injury to occur. Rates of athletic injury, concussion among them, are then, by convention, expressed in terms of injury rate per 1000 athletic exposures. More recently, some

studies have been published that analyze the rates of concussion in the middle school population. Looking at the evidence, the conclusion can be made that females experience increased susceptibility to concussive injuries before puberty. For example, Ewing-Cobbs, et al. (2018) found elevated post-concussion symptoms in girls across all age ranges studied, including children between the ages of 4 and 8. Kerr's 2017 study of middle school students showed over three times the rate of female vs male concussion in students participating in sex-comparable sports [0.18 v. 0.66/1000 A.E.'s]. (Kerr 2017.) This is the first study I am aware of that mimics the trends seen in adolescent injury epidemiology showing a higher rate of concussion in girls than boys in comparable sports.

63. More recent research looking at the incidence of sport-related concussions in U.S. middle schoolers between 2015 and 2020, found that the rate of concussion was higher in middle school athletes than those in high school. In this study, girls had more than twice the rate of concussion injury (0.49/1000 athletic exposures vs 0.23/1000 AE) in analyzed sports (baseball/softball, basketball, soccer and track), as well as statistically greater time loss. (Hacherl 2021 (Journal of Athletic Training); Hacherl 2021 (Archives of Clinical Neuropsychology).) The authors hypothesized that the increasing incidence of concussion in middle school may relate to "other distinct differences associated with the middle school sport setting itself, such as, the large variations in player size and skill."[18]

[18] https://www.nata.org/press-release/062421/middle-school-sports-have-overall-higher-rate-concussion-reported-high-school.

64. In addition, females on average suffer materially greater cognitive impairment than males when they do suffer a concussion. Group differences in cognitive impairment between females and males who have suffered concussion have been extensively studied. A study of 2340 high school and collegiate athletes who suffered concussions determined that females had a 170% higher frequency of cognitive impairment following concussions, and that in comparison with males, female athletes had significantly greater declines in simple and complex reaction times relative to their preseason baseline levels. Moreover, the females experienced greater objective and subjective adverse effects from concussion even after adjusting for potentially protective effect of helmets used by some groups of male athletes. (Broshek 2005 at 856, 861; Colvin 2009; Covassin 2012.)

65. This large discrepancy in frequency and severity of concussion injury is consistent with my own observations across many years of clinical practice. The large majority of student athletes who have presented at my practice with severe and long-lasting cognitive disturbance have been adolescent girls. I have seen girls remain symptomatic for over a year, and lose ground academically and become isolated from their peer groups due to these ongoing symptoms. For patients who experience these severe effects, post-concussion syndrome can be life-altering.

66. Some of the anatomical and physiological differences that we have considered between males and females help to explain the documented differences in concussion rates and in symptoms between males and females. (Covassin 2016; La Fountaine 2019; Lin 2019; Tierney 2005; Wunderle 2014.) Anatomically, there are significant sex-based differences in head and neck anatomy, with females exhibiting

in the range of 30% to 40% less head-neck segment mass and neck girth, and 49% lower neck isometric strength. This means that when a female athlete's head is subjected to the same load as an analogous male, there will be a greater tendency for head acceleration, and resultant injury. (Tierney 2005 at 276–277.)

67. When modeling the effect of the introduction of male mass, speed, and strength into women's rugby, World Rugby gave particular attention to the resulting increases in forces and acceleration (and injury risk) experienced in the head and neck of female players. Their analysis found that "the magnitude of the known risk factors for head injury are . . . predicted by the size of the disparity in mass between players. The addition of [male] speed as a biomechanical variable further increases these disparities," and their model showed an increase of up to 50% in neck and head acceleration that would be experienced in a typical tackle scenario in women's rugby. As a result, "a number of tackles that currently lie beneath the threshold for injury would now exceed it, causing head injury." (World Rugby Transgender Women Guidelines 2020.) While rugby is notoriously contact-intensive, similar increases to risk of head and neck injury to women are predictable in any sport context in which males and females collide at significant speed, as happens from time to time in sports including soccer, softball, and basketball.

68. In addition, even when the heads of female and male athletes are subjected to identical accelerative forces, there are sex-based differences in neural anatomy and physiology, cerebrovascular organization, and cellular response to concussive stimuli that make the female more likely to suffer concussive injury, or more severe concussive injury. For instance, hypothalamic-pituitary disruption is

thought to play a role in post-concussion symptomatology that differentially impacts women. (McGroarty 2020; Broshek 2005 at 861.) Another study found that elevated progesterone levels during one portion of the menstrual cycle were associated with more severe post-concussion symptomatology that differentially impacted women. (Wunderle 2014.)

69. As it stands, when females compete against each other, they already have higher rates of concussive injury than males, across most sports. The addition of biologically male athletes into women's contact sports will inevitably increase the risk of concussive injury to girls and women, for the multiple reasons I have explained above, including, but not limited to, the innate male advantage in speed and lean muscle mass. Because the effects of concussion can be severe and long-lasting, particularly for biological females, we can predict with some confidence that if participation by biological males in women's contact sports based on gender identity becomes more common, more biological females will suffer substantial concussive injury and the potential for long-term harm as a result.

B. Anterior Cruciate Ligament injuries

70. The Anterior Cruciate Ligament ("ACL") is a key knee stabilizer that prevents anterior translation of the tibia relative to the femur and also provides rotatory and valgus knee stability.[19] (Lin 2019 at 4.) Girls and women are far more vulnerable to ACL injuries than are boys and men. The physics of injury that we have reviewed above makes it inevitable that the introduction of biologically male athletes

[19] Valgus force at the knee is a side-applied force that gaps the medial knee open.

into the female category will increase still further the occurrence of ACL injuries among girls or women who encounter these players on the field.

71. Sports-related injury to the ACL is so common that it is easy to overlook the significance of it. But it is by no means a trivial injury, as it can end sports careers, require surgery, and usually results in early-onset, post-traumatic osteoarthritis, triggering long-term pain and mobility problems later in life. (Wang 2020.)

72. Even in the historic context in which girls and women limit competition to (and so only collide with) other girls and women, the rate of ACL injury is substantially higher among female than male athletes. (Flaxman 2014; Lin 2019; Agel 2005.) One meta-analysis of 58 studies reports that female athletes have a 150% relative risk for ACL injury compared with male athletes, with other estimates suggesting as much as a 300% increased risk. (Montalvo 2019; Sutton 2013.) Particularly in those sports designated as contact sports, or sports with frequent cutting and sharp directional changes (basketball, field hockey, lacrosse, soccer), females are at greater risk of ACL injury. In basketball and soccer, this risk extends across all skill levels, with female athletes between two and eight times more likely to sustain an ACL injury than their male counterparts. (Lin 2019 at 5.) These observations are widely validated, and consistent with the relative frequencies of ACL injuries that I see in my own practice.

73. When the reasons underlying the difference in the incidence of ACL injury between males and females were first studied in the early 1990s, researchers speculated that the difference might be attributable to females' relative inexperience in contact sports, or to their lack of appropriate training. However, a follow-up 2005

study looking at ACL tear disparities reported that, "Despite vast attention to the discrepancy between anterior cruciate ligament injury rates between men and women, these differences continue to exist." (Agel 2005 at 524.) Inexperience and lack of training do not explain the differences. Sex seems to be an independent predictor of ACL tear risk.

74. In fact, as researchers have continued to study this discrepancy, they have determined that multiple identifiable anatomical and physiological differences between males and females play significant roles in making females more vulnerable to ACL injuries than males. (Flaxman 2014; Lin 2019; Wolf 2015.) Summarizing the findings of a number of separate studies, one researcher recently cited as anatomical risk factors for ACL injury smaller ligament size, decreased femoral notch width, increased posterior-inferior slope of the lateral tibia plateau, increased knee and generalized laxity, and increased body mass index (BMI). With the exception of increased BMI, each of these factors is more likely to occur in female than male athletes. (Lin 2019 at 5.) In addition, female athletes often stand in more knee valgus (that is, in a "knock-kneed" posture) due to wider hips and a medially-oriented femur. Often, this is also associated with a worsening of knee valgus during jump landings. The body types and movement patterns associated with these valgus knee postures are more common in females and increase the risk for ACL tear. (Hewett 2005.)

75. As with concussion, the cyclic fluctuation of sex-specific hormones in women is also thought to be a possible risk factor for ACL injury. Estrogen acts on ligaments to make them more lax, and it is thought that during the ovulatory phase

of menses (when estrogen levels peak), the risk of ACL tear is higher. (Chidi-Ogbolu 2019 at 1; Herzberg 2017.)

76. Whatever the factors that increase the injury risk for ACL tears in women, the fact that a sex-specific difference in the rate of ACL injury exists is well established and widely accepted.

77. Although non-contact mechanisms are the most common reason for ACL tears in females, tears related to contact are also common, with ranges reported across multiple studies of from 20%–36% of all ACL injuries in women. (Kobayashi 2010 at 672.) For example, when a soccer player who is kicking a ball is struck by another player in the lateral knee of the stance leg, medial and rotational forces can tear the medial collateral ligament (MCL), the ACL, and the meniscus. Thus, as participation in the female category based on identity rather than biology becomes more common (entailing the introduction of athletes with characteristics such as greater speed and lean muscle mass), and as collision forces suffered by girls and women across the knee increase accordingly, the risk for orthopedic injury and in particular ACL tears among impacted girls and women will inevitably rise.

78. Of course, there exists variation in all these factors within a given group of males or females. However, it is also true that within sex-specific pools, size differential is somewhat predictable and bounded, even considering outliers. When males are permitted to enter into the pool of female athletes based on gender identity rather than biological sex, there is an increased possibility that a statistical outlier in terms of size, weight, speed, and strength—and potentially an extreme outlier—is now entering the female pool. Although injury is not guaranteed, risks to female

participants will increase. And as I discuss later, the available evidence together suggests that this will be true even with respect to males who have been on testosterone suppression for a year or more. World Rugby relied heavily upon this when they were determining their own policy, and I think it is important to reiterate that this policy, rooted in concern for athlete safety, is justifiable based upon current evidence from medical research and what we know about biology.

VII. TESTOSTERONE SUPPRESSION WILL NOT PREVENT THE HARM TO FEMALE SAFETY IN ATHLETICS

79. A recent editorial in the New England Journal of Medicine opined that policies governing transgender participation in female athletics "must safeguard the rights of all women—whether cisgender or transgender." (Dolgin 2020.) Unfortunately, the physics and medical science reviewed above tell us that this is not practically possible. If biological males are given a "right" to participate in the female category based on gender identity, then biological women will be denied the right to reasonable expectations of safety and injury risk that have historically been guaranteed by ensuring that females compete (and collide) only with other females.

80. Advocates of unquestioning inclusion based on gender identity often contend that hormonal manipulation of a male athlete can feminize the athlete enough that he is comparable with females for purposes of competition. The NCAA's Office of Inclusion asserts (still accessible on the NCAA website as of this writing) that "It is also important to know that any strength and endurance advantages a transgender woman arguably may have as a result of her prior testosterone levels

dissipate after about one year of estrogen or testosterone suppression therapy."[20] (NCAA 2011 at 8.) Whether or not this is true is a critically important question.

81. At the outset, we should note that while advocates sometimes claim that testosterone suppression *can* eliminate physiological advantages in a biological male, none of the relevant transgender eligibility policies that I am aware of prior to 2021 requires any demonstration that it has *actually* achieved that effect in a particular male who seeks admission into the female category. The Connecticut policy that is currently at issue in ongoing litigation permits admission to the female category at the high school level without requiring any testosterone suppression at all. Prior to their new policy, just announced in January 2022, the NCAA's policy required no demonstration of any reduction of performance capability, change in weight, or regression of any other physical attribute of the biological male toward female levels. It did not require achievement of any particular testosterone level, and did not provide for any monitoring of athletes for compliance. Moving forward, through a phasing process, the NCAA will ultimately require athletes in each sport to meet requirements of their sport's national governing body (NGB). If no policy exists, the policy of that sport's international governing body applies, or, finally, if no policy exists there, the 2015 policy of the International Olympic Committee (IOC) will apply. The 2015 IOC policy requires no showing of any diminution of any performance capability or physical attribute of the biological male, and requires achievement and compliance monitoring only of a testosterone level below 10nmol/liter—a level far

[20] https://www.ncaa.org/sports/2016/3/2/lesbian-gay-bisexual-transgender-and-questioning-lgbtq.aspx

above levels occurring in normal biological females (0.06 to 1.68 nmol/L).[21] Indeed, female athletes with polycystic ovarian disorder—a condition that results in elevated testosterone levels—rarely exceed 4.8 nmol/L, which is the basis for setting the testing threshold to detect testosterone *doping* in females at 5.0 nmol/L. Thus, males who qualify under the 2015 IOC policy to compete as transgender women may have testosterone levels—even after hormone suppression—*double* the level that would disqualify a biological female for doping with testosterone.[22]

82. As Dr. Emma Hilton has observed, the fact that there are over 3000 sex-specific differences in skeletal muscle alone makes the hypothesis that sex-linked performance advantages are attributable solely to current circulating testosterone levels improbable at best. (Hilton 2021 at 200–01.)

83. In fact, the available evidence strongly indicates that no amount of testosterone suppression can eliminate male physiological advantages relevant to performance and safety. Several authors have recently reviewed the science and statistics from numerous studies that demonstrate that one year (or more) of testosterone suppression does not substantially eliminate male performance advantages. (Hilton 2021; DeVarona 2021; Harper 2021.) As a medical doctor, I will focus on those specific sex-based characteristics of males who have undergone normal

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[21] Normal testosterone range in a healthy male averages between 7.7 and 29.4 nmol/L.

[22] In November 2021, the IOC released new guidelines, deferring decision-making about a given sport's gender-affectedness to its governing body. The current NCAA policy, however, still utilizes the 2015 IOC policy to determine an athlete's eligibility in event that the sport's national and international governing bodies lack policies to determine eligibility.

sex-determined pubertal skeletal growth and maturation that are relevant to the *safety* of female athletes. Here, too, the available science tells us that testosterone suppression does not eliminate the increased risk to females or solve the safety problem.

84. The World Rugby organization reached this same determination based on the currently available science, concluding that male physiological advantages that "create risks [to female players] appear to be only minimally affected" by testosterone suppression. (World Rugby Transgender Women Guidelines 2020.)

85. Surprisingly, so far as public information reveals, the NCAA's Committee on Competitive Safeguards is not monitoring and documenting instances of transgender participation on women's teams for purposes of injury reporting. In practice, the NCAA is conducting an experiment which in theory predicts an increased frequency and severity of injuries to women in contact sports, while at the same time failing to collect the relevant data from its experiment.

86. In their recent guidelines, UK Sport determined that, "based upon current evidence, testosterone suppression is unlikely to guarantee fairness between transgender women and natal females in gender-affected sports." (UK Sports Councils' Equality Group Guidance 2021 at 7.) They also warned that migration to a scenario by NGBs where eligibility is determined through case-by-case assessment "is unlikely to be practical nor verifiable for entry into gender-affected sports," in part because "many tests related to sports performance are volitional," and incentives on the part of those tested would align with intentional poor performance. (UK Sports Councils' Equality Group Guidance 2021 at 8.)

87. Despite these concerns, this appears to be exactly the route that the IOC is taking, as reflected in their Framework on Fairness, Inclusion and Non-Discrimination on the Basis of Gender Identity, released in November of 2021.[23] In it, the IOC lists two disparate goals. First, that "where sports organizations elect to issue eligibility criteria for men's and women's categories for a given competition, they should do so with a view to . . . [p]roviding confidence that no athlete within a category has an unfair and disproportionate competitive advantage . . . [and] preventing a risk to the physical safety of other athletes." (IOC Framework 2021 § 4.1.) At the same time, governing bodies are not to preclude any athlete from competing until evidence exists based upon "robust and peer-reviewed research that . . . demonstrates a consistent, unfair, disproportionate competitive advantage in performance and/or an unpreventable risk to the physical safety of other athletes"—research moreover that "is largely based on data collected *from a demographic group that is consistent in gender and athletic engagement with the group that the eligibility criteria aim to regulate*." (IOC Framework 2021 § 6.1) Finally, affected athletes may appeal any evidence-based decision-making process through a further "appropriate internal mediation mechanism, such as a Court of Arbitration for Sport." (IOC Framework 2021 § 6.1.) Rather than cite any of the growing evidence that testosterone suppression cannot mitigate sex-based performance differences, the IOC's new policy remains aspirational and opaque, and has come into early criticism by other Sports

[23] The IOC Framework on Fairness, Inclusion and Non-Discrimination on the Basis of Gender Identity and Sex Variations is available at https://stillmed.olympics.com/media/Documents/News/2021/11/IOC-Framework-Fairness-Inclusion-Non-discrimination-2021.pdf?_ga=2.72651665.34591192.1645554375-759350959.1644946978

Medicine Federations. (Pigozzi 2022.) And yet the research relating to hormonal suppression in transgender athletes, as confirmed by World Rugby and UK Sport, already speaks very clearly to the fact that males retain a competitive advantage over women that cannot be eliminated through testosterone suppression alone. What follows is a brief summary of some of these retained differences as they relate to sport safety.

A. Size and weight

88. Males are, on average, larger and heavier. As we have seen, these facts alone mean that males bring more kinetic energy into collisions, and that lighter females will suffer more abrupt deceleration in collisions with larger bodies, creating heightened injury risk for impacted females.

89. I start with what is obvious and so far as I am aware undisputed—that after the male pubertal growth spurt, suppression of testosterone does not materially *shrink* bones so as to eliminate height, leverage, performance, and weight differences that follow from simply having longer, larger bones, and being subsequently taller.

90. In addition, multiple studies have found that testosterone suppression may modestly reduce, but does not come close to eliminating the male advantage in muscle mass and lean body mass, which together contribute to the greater average male weight. Researchers looking at transitioning adolescents found that the weight of biological male subjects *increased* rather than decreased after treatment with an antiandrogen testosterone suppressor, with no significant loss of muscle cross-sectional area. (Tack 2018.) Adolescent biological male subjects who were exposed to puberty-halting medications prior to institution of testosterone suppression

presented with lean body mass 2.5 standard deviations higher than biological girls, and maintained gains of between 1–2 standard deviations at age 22. (Klaver 2018.) In one recent meta-analysis, researchers looking at the musculoskeletal effects of hormonal transition found that even after males had undergone 36 months of therapy, their lean body mass and muscle area remained above those of females. (Harper 2021.) Another group in 2004 studied the effects of testosterone suppression to less than 1 nmol/L in men after one or more years, but still found only a 12% total loss of muscle area by the end of thirty-six months. (Gooren 2004.)

B. Bone density

91. Bone mass (which includes both size and density) is maintained over *at least* two years of testosterone suppression (Singh-Ospina 2017; Fighera 2019), and one study found it to be preserved even over a median of 12.5 years of suppression (Hilton 2021; Ruetsche 2005).

C. Strength

92. A large number of studies have now observed minimal or no reduction in strength in male subjects following testosterone suppression. In one recent meta-analysis, strength loss after twelve months of hormone therapy ranged from negligible to 7%. (Harper 2021.) Given the baseline male strength advantage in various muscle groups of from approximately 25% to 100% above female levels that I have noted in Section V.D above, even a 7% reduction leaves a large retained advantage in strength. Another study looking at handgrip strength—which is a proxy for general strength—showed a 9% loss of strength after two years of hormonal treatment in males who were transitioning, leaving a 23% retained advantage over

the female baseline. (Hilton 2021.) Yet another study which found a 17% retained grip strength advantage noted that this placed the median of the group treated with hormone therapy in the 95th percentile for grip strength among age-matched females. (Scharff 2019.) Researchers looking at transitioning adolescents showed no loss of grip strength after hormone treatment. (Tack 2018.)One recent study on male Air Force service members undergoing transition showed that they retained more than two thirds of pretreatment performance advantage over females in sit-ups and push-ups after between one and two years of testosterone-reducing hormonal treatment. (Roberts 2020.) Another recently-published observational cohort study looked at thigh strength and thigh muscle cross-sectional area in men undergoing hormonal transition to transgender females. After one year of hormonal suppression, this group saw only a 4% decrease in thigh muscle cross-sectional area, and a negligible decrease in thigh muscle strength. (Wiik 2020.) Wiik and colleagues looked at isokinetic strength measurements in individuals who had undergone at least 12 months of hormonal transition and found that muscle strength was comparable to baseline, and torque-generating ability actually increased, leaving transitioned males with a 50% strength advantage over reference females. (Wiik 2020.) Finally, one cross-sectional study that compared men who had undergone transition at least three years prior to analysis, to age-matched, healthy males found that the transgender individuals had retained enough strength that they were still outside normative values for women. This imbalance continued to hold even after *eight* years of hormone suppression. The authors also noted that since males who identify as women often have lower baseline (i.e., before hormone treatment) muscle mass than the general population of males, and since baseline measures for this study were unavailable, the post-transition comparison may actually represent an overestimate of muscle mass regression in transgender females. (Lapauw 2008; Hilton 2021.)

93. World Rugby came to the same conclusion based on its own review of the literature, reporting that testosterone suppression "does not reverse muscle size to female levels," and in fact that "studies assessing [reductions in] mass, muscle mass, and/or strength suggest that reduction in these variables range between 5% and 10%. Given that the typical male vs female advantages range from 30% to 100%, these reductions are small." (World Rugby Transgender Women Guidelines 2020.)

94. It is true that most studies of change in physical characteristics or capabilities over time after testosterone suppression involve untrained subjects rather than athletes, or subjects with low to moderate training. It may be assumed that all of the Air Force members who were subjects in the study I mention above were physically fit and engaged in regular physical training. But neither that study nor those studies looking at athletes quantify the volume or type of strength training athletes are undergoing. The important point to make is that the only effect strength training could have on these athletes is to *counteract* and reduce the limited loss of muscle mass and strength that does otherwise occur to some extent over time with testosterone blockade. There has been at least one study that illustrates this, although only over a short period, measuring strength during a twelve-week period where testosterone was suppressed to levels of 2 nmol/L. During that time, subjects actually increased leg lean mass by 4%, and total lean mass by 2%, and subject

performance on the 10 rep-max leg press improved by 32%, while their bench press performance improved by 17%. (Kvorning 2006.)

95. The point for safety is that superior strength enables a biological male to apply greater force against an opponent's body during body contact, or to throw, hit, or kick a ball at speeds outside the ranges normally encountered in female-only play, with the attendant increased risks of injury that I have already explained.

D. Speed

96. As to speed, the study of transitioning Air Force members found that these males retained a 9% running speed advantage over the female control group after one year of testosterone suppression, and their average speed had not declined significantly farther by the end of the 2.5 year study period. (Roberts 2020.) Again, I have already explained the implications of greater male speed on safety for females on the field and court, particularly in combination with the greater male body weight.

CONCLUSION

Since the average male athlete is larger and exerts greater power than the average female athlete in similar sports, male-female collisions will produce greater energy at impact, and impart greater risk of injury to a female, than would occur in most female-female collisions. Because of the well-documented physiological testing and elite performance differences in speed and strength, as well as differences in lean muscle mass that exist across all age ranges, the conclusions of this paper can apply to a certain extent before, as well as during, and after puberty. We have seen that males who have undergone hormone therapy in transition toward a female body type nevertheless retain musculoskeletal "legacy" advantages in muscle girth, strength, and size. We have also seen that the additive effects of these individual advantages create multiplied advantages in terms of power, force generation and momentum on the field of play. In contact or collision sports, sports involving projectiles, or sports where a stick is used to strike something, the physics and physiology reviewed above tell us that permitting male-bodied athletes to compete against, or on the same team as females—even when undergoing testosterone suppression—must be expected to create predictable, identifiable, substantially increased, and unequal risks of injuries to the participating women.

Based on its independent and extensive analysis of the literature coupled with injury modeling, World Rugby recognized the inadequacy of the International Olympic Committee's policy to preserve safety for female athletes in their contact sport (the NCAA policy is even more lax in its admission of biological males into the female category). Among the explicit findings of the World Rugby working group were the following:

- Forces and inertia faced by a smaller and slower player during collisions are significantly greater when in contact with a larger, faster player.
- Discrepancies in mass and speed (such as between two opponents in a tackle) are significant determinants of various head and other musculoskeletal injury risks.
- The risk of injury to females is increased by biological males' greater ability to exert force (strength and power), and also by females' reduced ability to receive or tolerate that force.
- Testosterone suppression results in only "small" reductions in the male physiological advantages. As a result, heightened injury risks remain for females who share the same field or court with biological males.
- These findings together predict a significant increase in injury rates for females in rugby if males are permitted to participate based on gender identity, *with or without testosterone suppression*, since the magnitude of forces and energy transfer during collisions will increase substantially, directly correlated to the differences in physical attributes that exist between the biological sexes.

Summarizing their work, the authors of the World Rugby Guidelines said that, "World Rugby's number one stated priority is to make the game as safe as possible, and so World Rugby cannot allow the risk to players to be increased to such an extent by allowing people who have the force and power advantages conferred by testosterone to play with and against those who do not." (World Rugby Transgender Guidelines 2020.) As my own analysis above makes clear, I agree with the concerns of UK Sport and the conclusions of World Rugby regarding risk to female athletes. Importantly, I also agree that it must be a high priority for sports governing bodies (and other regulatory or governmental bodies governing sports) to make each sport as safe as reasonably possible. And in my view, medical practitioners with expertise in this area have an obligation to advocate for science-based policies that promote safety.

The *performance* advantages retained by males who participate in women's sports based on gender identity are readily recognized by the public. When an NCAA hurdler who ranked 200th while running in the collegiate male division transitions and immediately leaps to a number one ranking in the women's division;[24] when a high school male sprinter who ranked 181st in the state running in the boys' division transitions and likewise takes first place in the girls' division (DeVarona 2021), the problem of fairness and equal opportunities for girls and women is immediately apparent, and indeed this problem is being widely discussed today in the media.

The causes of sports injuries, however, are multivariate and not always as immediately apparent. While, as I have noted, some biological males have indeed competed in a variety of girls' and women's contact sports, the numbers up till now have been small. But recent studies have reported very large increases in the number of children and young people identifying as transgender compared to historical experience. For example, an extensive survey of 9th and 11th graders in Minnesota found that 2.7% identified as transgender or gender-nonconforming—well over 100 times historical rates (Rider 2018), and many other sources likewise report this trend. (Johns 2017; Herman 2017.)

Faced with this rapid social change, it is my view as a medical doctor that policymakers have an important and pressing duty not to wait while avoidable

[24] https://en.wikipedia.org/wiki/Cece_Telfer (accessed 6/20/21)

injuries are inflicted on girls and women, but instead to proactively establish policies governing participation of biological males in female athletics that give proper and scientifically-based priority to safety in sport for these girls and women. Separating participants in contact sports based on biological sex preserves competitive equity, but also promotes the safety of female athletes by protecting them from predictable and preventable injury. Otherwise, the hard science that I have reviewed in this white paper leaves little doubt that eligibility policies based on ideology or gender identity rather than science, will, over time, result in increased, and more serious, injuries to girls and women who are forced to compete against biologically male transgender athletes. When basic science and physiology both predict increased injury, then leagues, policy-makers, and legislators have a responsibility to act to protect girls and women before they get hurt.

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EXHIBIT 22

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF TENNESSEE
NASHVILLE DIVISION

L.E., by his next friend and parents
SHELLEY ESQUIVEL, and MARIO ESQUIVEL
Plaintiff,

v.s. Case No.

BILL LEE, in his official capacity as 3:21-cv-00835
Governor of Tennessee, et al
Defendants.

____

REMOTE DEPOSITION of DR. GREGORY ALLEN BROWN, taken on behalf of the plaintiff, on September 7, 2022, at 10:00 a.m., pursuant to Notice of Taking Deposition, via Zoom, before Lakesha Jackson, Professional Court Reporter, in and for the District of Columbia.

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ALSO PRESENT:
SAMUEL STRONGIN
CLARK HILDABRAND
DAVID SANDERS
TARA BORELLI

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I N D E X

WITNESS: PAGE

DR. GREGORY ALLEN BROWN

EXAMINATION BY Ms. BUCHERT..................6

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providing any testimony about the problem of transgender boys taking opportunities from non-transgender boys in athletics?

MS. BERGMEYER: Object to form.

THE WITNESS: And if I may, I don't think that it's a simple yes-or-no answer, based on the information provided in my expert report. Because I'm expecting that the individuals who are reading this report will then take the information to make decisions without me necessarily saying this is explicitly my opinion on factor X or factor Y or something like that.

BY MS. BUCHERT:

Q Are you providing any testimony about the competitive advantages that transgender boys have against non-transgender boys in athletics?

A Do you mean transgender boys versus cisgender boys?

Q Right. Cisgender boys, yes.

A No, I have not evaluated that.

Q Great. Thank you.

In fact, there's nothing in your report at all

CERTIFICATE OF OATH

I, the undersigned authority, certify that DR. GREGORY ALLEN BROWN personally appeared before me and was duly sworn.

WITNESS my hand and official seal this 7th day of September, 2022

____
Lakesha Jackson
Notary Public, Commonwealth of Virginia

C E R T I F I C A T E

I, Lakesha Jackson, Professional Court Reporter, do hereby certify that I was authorized to and did stenographically report the deposition of DR. GREGORY ALLEN BROWN; that a review of the transcript was requested; and that the transcript is a true and correct record of my stenographic notes.

I further certify that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED this 22nd day of September, 2022

____

Lakesha Jackson

Professional Court Reporter

EXHIBIT 23

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF TENNESSEE
NASHVILLE DIVISION

------------------------------x
L.E., by his next friend and :
parents, SHELLEY ESQUIVEL and :
MARIO ESQUIVEL, :
Plaintiffs, :
vs. : Case No.
BILL LEE, in his official : 3:21-CV-00835
capacity as Governor of :
Tennessee, et al., :
Defendants. :
------------------------------x

VIRTUAL DEPOSITION OF CHAD CARLSON, M.D.
Urbandale, Iowa
Thursday, August 11, 2022
11:06 a.m.

Job No: 5368732
Pages 1 - 296
Reported by: Cappy Hallock, RPR, CRR

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Virtual Deposition of CHAD CARLSON, M.D., held by Zoom.

Pursuant to Notice, the Virtual Deposition of CHAD CARLSON, M.D. was taken commencing at 11:06 a.m. on Thursday, August 11, 2022 before Cappy Hallock, Registered Professional Reporter, Certified Realtime Reporter, and Notary Public in and for the State of Maryland.

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Case 3:21-cv-00835 Document 53-23 Filed 10/07/22 Page 4 of 17 PageID #: 1272

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Brandon Townsend

Concierge: Jerry Curran

Reporter: Cappy Hallock, RPR, CRR

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Deposition of CHAD CARLSON, M.D.

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about that?

Q So you don't know what the rules around transgender athletes' participation are that are at the core of this case?

MS. BERGMEYER: Object to form.

A It's not -- I'm not a -- I wasn't retained to provide advice on policy. I was retained to provide advice on whether or not there are safety issues that exist in transgender sports participation so I don't know why that would be surprising.

Q Okay.

A I'm happy to look at the statute if you would like to show me.

Q Okay. Well, I will keep that in mind. Thank you.

So can you point me to the section of your report that discusses the participation of transgender boys in interscholastic sports?

A There isn't a section on transgender boys in this paper.

one is a natal female.

Q So I guess I'm asking you where in your report you talk about safety considerations of transgender boys playing boys sports.

A Primary discussion around safety is going to always concern transgender females who are participating with cisgender females in a sport. Not the sole but the primary.

Q So looking at nonprimary considerations, can you show me where in your report you are discussing safety considerations of transgender boys participating in boys sports?

MS. BERGMEYER: Object to form.

A I don't believe my report emphasizes that or speaks to that.

Q Okay.

I'm going to direct you to Page 4 of your report.

A Numeric Page 4?

Q Yes. So pdf page 7 and labeled Page 4.

Q And do you know what sports he wants to play?
A I have been told that this individual would like to play golf.
Q Do you have safety concerns about L.E. playing on the boys golf team?
MS. BERGMEYER: Object to form and object to scope.
A I was hired to, you know, I was hired to create a document that speaks generally to safety and sports issues. For the most part that pertains to contact or collision sports. As defined in the paper golf would not be in that category of sport.
THE CONCIERGE: Did you get all that audio, Cappy?
THE REPORTER: Yes.
THE WITNESS: Are you having trouble hearing me?
THE CONCIERGE: I did. I wanted to be sure that the court reporter got everything down.

BY MS. NOWLIN-SOHL:

Q I think we captured it, Dr. Carlson. Thank you.

So you are saying that golf is not a contact collision sport?

MS. BERGMEYER: Object to form.

A Golf would not be categorized as a contact or collision sport, no, unless you were standing in front of the ball.

Q And you say that your report is limited to contact and collision sports?

MS. BERGMEYER: Object to form.

A My report references safety issues that are implied with or implicated with athletes participating in contact and collision sports, and combat.

Q Are you saying combat?

A Yes, combat, martial arts, that sort of thing.

Q Okay.

Are you aware of any combat sports

that are played at the middle school or high school level?

A No.

Q So you recognize not providing any sort of opinion --

A Let me clarify that for a second.

Not interscholastic but as an example of a combat sport that young people might participate in, karate would be one.

Q Do you know if that is offered --

A It's not an interscholastic sport.

Q Okay, thank you.

So you say your report is addressing contact and collision and combat sports. Is cross-country a contact or collision sport?

A I would not classify cross-country as a contact or collision sport.

Q So your report is not saying anything about the safety risk of athletes participating in cross-country?

A It would not speak to that, no.

Q I think that's a new question. I'm asking if it automatically means that.

MS. BERGMEYER: Object to form.

A I don't know the answer to that. I can't answer that.

MS. NOWLIN-SOHL: I think I may be almost done. I'm going to look through and see if there is anything I want to add. So why don't we take a five-minute break and hopefully we can wrap up.

(Recess taken -- 6:43 p.m.)

(After recess -- 6:49 p.m.)

BY MS. NOWLIN-SOHL:

Q Dr. Carlson, I just have a few more questions. So as discussed previously, your report is not expressing concerns about transgender boys participating in interscholastic sports teams, correct?

A It does not speak to that directly, no.

Q And so would you have any concerns if

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UNITED STATES OF AMERICA)
STATE OF MARYLAND)

I, CAPPY HALLOCK, the reporter before whom the foregoing deposition was taken, do hereby certify that the witness whose testimony appears in the foregoing deposition was sworn by me; that said deposition is a true record of the testimony given by said witness.

I further certify that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken; and further that I am not a relative or employee of any attorney or counsel employed by the parties hereto, or financially or otherwise interested in the outcome of this action.

Cappy Hallock

____
Cappy Hallock, RPR, CRR

My Commission expires January 19, 2025

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EXHIBIT 24

State of Tennessee

PUBLIC CHAPTER NO. 40

SENATE BILL NO. 228

By Hensley, Bailey, Bell, Jackson, Niceley, Pody, Rose, Stevens, White

Substituted for: House Bill No. 3

By Cepicky, Griffey, Gant, Weaver, Moody, Haston, Lamberth, Rudd, Smith, Ragan, Zachary, Doggett, Eldridge, Jerry Sexton, Reedy, Howell, Williams, Casada, Todd, Calfee, Bricken, Moon, Crawford, Hulsey, Darby, Tim Hicks, Garrett, Helton, Lynn, Hawk, Travis, White, Russell, Rudder, Grills, Cochran, Terry, Warner, Littleton, Powers, Sherrell, Faison, Sparks, Hurt

AN ACT to amend Tennessee Code Annotated, Title 49, relative to school sports.

WHEREAS, girls who compete in interscholastic athletic activities strive to improve their performance in their particular field of competition in order to experience the personal satisfaction of victory, gain opportunities to participate in state and regional events, gain access to opportunities to be recruited and offered athletic scholarships by colleges, and more; and

WHEREAS, it is unfortunate for some girls that those dreams, goals, and opportunities for participation, recruitment, and scholarships can be directly and negatively affected by new school policies permitting boys who are male in every biological respect to compete in girls' athletic competitions if they claim a female gender identity; and

WHEREAS, allowing boys to compete in girls' athletic competitions discriminates against girls by regularly resulting in boys displacing girls in competitive events and excluding specific and identifiable girls from opportunities to compete at higher levels and from public recognition critical to college recruiting and scholarship opportunities that should go to those outstanding female athletes; and

WHEREAS, studies show that boys, on average, can be physically stronger than girls, having more skeletal muscle mass than girls and more upper-body and lower-body strength, which can result in injury to girls if girls participate in contact sports with boys; and

WHEREAS, interscholastic athletic programs in public schools should be conducted in a safe manner to promote continued participation and equitable opportunities for all children, consistent with the rules and guidelines of an association that regulates interscholastic athletics; now, therefore,

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Title 49, Chapter 6, Part 3, is amended by adding the following new section:

> (a) A student's gender for purposes of participation in a public middle school or high school interscholastic athletic activity or event must be determined by the student's sex at the time of the student's birth, as indicated on the student's original birth certificate. If a birth certificate provided by a student pursuant to this subsection (a) does not appear to be the student's original birth certificate or does not indicate the student's sex upon birth, then the student must provide other evidence indicating the student's sex at the time of birth. The student or the student's parent or guardian must pay any costs associated with providing the evidence required under this subsection (a).
>
> (b) The state board of education, each local board of education, and each governing body of a public charter school shall adopt and enforce policies to ensure compliance with subsection (a) in the public schools governed by the respective entity.
>
> (c) As used in this section:

(1) "High school" means a school in which any combination of grades nine through twelve (9-12) are taught; and

(2) "Middle school" means a school in which any combination of grades five through eight (5-8) are taught.

(d) This section does not apply to students in any grade kindergarten through four (K-4).

SECTION 2. This act shall take effect upon becoming a law, the public welfare requiring it, and shall apply to the 2021-2022 school year and each school year thereafter.

SENATE BILL NO. 228

PASSED: March 22, 2021

RANDY McNALLY
SPEAKER OF THE SENATE

CAMERON SEXTON, *SPEAKER*
HOUSE OF REPRESENTATIVES

APPROVED this 26 day of March 2021

BILL LEE, *GOVERNOR*

EXHIBIT 25

State of Tennessee

PUBLIC CHAPTER NO. 909

HOUSE BILL NO. 1895

By Representatives Ragan, Cepicky, Weaver, Zachary, Grills, Todd, Cochran

Substituted for: Senate Bill No. 1861

By Senators Hensley, Stevens

AN ACT to amend Tennessee Code Annotated, Title 49, Chapter 6, relative to school sports.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Section 49-6-310, is amended by adding the following as a new subsection:

> The commissioner of education shall withhold a portion of the state education finance funds that an LEA is otherwise eligible to receive if the LEA fails or refuses to comply with the requirements of this section. This subsection ( ) does not apply to an LEA that fails or refuses to comply with the requirements of this section in response to a court or other legally binding order that prohibits the LEA from complying.

SECTION 2. Tennessee Code Annotated, Section 49-6-310, is amended by deleting subsection (b) and substituting:

> (b)
>
> (1) The state board of education shall promulgate rules to ensure compliance with this section and to establish a procedure for how a portion of the state education finance funds are withheld pursuant to subsection ( ). The rules must be promulgated in accordance with the Uniform Administrative Procedures Act, compiled in title 4, chapter 5.
>
> (2) Each local board of education and each governing body of a public charter school shall adopt and enforce a policy to ensure compliance with subsection (a) and the rules promulgated pursuant to subdivision (b)(1) in the public schools governed by the respective entity.

SECTION 3. For purposes of promulgating rules, this act takes effect upon becoming a law, the public welfare requiring it. For all other purposes, this act takes effect July 1, 2022, the public welfare requiring it.

HOUSE BILL NO. 1895

PASSED: April 11, 2022

CAMERON SEXTON, SPEAKER
HOUSE OF REPRESENTATIVES

RANDY MCNALLY
SPEAKER OF THE SENATE

APPROVED this 22nd day of April 2022

BILL LEE, GOVERNOR

EXHIBIT 26

State of Tennessee

PUBLIC CHAPTER NO. 460

SENATE BILL NO. 126

By Haile, Pody, Stevens

Substituted for: House Bill No. 1027

By Kumar, Cochran, Zachary, Hazlewood, Carr, Smith, Powers, White, Moody

AN ACT to amend Tennessee Code Annotated, Title 8; Title 53; Title 56; Title 63; Title 68 and Title 71, relative to treatment for children.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Title 63, Chapter 1, Part 1, is amended by adding the following as a new section:

(a) As used in this section:

(1) "Healthcare prescriber" means an individual licensed under this title and authorized to prescribe medications;

(2) "Minor" means a person who is less than eighteen (18) years of age; and

(3) "Prepubertal minor" means a minor in Tanner stage 1 development.

(b) Standard medical practice does not involve prescribing hormone treatment for gender dysphoric or gender incongruent prepubertal minors. Except as provided in subsection (c), a healthcare prescriber shall not prescribe a course of treatment that involves hormone treatment for gender dysphoric or gender incongruent prepubertal minors.

(c) A healthcare prescriber may prescribe a course of treatment that involves hormone treatments for prepubertal minors for diagnoses of growth deficiencies or other diagnoses unrelated to gender dysphoria or gender incongruency.

SECTION 2. This act takes effect upon becoming a law, the public welfare requiring it.

SENATE BILL NO. 126

PASSED: May 3, 2021

RANDY McNALLY
SPEAKER OF THE SENATE

CAMERON SEXTON, *SPEAKER*
HOUSE OF REPRESENTATIVES

APPROVED this 18th day of May 2021

BILL LEE, *GOVERNOR*

EXHIBIT 27

State of Tennessee

PUBLIC CHAPTER NO. 452

HOUSE BILL NO. 1233

By Representatives Zachary, Lamberth, Faison, Gant, Howell, Sherrell, Grills, Moon, Carringer, Cochran, Ragan, Cepicky, Doggett, Weaver, Sparks, Jerry Sexton, Crawford, Powers, Smith, Todd, Carr, Lynn, Hurt

Substituted for: Senate Bill No. 1367

By Senators Bell, Rose

AN ACT to amend Tennessee Code Annotated, Title 49, relative to the Tennessee Accommodations for All Children Act.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Title 49, Chapter 2, is amended by adding Sections 2–6 as a new part.

SECTION 2. This part is known and may be cited as the "Tennessee Accommodations for All Children Act."

SECTION 3. As used in this part:

(1) "Changing facility" means an area in which a person may be in a state of undress in the presence of others, including a locker room, changing room, or shower room;

(2) "Reasonable accommodation" includes, but is not limited to, access to a single-occupancy restroom or changing facility or use of an employee restroom or changing facility. "Reasonable accommodation" does not include the following:

(A) Access to a restroom or changing facility that is designated for use by members of the opposite sex while members of the opposite sex are present or could be present;

(B) Requesting that a school construct, remodel, or in any way perform physical or structural changes to a school facility; or

(C) Requesting that a school limit access to a restroom or changing facility that is designated for use by members of the opposite sex, if limiting access results in a violation of state or local building codes or standards;

(3) "Restroom" means a facility that includes one (1) or more toilets or urinals; and

(4) "Sex" means a person's immutable biological sex as determined by anatomy and genetics existing at the time of birth. Evidence of a person's biological sex includes, but is not limited to, a government-issued identification document that accurately reflects a person's sex listed on the person's original birth certificate.

SECTION 4.

(a) A public school shall, to the extent practicable, provide a reasonable accommodation to a student, teacher, or employee of the public school who:

(1) Desires greater privacy when using a multi-occupancy restroom or changing facility designated for the student's, teacher's, or employee's sex and located within a public school building, or when using multi-occupancy sleeping quarters designated for the student's, teacher's, or employee's sex while the

student, teacher, or employee is attending a public school-sponsored activity; and

(2) Provides a written request for a reasonable accommodation to the school principal. If the student requesting a reasonable accommodation is under eighteen (18) years of age, then the student's parent or legal guardian must provide the written request on the student's behalf.

(b) The school principal shall evaluate the request on behalf of the public school and, to the extent practicable, provide a reasonable accommodation. The principal shall issue a decision approving or denying the request in writing. If the principal denies the request, then the grounds for denial must be provided in the principal's written decision.

(c) This section does not prohibit public schools from adopting policies necessary to accommodate persons protected under the Americans with Disabilities Act, (42 U.S.C. § 12101 et seq.), or persons in need of physical assistance when using restrooms or changing facilities located in public schools.

SECTION 5.

(a) If a written request for a reasonable accommodation is denied by the principal, then the student, teacher, or employee, or the student's parent or legal guardian, as applicable, may appeal the decision to the director of schools, or to the director's designee, by submitting a written request for an appeal to the director of schools, or the director's designee, within fifteen (15) calendar days of the individual's receipt of the principal's written decision denying their request for accommodation. The director of schools, or the director's designee, shall investigate and attempt to resolve the complaint within fifteen (15) calendar days of the director of schools', or the director's designee's, receipt of the written request for an appeal.

(b) If a written request for a reasonable accommodation is denied by the director of schools, or the director's designee, then the student, teacher, or employee, or the student's parent or legal guardian, as applicable, may appeal the director of schools', or the director's designee's, decision by requesting a hearing on the matter before an impartial hearing officer selected by the local board of education. To appeal the director of schools', or the director's designee's, decision:

(1) The student, teacher, or employee, or the student's parent or legal guardian, as applicable, must give written notice to the director of schools, or to the director's designee, of the individual's request for a hearing within fifteen (15) calendar days of the individual's receipt of the director of schools', or the director's designee's, decision denying the request for accommodation;

(2) The director of schools, or the director's designee, shall name an impartial hearing officer within five (5) days following the director of schools', or the director's designee's, receipt of a request for a hearing. The impartial hearing officer shall notify all parties of the hearing officer's assignment and schedule a hearing no later than thirty (30) days following the director of schools', or the director's designee's, receipt of the individual's request for a hearing. The impartial hearing officer may conduct all or part of the hearing by telephone if each participant has an opportunity to participate by telephone;

(3) The hearing must be conducted privately; and

(4) The impartial hearing officer shall, within ten (10) days of the hearing's conclusion, provide a written decision to all parties.

(c) As used in this section, "impartial" means that the selected hearing officer has no history of employment with the local board of education or the director of schools, and has no relationship with any member of the respective local board of education or with the person requesting the hearing.

SECTION 6.

(a) A student, teacher, or employee of the public school, or the student's parent or legal guardian if the student is under eighteen (18) years of age, has a private right of action against the LEA or public school, if:

(1)

(A) The student, teacher, or employee encounters a member of the opposite sex in a multi-occupancy restroom or changing facility located in a public school building;

(B) The student, teacher, or employee is in a multi-occupancy restroom or changing facility designated for the student's, teacher's, or employee's sex at the time of the encounter; and

(C) The LEA or public school intentionally allowed a member of the opposite sex to enter the multi-occupancy restroom or changing facility while other persons were present; or

(2) The student, teacher, or employee is required by the public school to share sleeping quarters with a member of the opposite sex, unless the member of the opposite sex is a family member of the student, teacher, or employee.

(b) A student, teacher, or employee, or a student's parent or legal guardian, as applicable, claiming a right of action pursuant to this section may bring suit in the chancery court in the county where the claim arose.

(c) A student, teacher, or employee, or a student's parent or legal guardian, as applicable, aggrieved under this section who prevails in court may recover monetary damages, including, but not limited to, monetary damages for all psychological, emotional, and physical harm suffered. An individual who prevails on a claim brought pursuant to this section is entitled to recover reasonable attorney fees and costs.

(d) This section does not limit other remedies at law or equity available to the aggrieved person against the public school.

(e) A civil action brought pursuant to this section must be initiated within one (1) year from when the date on which the claim arose.

SECTION 7. This act takes effect July 1, 2021, the public welfare requiring it, and applies to private rights of action accruing on or after July 1, 2021.

HOUSE BILL NO. 1233

PASSED: April 26, 2021

CAMERON SEXTON, SPEAKER
HOUSE OF REPRESENTATIVES

RANDY MCNALLY
SPEAKER OF THE SENATE

APPROVED this 14th day of May 2021

BILL LEE, GOVERNOR

EXHIBIT 28

State of Tennessee

PUBLIC CHAPTER NO. 281

SENATE BILL NO. 1229

By Rose, Jackson, Pody

Substituted for: House Bill No. 529

By Moody, Griffey, Gant, Ragan, Doggett, Haston, Howell, Weaver, Cepicky, Lamberth, Rudd, Hall, Jerry Sexton, White, Hulsey, Hurt, Reedy, Casada, Warner, Littleton, Sherrell, Todd, Wright, Rudder, Alexander, Kumar, Bricken, Grills, Smith, Terry, Cochran, Powers

AN ACT to amend Tennessee Code Annotated, Title 49, Chapter 6, Part 13, relative to curriculum.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Title 49, Chapter 6, Part 13, is amended by adding the following as a new section:

(a) Not less than thirty (30) days prior to commencing instruction of a sexual orientation curriculum or gender identity curriculum, regardless of whether the curriculum is offered as part of a family life program, sex education program, or other program, each LEA or public charter school shall notify the parent or guardian of each student whom the LEA or charter school anticipates will be present for instruction in the curriculum that:

(1) The LEA or charter school is providing a sexual orientation curriculum or gender identity curriculum; and

(2) The parent or guardian may examine the instructional materials and confer with the student's instructor, school counselor, or principal, as designated by the LEA or public charter school, regarding any or all portions of the curriculum.

(b) A parent or guardian who wishes to excuse the parent's or guardian's student from any portion of a sexual orientation curriculum or gender identity curriculum must submit a request in writing to the student's instructor, school counselor, or principal. A parent or guardian who wishes to excuse the parent's or guardian's student from all portions of a sexual orientation curriculum or gender identity curriculum must submit a request in writing to the student's principal. An LEA or public charter school shall not penalize a student who is excused from any or all portions of a sexual orientation curriculum or gender identity curriculum for grading purposes if the excused student satisfactorily performs an alternative lesson that is assigned to the student.

(c) An LEA or public charter school is not required to notify a student's parent or guardian prior to a teacher, principal, or other school personnel:

(1) Responding to a question from a student during class regarding sexual orientation or gender identity as it relates to any topic of instruction; or

(2) Referring to the sexual orientation or gender identity of any historic person, group, or public figure, where the referral provides necessary context in relation to a topic of instruction.

(d) An LEA or public charter school is not required to provide a sexual orientation curriculum or gender identity curriculum.

(e) As used in this section "instruction of a sexual orientation curriculum or gender identity curriculum" includes distributing materials, administering tests, surveys, or questionnaires, or instruction of any kind related to sexual orientation or gender identity.

SECTION 2. Tennessee Code Annotated, Section 49-6-1301, is amended by adding the following as new subdivisions:

( ) "Gender identity" has the same meaning as provided in the Diagnostic and Statistical Manual (DSM-5);

( ) "Parent" means the parent, guardian, person who has custody of the child, or individual who has caregiving authority under § 49-6-3001;

( ) "Sexual orientation" means an individual's actual or perceived sexual orientation as heterosexual, homosexual, or bisexual;

SECTION 3. This act takes effect upon becoming a law, the public welfare requiring it.

SENATE BILL NO. 1229

PASSED: April 14, 2021

Randy McNally

RANDY McNALLY
SPEAKER OF THE SENATE

CAMERON SEXTON, *SPEAKER*
HOUSE OF REPRESENTATIVES

APPROVED this 3rd day of May 2021

Bill Lee

BILL LEE, *GOVERNOR*

EXHIBIT 29

RULES
OF
THE STATE BOARD OF EDUCATION

CHAPTER 0520-01-23
INTERSCHOLASTIC ATHLETICS

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0520-01-23-.01 PURPOSE.

The purpose of these Rules is to effectuate T.C.A. § 49-6-310.

Authority: *T.C.A. § 49-1-201 and 49-6-310.* ***Administrative History:***

0520-01-23-.02 DEFINITIONS.

(1) "Commissioner" means the Commissioner of the Tennessee Department of Education.

(2) "Department" means the Tennessee Department of Education.

(3) "High School" means a public school in which any combination of grades nine through twelve (9-12) are taught.

(4) "Interscholastic Athletic Activity or Event" means a sporting activity or sporting event involving two (2) or more schools.

(5) "LEA" means a Tennessee local education agency and has the same meaning given in T.C.A. § 49-1-103(2).

(6) "Middle School" means a public school in which any combination of grades five through eight (5-8) are taught.

(7) "Reporting Party" means a Tennessee citizen who reports in writing an allegation of noncompliance with T.C.A. § 49-6-310(a) to the Tennessee Department of Education.

(8) "State Education Finance Funds", means the state school fund as defined in T.C.A. § 49-3-101(a) or funds appropriated or allocated from the state treasury for the operation and maintenance of the public schools or that may derive from any state taxes, the proceeds of which are devoted to public school purposes.

Authority: *T.C.A. § 49-1-201 and 49-6-310.* ***Administrative History:***

0520-01-23-.03 LEA REQUIREMENTS.

(1) Each local board of education and each governing body of a public charter school shall:

  (a) Adopt and enforce a policy in compliance with T.C.A. § 49-6-310;

(b) Require each Middle School and High School under its control to adopt written procedures to ensure proper implementation of T.C.A. § 49-6-310(a) and the policy adopted pursuant to T.C.A. § 49-6-310; and

(c) Require annual reminders of T.C.A. § 49-6-310(a), the policy adopted pursuant to T.C.A. § 49-6-310, and the school procedures required by this Chapter be provided to all coaches and school and district administrators responsible for facilitating Interscholastic Athletic Activities or Events at Middle Schools and High Schools under its control.

(2) Each LEA shall confirm that each Middle School and High School under its control and each public charter school authorized by the LEA is in compliance with T.C.A. § 49-6-310(a) prior to submitting the annual LEA Compliance Report to the Department certifying the LEA's compliance with all education laws and State Board of Education ("State Board") rules.

Authority**: T.C.A. § 49-1-201 and 49-6-310.* ***Administrative History:

0520-01-01-.04 REVIEWING ALLEGATIONS OF NONCOMPLIANCE.

(1) Upon receipt of notice of an allegation of noncompliance with T.C.A. § 49-6-310(a), the Department shall initiate a review of the allegation within ten (10) calendar days of receiving the notice. A review is initiated when the Department sends a written notification of the review to the LEA in which the allegation(s) arose. The Department shall also notify the Reporting Party, if any, that an investigation has been initiated and provide information regarding the procedural steps involved in the investigative process.

(2) As part of the review, the Department shall have the authority to:

(a) Request any relevant physical or electronic evidence from the LEA, the Reporting Party, and/or any witness; and

(b) Interview the Reporting Party and/or any other individual deemed necessary by the Department.

(3) No later than sixty (60) calendar days after initiating the review, the Department shall issue a written determination letter summarizing the findings of the review to the LEA from which the allegation(s) arose. A notice shall also be sent to the Reporting Party summarizing the Department's findings. Such notice shall be sent in compliance with the Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. 1232g); T.C.A. § 10-7-504; the Data Accessibility, Transparency, and Accountability Act, compiled in Title 49, Chapter 1, Part 7; and all other relevant privacy laws. The sixty (60) day timeline may only be extended if exceptional circumstances exist and those circumstances are appropriately documented by the Department. If there is a need for an extension of the sixty (60) day timeline, the Department shall notify the LEA in which the allegation(s) arose and the Reporting Party of this extension in writing.

(4) If the LEA is found to be noncompliant with T.C.A. § 49-6-310, the written determination letter shall include a notice of noncompliance and corrective action steps required for compliance. The notice of noncompliance shall include a deadline for completion of the corrective action steps. An LEA shall not be deemed non-compliant by the Department if the failure to comply is in response to a court or other legally binding order that prohibits the LEA from complying.

(5) If the Department determines that the LEA failed to complete the required corrective actions by the deadline included in the notice of noncompliance, the Department shall send the LEA a letter of withholding stating that due to failure to complete the required corrective actions by the deadline,

(Rule 0520-01-23-.04, continued)

the Commissioner shall withhold a portion of the state education finance funds that an LEA is otherwise eligible to receive until the LEA completes each of required action steps. The letter shall state that LEAs have the right to request a contested case hearing regarding the Department's written determination.

(6) Any contested case hearing granted shall be conducted in accordance with the Tennessee Uniform Administrative Procedures Act at T.C.A. §§ 4-5-301 et. seq. and the Rules of the Tennessee Department of State Administrative Procedures Division, Chapter 1360-04-01. If the LEA chooses to request a contested case hearing, the LEA shall make such a request within thirty (30) calendar days of the Department issuing the written determination of the appeal.

Authority: *T.C.A. § 49-1-201 and 49-6-310.* ***Administrative History:***

0520-01-23-.05 EARLY RESOLUTION.

(1) LEAs are encouraged to work collaboratively with the Department to resolve allegations of noncompliance as quickly as possible. At any point after an allegation of noncompliance with T.C.A. § 49-6-310 has been reported, but before a written determination has been issued by the Department, the LEA may propose early resolution of the allegations through a resolution agreement.

(2) If early resolution is agreed to by the Department and LEA, the LEA shall prepare a written resolution agreement to be submitted to the Department for review and approval. Entry into an early resolution agreement shall not constitute an admission that the LEA violated T.C.A. § 49-6-310 or this Chapter.

(3) A written resolution agreement shall include:

(a) A summary of the allegations; and

(b) Any agreed upon terms of the early resolution, including deadlines for the completion of required acts or steps, and dates for submission of reports and documentation to the Department verifying implementation.

(4) Once a written resolution agreement between the LEA and the Department is signed by all parties, the review shall be deemed resolved and the Department shall:

(a) Monitor the implementation of the written resolution agreement to ensure the LEA complies with the terms;

(b) Provide written notice to the LEA of any deficiencies in implementation and shall request immediate and appropriate action to address those deficiencies;

(c) When necessary, require additions to or modifications of the written resolution agreement to address the failure of the LEA to fully implement the terms of original agreement; and

(d) Provide written notice to the Reporting Party that the LEA and the Department have entered into a resolution agreement, including the terms of the resolution agreement.

(5) When the Department determines that the LEA has fully implemented the terms of the resolution agreement, the Department shall conclude the monitoring of the written resolution agreement by sending written notification to the LEA and the Reporting Party.

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(6) Failure by an LEA to comply with the terms of the written resolution agreement shall be deemed a failure or refusal to comply with T.C.A. § 49-6-310 in accordance with Rule Section .05 of this Chapter.

Authority**: T.C.A. § 49-1-201 and 49-6-310.* ***Administrative History:

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EXHIBIT 30

TSSAA CONSTITUTION CHANGES APPROVED FOR THE 2022-23 SCHOOL YEAR

1. **Article IV, Section 6 (Legislative Council Meetings)**

   This change states the Legislative Council shall meet in December and April of each school year.

TSSAA BYLAWS CHANGES APPROVED FOR THE 2022-23 SCHOOL YEAR

1. **Article I, Section 9 (Coaches)**

   This change outlines the specific fine for schools that fail to submit non-faculty and classified employees on the Portal prior to coaching each year.

2. **Article II, Section 25(B) (Home School Rule)**

   This change removes the August 15th deadline that homeschool students must notify the member school administration of their intent to try out for a school team. It now states that they must notify the Principal of the member school of their intent to tryout before the first official practice date for that sport.

3. **Article II, Section 27 (Virtual School Rule)**

   The Legislative Council adopted rules allowing member virtual school students who reside in the geographic area of the LEA of the member virtual school to participate at their zoned public school provided they meet all other eligibility requirements and the virtual school decides not to have its own athletic program.

4. **Article IV, Section 8 (Sports Calendar)**

   This change increased the number of matches in Tennis teams are allowed to participate in during the regular season from sixteen (16) to twenty-two (22).

Exhibit
0003
7/28/2022
Donald Dodgen

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TENNESSEE SECONDARY SCHOOL ATHLETIC ASSOCIATION

CONSTITUTION

Article I
Name and Purpose

Section 1. The name of the corporation shall be the Tennessee Secondary School Athletic Association, and hereafter shall be referred to as TSSAA.

Section 2. The purposes of the corporation shall be as stated in the Charter of Incorporation and, in addition, to stimulate and regulate interscholastic athletic competition among the member schools in accordance with the standards established by those schools in the TSSAA Bylaws.

Section 3. The mission of the TSSAA is to serve its members by providing leadership and coordination for the administration of interscholastic athletics, which will enhance the educational experiences of students. The TSSAA will promote participation and sportsmanship to develop good citizens through interscholastic athletics, which provide equitable opportunities, positive recognition and learning experiences to students while maximizing the achievement of educational goals.

Article II
Athletic Districts

Section 1. For the purpose of administration only, the state shall be divided by counties into the following athletic districts:

First Athletic District: Carter, Claiborne, Cocke, Grainger, Greene, Hamblen, Hancock, Hawkins, Jefferson, Johnson, Sevier, Sullivan, Unicoi, Washington.

Second Athletic District: Anderson, Blount, Campbell, Knox, Loudon, McMinn, Monroe, Morgan, Roane, Scott, Union.

Third Athletic District: Bledsoe, Bradley, Grundy, Hamilton, Marion, Meigs, Polk, Rhea, Sequatchie.

Fourth Athletic District: Bedford, Cannon, Clay, Coffee, Cumberland, DeKalb, Fentress, Franklin, Jackson, Lincoln, Moore, Overton, Pickett, Putnam, Rutherford, Smith, Van Buren, Warren, White, Wilson.

Fifth Athletic District: Davidson, Macon, Montgomery, Robertson, Stewart, Sumner, Trousdale.

Sixth Athletic District: Cheatham, Dickson, Hickman, Houston, Humphreys, Giles, Lawrence, Lewis, Marshall, Maury, Perry, Wayne, Williamson.

Seventh Athletic District: Benton, Carroll, Chester, Decatur, Fayette, Hardeman, Hardin, Henderson, Henry, Madison, McNairy.

Eighth Athletic District: Crockett, Dyer, Gibson, Haywood, Lake, Lauderdale, Obion, Tipton, Weakley.

Ninth Athletic District: Shelby.

Athletic Districts 1, 2 and 3 shall comprise the Grand Division of East Tennessee; Athletic Districts 4, 5 and 6 shall comprise the Grand Division of Middle Tennessee, and Athletic Districts 7, 8 and 9 shall comprise the Grand Division of West Tennessee.

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Article III
Board of Control

Section 1. Administration: The administrative authority of the TSSAA shall be vested in a Board of Control composed of twelve members. This Board of Control shall be composed of four representatives from each of the three Grand Divisions of the State who shall be elected to serve for a period of three years. The terms of office shall be staggered such that the terms of four members of the Board of Control, one from two Grand Divisions and two from one Grand Division of the State, shall expire each year. The election shall take place in an annual meeting of the schools in each Grand Division.

Section 2. Election: In each Grand Division, there shall be a minimum of one Independent School representative. Only administrators of member Independent Schools in that Grand Division shall be eligible for election to the Independent School seat. Each member school of the Grand Division that is represented at the meeting by the Principal, or other administrator, shall be entitled to one vote for each Independent School seat to be filled at the meeting.

Administrators from all member schools shall be eligible for election to the other three seats. Nominations shall come from the schools within the Athletic District, and only the members of that Athletic District may vote for their representative on the Board of Control. Each member school of the Athletic District that is represented at the meeting by the Principal, or other administrator, shall be entitled to one vote for each seat to be filled at the meeting. In the event of a tie vote, all member schools in that Grand Division represented at the meeting shall continue to vote until the tie is broken.

The term of office for members of the Board of Control shall begin December 1 following their election.

All members of the Board of Control must be full-time employees (minimum of 100 school days) who are principals, assistant principals (who devote full-time duties to administration), heads of schools, school-level athletic directors (who have achieved a minimum CAA recognition through the NIAAA), district-level athletic directors (who have achieved a minimum CAA recognition through the NIAAA), or director of schools. District-level athletic directors, County and City superintendents of no more than one four-year high school or senior high school shall be eligible to serve. No individual can serve as a member of the Legislative Council and Board of Control at the same time.

Section 3. Officers: The officers of the Board of Control shall be a president and a vice president. These officers shall be elected annually by the members of the Board of Control and each shall perform the duties usually required of the office. The President and Vice-President of the Board of Control shall serve as President and Vice-President of the TSSAA. The President of the Board of Control shall also attend all meetings of the Legislative Council. The Executive Director shall act as Secretary of the Board of Control.

Section 4. Vacancies: Withdrawal from the teaching profession, suspension or lapse of membership of the school represented, or removal from the Athletic District represented shall immediately terminate membership on the Board of Control, and the vacancy shall be filled as provided below.

Vacancies on the Board of Control shall be filled by the members of the Board of Control representing the Grand Division wherein the vacancy occurs. Such members shall serve until the next annual meeting of the member schools of the Grand Division, at which time vacancies shall be filled by regular election.

Section 5. Power and Duties of Board of Control: The Board of Control shall:

(a) Have general control over all athletic contests in which member schools participate.

(b) Elect an Executive Director and delegate the authority to interpret and to enforce the Constitution and Bylaws of the TSSAA to the Executive Director.

(c) Provide office facilities and employees for properly conducting the business of the Association. (The Tennessee Secondary School Athletic Association is an Equal Opportunity Employer.)

(d) Determine and authorize all necessary expenditures of money in the conduct of the affairs of the Association.

(e) Determine methods of, and qualifications for, registration of officials; revoke registration of any official for just cause.

(f) Hear appeals from decisions of the Executive Director and render final decisions in those appeals.

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(g) Have authority to rule on any cause not covered by the Constitution and Bylaws, until the Legislative Council adopts a rule covering the situation.

Section 6. Meetings: The Board of Control shall meet in August, November, January, March and June. Other meetings may be called by the President of the Board of Control. The various ex-officio representatives shall be permitted to attend meetings and may provide input on behalf of their constituents but shall have no vote and shall not be or remain present during any meetings held in executive session.

Section 7. Quorum: A majority of the members of the Board of Control shall constitute a quorum for the transaction of business.

Article IV
Legislative Council

Section 1. Administration: The legislative body of the TSSAA shall be a Legislative Council composed of twelve members. This Legislative Council shall be composed of four representatives from each of the three Grand Divisions of the State who shall be elected to serve for a period of three years. The terms of office shall be staggered such that the terms of four members of the Legislative Council, one from two Grand Divisions and two from one Grand Division of the State, shall expire each year. The election shall take place in an annual meeting of the schools in each Grand Division.

Section 2. Election: In each Grand Division, there shall be a minimum of one Independent School representative. Only administrators of member Independent Schools in that Grand Division shall be eligible for election to the Independent School seat. Each member school of the Grand Division that is represented at the meeting by the Principal, or other administrator, shall be entitled to one vote for each Independent School seat to be filled at the meeting.

Administrators from all member schools shall be eligible for election to the other three seats. Nominations shall come from the schools within the Athletic District, and only the members of that Athletic District may vote for their representative on the Legislative Council. Each member school of the Athletic District that is represented at the meeting by the Principal, or other administrator, shall be entitled to one vote for each seat to be filled at the meeting. In the event of a tie vote, all member schools in that Grand Division represented at the meeting shall continue to vote until the tie is broken.

The term of office for members of the Legislative Council shall begin December 1 following their election.

All members of the Legislative Council must be full-time employees (minimum of 100 school days) who are principals, assistant principals (who devote full-time duties to administration), heads of schools, school-level athletic directors (who have achieved a minimum CAA recognition through the NIAAA), district-level athletic directors (who have achieved a minimum CAA recognition through the NIAAA), or director of schools. District-level athletic directors, County and City superintendents of no more than one four-year high school or senior high school shall be eligible to serve. No individual can serve as a member of the Legislative Council and Board of Control at the same time.

Section 3. Officers: The officers of the Legislative Council shall be a president and a vice president. These officers shall be elected annually by the members of the Legislative Council and each shall perform the duties usually required of the office. The President of the Legislative Council shall also attend all meetings of the Board of Control. The Executive Director shall act as Secretary of the Legislative Council.

Section 4. Vacancies: Withdrawal from the teaching profession, suspension or lapse of membership of the school represented, or removal from the Athletic District represented shall immediately terminate membership on the Legislative Council, and the vacancy shall be filled as provided below.

Vacancies on the Legislative Council shall be filled by the members of the Legislative Council representing the Grand Division wherein the vacancy occurs. Such members shall serve until the next annual meeting of the member schools of the Grand Division, at which time vacancies shall be filled by regular election.

Section 5. Duties: The Legislative Council shall make necessary amendments to the Constitution and Bylaws and act upon suggestions submitted by 25 members of the Association.

Section 6. Meetings: The Legislative Council shall meet in December and in **April**. Other meetings may be called by the President of the Legislative Council. The various ex-officio representatives shall be permitted to

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attend meetings and may provide input on behalf of their constituents but shall have no vote and shall not be or remain present during any meetings held in executive session. The Executive Director shall prepare an agenda for each meeting of the Legislative Council, which shall include:

(a) Proposals from the regional meetings.

(b) Proposals from any committee established by the Board of Control or Legislative Council.

(c) Proposals from the TSSAA staff.

(d) Any proposal submitted by the chief administrator of a member school to the Executive Director no later than four weeks prior to the Legislative Council meeting.

The Legislative Council shall not consider any item not on the agenda prepared by the Executive Director.

The agenda shall be published no later than seven (7) days in advance of a regularly scheduled meeting of the Legislative Council.

Section 7. Quorum: A majority of the members of the Legislative Council shall constitute a quorum for the transaction of business.

Article V
Executive Director

Section 1. The Executive Director shall be elected for a term of three years by the Board of Control.

Section 2. Under the direction of the Board of Control, the Executive Director shall receive, hold, expand and account for all funds of the Association.

Section 3. The Executive Director shall maintain the records and property of the Association.

Section 4. The Executive Director shall initiate investigations, conduct hearings, collect information, render decisions and fix penalties based on the information provided to the staff, and in accordance with the rules and regulations of the TSSAA. Such decisions shall be subject to review by the Board of Control on appeal by the principal of the member school involved.

Some examples of disciplinary action are, but not limited to, the following:

(1) Probation to an individual sport in an athletic program shall result in a fine of $500.00 annually.

(2) Probation to a total athletic program shall result in a fine of $1,000.00 annually.

(3) Restrictive probation to an individual sport in an athletic program shall result in removal from the tournament series and a fine of $1,000.00 annually.

(4) Restrictive probation to a total athletic program shall result in removal from the tournament series in all sports and a fine of $2,000.00 annually.

(5) Suspension of an individual sport from participation or the total athletic program from participation.

(6) No awards shall be given to a member school recognizing their finish in the regular season in any TSSAA sponsored sport if that school has been placed on restrictive probation for that sport.

Section 5. The Executive Director shall attend all meetings and serve as Secretary of the Board of Control and of the Legislative Council.

Section 6. The Executive Director shall be an ex-officio member of all committees of the Board of Control and of the Legislative Council.

Section 7. The Executive Director shall administer the rules and regulations governing the certification of officials as directed by the Board of Control.

Article VI
Hearings

Section 1. Any school charged with violating TSSAA regulations shall be notified of such charges by the Executive Director. If a hearing is desired by the school involved, the Executive Director must be notified immediately in writing. Provisions will then be made for such hearing, and the school so notified.

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Section 2. Hearings shall be conducted by the Executive Director in the presence of two or more members of the Board of Control who represent the Grand Division of the state in which the school is located, and who shall act in an advisory capacity. After testimony has been heard, the Executive Director shall meet in executive session with the members of the Board of Control who are present at the hearing. After discussing with the Board members the evidence and possible penalties, the Executive Director shall decide what penalty, if any, is to be placed against the school.

Section 3. Regardless of whether a member school has sought a hearing under Section 2, the school may appeal any decision of the Executive Director to the Board of Control. If the decision of the Executive Director is sustained, the school making the appeal shall defray the expenses for the meeting of the Board of Control in case a special meeting of the Board is called to consider the appeal.

Section 4. No member of the Board of Control shall serve on the Board while a case involving the school which he/she represents is being heard.

Article VII
Amendments

Section 1. The Constitution may be amended by a majority of the membership of the Legislative Council. The action of the Legislative Council shall be final except that any amendment it makes may be appealed to the entire membership upon request of 25 members of the Association submitted to the Executive Director in writing. An appeal to the membership must be participated in by at least 51 percent of the total membership or the appeal will be void. A two-thirds majority of those voting will be necessary to reject a regulation adopted by the Legislative Council. Any item, not on the regional agenda, that is submitted by a member school to the Legislative Council must be in writing and submitted to the Executive Director no later than four weeks prior to the meeting of the Legislative Council at which the item is to be submitted. Any item to be placed on the agenda of the Legislative Council must be submitted by the chief administrator of a member school, a committee established by the Board of Control, Legislative Council or members of the TSSAA staff.

Section 2. The Legislative Council shall not act on any proposed rule changes affecting any sport sponsored by TSSAA unless the proposed change has been called to the attention of the membership by letter or by being printed in the TSSAA bulletin.

Article VIII
Regional Meeting

Section 1. Regional meetings shall be held in November and/or December of each year at Jackson, Nashville and Knoxville for the purpose of electing members to Board of Control and Legislative Council and of considering proposals to amend the Constitution and Bylaws or other legislative proposals. Proposals for consideration at regional meetings may be submitted by member schools, the Board of Control, or the Legislative Council. All such proposals must be submitted to the Executive Director in writing not later than October 15 of the year they are to be presented at the regional meetings. The Executive Director shall furnish all member schools with a list of all legislative proposals prior to the regional meetings, and the school or group responsible for each proposal shall be indicated. A committee composed of the President and Vice-President of the Legislative Council, the President of the Board of Control, and the Executive Director shall determine the order in which these proposals shall be considered at the regional meetings.

Each member school, provided it is represented by the principal, or by a faculty member designated by the principal, shall be entitled to one vote on all matters considered at the regional meeting held in its area, unless the Board of Control rules in advance of the regional meeting that certain items on the agenda shall not be voted on by the entire membership but that the vote shall be limited to schools concerned with a particular question. Non-voting faculty representatives of member schools have the privilege of speaking for or against any proposal considered.

The action of the member schools at the three regional meetings shall be used as a guide by the Legislative Council in adopting or rejecting legislative proposals.

The principal, assistant principal, or athletic director shall attend the regional meeting annually. Failure to attend shall result in a warning. If an administrator does not attend the following year, the fine shall be $100.00.

FAQ's concerning the Constitution can be found on Page 41.

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DEFINITIONS

Affiliate Member – A school that has all the privileges and responsibilities of membership but does not participate in the tournament series in any sport.

Athletic Program – All aspects of the member school's program of interscholastic athletic competition in the sports listed in Article I, Section 5, of the TSSAA Bylaws.

Athletic Record – A student has an "athletic record" if the student has played in an interscholastic contest at the varsity, junior varsity, ninth grade, or any other level, on behalf a TSSAA member school or a school that is a member of a state athletic association holding membership in the National Federation.

Bona Fide Change of Residence – A move from one community to another that justifies a change of schools. Where a family continues to maintain a previous residence for the residential purposes of that family or any of its members, the move is not one that justifies a change of schools for purposes of the TSSAA Bylaws.

Coach – Anyone who instructs or supervises student-athletes in practices or contests.

Cooperative Program – Two member schools forming a single team in a sport in which at least one of the schools does not have a team and has not had a team for the previous two (2) years.

De Novo – Heard anew. Where a decision by the Executive Director is appealed "*de novo*" to the Board of Control, the Board of Control is not in any way bound, restricted, or limited by the findings or conclusions of the Executive Director and may render whatever decision it deems appropriate based on its own review of the facts and circumstances.

Enrolled – A student is considered "enrolled" at a school, for purposes of these Bylaws, when the student has (a) completed all paperwork required for attendance at the school; (b) paid all deposits and tuition due where applicable; and (c) either (i) attended classes for three days; (ii) engaged in three or more days of football, girls volleyball, cross country, golf, or girls soccer practice during the period on or after the TSSAA first official day of practice; or (iii) participated in an athletic contest in any Fall sport. A student may not be considered to be enrolled in more than one school at any time.

Guardian – An adult with whom the student has lived for twelve (12) or more consecutive months. For purposes of TSSAA Bylaws, official appointment by a court is not required to establish guardianship; however, no person may be considered a guardian for purposes of these Bylaws unless the student has lived with that person for twelve (12) or more consecutive months, regardless of whether that person has been appointed as a guardian by a court.

Junior Varsity – Any level of play below the varsity level, whether denominated as junior varsity, b-team, or otherwise. The membership of a junior varsity team shall be composed of varsity substitutes and any other non-varsity players identified on the school's eligibility list (TSSAA Portal Roster).

Last Participation Date – the date of the last interscholastic athletic contest in which the student participated.

Parent – The birth mother and biological father of a student; the person(s) to whom a proper jurisdiction grants adoption of the student; or a step-parent with whom the student regularly resides.

Practice – Any interaction between a coach and student-athlete(s) where instruction, teaching, coaching, etc., is occurring. Happenstance communications between coach and student-athlete(s), in circumstances where attendance by the student-athlete is neither expected nor required, are not considered to be practice. Such communications may not, however, be used to circumvent the requirement in open facilities that a coach act in a supervisory capacity only. In addition, try-outs are considered practice.

Principal – The chief on-site administrative official of the member school, whether known as "principal," "head of school," "executive principal," or by some other title.

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Regular Attendance – A student is considered to be in "regular attendance" at a school when the student is enrolled at the school; is taking at, or under arrangements approved by the member school, a minimum of five (5) full courses or the equivalent for which credit toward high school graduation will be granted by the member school upon the student's completing and passing the courses; and is satisfying the requirements of the school or school system for class attendance applicable to students generally.

School Team – An entity comprised of one or more students in a school, under the control and conduct of the school, which represents the school in interscholastic athletic competition.

Special Olympics Athlete – A student participating in Unified Sports who has been identified by an agency or professional as having one or more of the following conditions: intellectual disability, cognitive delay as measured by a formal assessment, or significant learning or vocational problems due to cognitive delay that require or have required specially designed instruction.

Territory – For a public school, the "territory" of the school is the geographic boundaries and bus routes of the area served by that school as established by the local board of education. For a system-wide public school, charter school, or a home school student participating at a public school, the "territory" of the school is the geographic boundaries of the school system. For a non-public school or a home school student participating at a non-public school, the "territory" of the school is the area within a twenty (20) mile radius from the school.

Tournament Competition – The TSSAA-sponsored championship tournament series.

Transfer Student – A transfer student is any student changing schools for any reason other than having completed the highest, or terminal, grade at another school. A student who must change schools because he/she has completed the highest grade at his/her previous school is not considered a transfer student and is eligible to participate in athletics at any school he/she attends, without further approval, provided he/she satisfies the residence requirement above.

Unified Partner – A student participating in Unified Sports who has no intellectual disability or cognitive delay. Unified Partners are paired with Unified Athletes to participate on Unified Sports teams. Unified Partners are not eligible to participate on the school team for the sanctioned sport in which they are participating in the Unified competition.

Unified Sports – Special Olympics Unified Sports® is an inclusive sports program that combines an approximately equal number of Special Olympics athletes (individuals with intellectual disabilities) and partners (individuals without intellectual disabilities) on a team for training and competition.

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TENNESSEE SECONDARY SCHOOL ATHLETIC ASSOCIATION

BYLAWS

There are three primary objectives that the member schools of the TSSAA attempt to achieve through their Bylaws: (1) maintaining athletics in its proper perspective as subordinate to the primary academic mission of the schools; (2) preventing the exploitation of students for athletic purposes; and (3) fostering fair competition, or a "level playing field," among the TSSAA member schools. While some particular Bylaws may serve additional purposes, all of the Bylaws should be read with these three overriding objectives in mind.

Article I
Membership and Athletic Program Administration

Membership - Sections 1, 2, and 3
Financial Statement - Section 4
Sponsored Sports - Section 5
Cooperative Programs - Section 6
Responsibility of the Principal - Sections 7 and 8
Coaches - Section 9
Rules Meetings for Coaches - Section 10
Contracts - Section 11

Membership

Section 1. Any secondary school in Tennessee which includes grade 9 and/or higher, which is approved by the State Department of Education, State Department of Education approved agencies (Schools must be in category 1, 2, or 3.), AdvanceEd, and/or Southern Association of Independent Schools, both non-public and public, desiring membership in TSSAA may make application to the Board of Control. Prior member schools that continue to serve students within the state of Tennessee may also make application to the Board of Control. Contracts for membership shall be approved or rejected annually by the Board of Control.

Member schools that withdraw from the TSSAA membership must be an affiliate member for one year upon application to renew membership.

Section 2. The annual dues for a senior high school in Division I Class 1A shall be $150.00, in Division I Class 2A $200.00, in Division I Class 3A $250.00, in Division I Class 4A $250.00 and for a junior high school shall be $100.00. The annual dues for a senior high school in Division II Class A shall be $150, in Division II Class AA $200. The Legislative Council may not increase membership dues unless the increase is approved by a vote of TSSAA member schools.

Membership contracts shall be submitted by August 1 for the subsequent school year. Membership dues shall be paid no later than September 1 and shall be for the school year (August 1 – July 31). There shall be a five dollar ($5.00) per business day late fee charged to any school that fails to remit its membership dues by September 1.

Section 3. For tournament competition there shall be two categories. Division I shall consist of all member public schools. Division II shall consist of all member independent schools.

Any school which includes grade 9 and/or higher may compete as a member school.

Please see FAQ's on Page 42-60.

Financial Statement

Section 4. The fiscal year of the Association shall be from July 1 to June 30. At the close of the fiscal year, the Executive Director shall publish a financial statement. All surplus funds shall be used as directed by the Board of Control.

Sponsored Sports

Section 5. TSSAA shall sponsor the following sports: baseball, girls' softball, basketball, bowling, cross country, football, golf, tennis, track and field, unified track and field, girls' volleyball, soccer, and wrestling.

Please see FAQ's on Page 42-60.

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Cooperative Programs

Section 6. Only two member schools in the same Division may petition TSSAA annually for permission to have a cooperative program in any sport if one of the schools does not have that program and has not had that program for the last two years. The Executive Director of TSSAA may approve such cooperative programs subject to approval by the principals of the schools involved, the governing board of the schools involved, and the Board of Control.

Responsibility of the Principal

Section 7. The principal of each school, in all matters pertaining to the athletic relations of his/her school, is responsible to this Association. Administrators must realize that they have more responsibilities than the general public to understand the purpose of high school athletics and the principles behind the TSSAA rules, and they must maintain that level of understanding and purpose when dealing with the general public and students. The principal shall exercise control over all finances, the scheduling of contests, and all other matters involved in the management of the school's athletic program. Any school whose athletic program is managed by a non-school group shall not be eligible to hold membership in TSSAA.

The principal shall furnish to the Executive Director such information as may be desired concerning eligibility of contestants, participation and reports on officials. Failure to comply within a reasonable time shall subject the school to suspension, fine or other penalty. Any eligibility list shall remain on file in the principal's office for a period of not less than five years.

The principal, assistant principal, or athletic director shall attend the meeting for all administrators annually. Failure to attend shall result in a warning. If an administrator does not attend the following year, the fine shall be $50.00.

Section 8. All games shall be properly supervised to ensure sportsmanlike contests. The host school shall be responsible for providing sufficient security to ensure orderly conduct on the part of all spectators. Visiting teams shall be accompanied by the principal or someone designated by the principal. If the game is played on a neutral field and neither team is designated as the host team, the competing schools shall share the responsibility of providing sufficient security.

The host school is responsible for the safe passage of the game officials upon arrival and exiting the facility.

Public criticism of game officials by administrators or coaches may result in a fine of $500.00 assessed to the school.

Member schools are responsible for the conduct of their own fans and students at every athletic contest, regardless of where it may be held.

The coach and principal of each of the schools participating in an athletic contest shall file a report immediately with the state office if there is any unusual incident involving poor sportsmanship, during or following the game, on the part of players, coaches, school administrators, game officials or spectators.

Please see FAQ’s on Page 42-60.

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Coaches

Section 9. All coaches must be registered with TSSAA annually and will fall under one of the following categories:

1. Full-time certified teacher (a minimum of 100 school days) of a board of education with a Tennessee teaching license or the equivalent.
2. Retired educator (five or more years' experience) with a valid Tennessee state teaching license or the equivalent.
3. Non-faculty coach – Anyone approved by the principal, superintendent, and/or local board of education in the normal course of employment procedures in accordance with applicable state law.
4. Classified Employee – Any individual employed by a member school or school system in a position that does not require a teaching license or the equivalent. A Classified Employee must be employed 30 hours or more per week in a non-coaching position and may not be an independent contractor or an employee of an independent contractor.

A. Coaching Requirements:

1. All coaches must be approved by the principal, superintendent, and/or local board of education prior to coaching.
2. **All coaches must be submitted online and assigned to the appropriate sport(s) in the school's portal account to the state office annually. This should be done prior to coaching.**
3. Non-faculty Coaches and Classified Employee Coaches must complete the NFHS "Fundamentals of Coaching" and "First Aid, Health, & Safety for Coaches" courses prior to assuming the position. Coaches who have successfully completed the ASEP Coaches Education Course prior to May 15, 2013, will not be required to take the NFHS courses. A school must pay an annual registration fee of $50.00 per Non-faculty Coach. There is no registration fee for a Classified Employee.
4. In addition to the requirements listed above, all coaches of Unified Sports must meet the requirements set forth by Special Olympics of Tennessee.

B. Use of a coach who does not meet all the requirements listed above shall result in a fine of $500.00. Use of a Non-faculty Coach or Classified Employee Coach who has met the requirements listed above but has not been submitted to the state office prior to the date of first contest allowed by the Sports Calendar shall result in a fine of $50.00. Use of a full-time certified teacher or retired educator who has not been submitted to the state office prior to the date of first contest allowed by the Sports Calendar shall result in a fine of $50.00.

C. All coaches are subject to the TSSAA rules and regulation and must conduct themselves in a manner becoming of a coach and representative of the school. All coaches are responsible to the principal of his/her school. Coaches must realize that they have more responsibilities than the general public to understand the purpose of high school athletics and the principles behind the TSSAA rules, and they must maintain that level of understanding and purpose when dealing with the general public and students. Coaches must be paid entirely from funds approved by either the board of education, governing board of the school, Director of Schools, or the Principal of the school.

Please see FAQ's on Page 42-60.

Rules Meetings for Coaches

Section 10. A member of the coaching staff in each sport and cheerleading or the Athletic Director shall attend a state rules meeting, if held, or complete the online rules meeting (if available), in the sport involved every year by a set deadline, or the school will be fined $50.00. The coach must complete a make-up online rules meeting if they missed the face-to-face meeting or did not complete the online meeting by the original deadline. If not, the head coach will not be eligible to coach in the post-season tournament series. The school is still fined if the coach takes the make-up meeting after the original deadline.

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Contracts

Section 11. Contracts made and entered into by member schools may be cancelled by mutual agreement or by authority of the Board of Control. All contracts between two schools shall be signed by the principals contracting. In the event a dispute arises under a written contract between two member schools, and the contracting schools are unable to resolve that dispute, either school may request a resolution by the Executive Director. The Executive Director's determination may be appealed to the Board of Control, whose decision shall be final and binding. TSSAA shall not resolve any disputes under contracts that are not in writing.

Please see FAQ's on Page 42-60.

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Article II
Eligibility

Preamble
Enrollment - Section 1
Academic Rules - Sections 2, 3, and 4
High School Graduate - Section 5
Eight Semester Rule - Section 6
Repeating Rule – Section 7
Eighth Grade Participation - Section 8
Age Limit - Section 9
Phys. Exam and Parental Consent - Section 10
Students Changing Schools - Sections 11, 12, 13, 14, and 15
Tuition and Financial Aid - Section 16
Recruiting Rule - Section 17
Amateur Rule - Section 18
Award Rule - Sections 19 and 20
Independent-Game Participation - Section 21
Specialized Camps - Section 22
All-Star Games - Section 23
Special Cases Involving Hardship - Section 24
Home School Rule – Section 25
Athletes Participating in Unified Sports – Section 26
Virtual School Rule – Section 27

Preamble

The member high schools of the Tennessee Secondary School Athletic Association have adopted, through their elected representatives, an essential inter-related group of minimum eligibility requirements which establish the threshold for participation for all students within the interscholastic program and which work together to define and preserve the fundamental nature of the program.

At the junior varsity or B-Team level, the only eligibility rules that apply are those in Sections 1 (Enrollment), 2 through 4 (Academic Rules), 5 (High School Graduate), 6 (Eight-Semester Rule), 7 (Repeating Rule), 8 (Eighth Grade Participation), 9 (Age Limit), 10 (Physical Examination and Parental Consent), 13d (Under Disciplinary Action), 13e (Coaching Link), 25 (Home School Rule), and **27 (Virtual School Rule)**. At the varsity level, all eligibility rules apply.

Enrollment and Attendance

Section 1. To be eligible, students shall be regularly enrolled, in regular attendance, and carrying at least five full courses or the equivalent. A student is eligible to participate in football, volleyball, cross country, golf, and girls' soccer prior to the beginning of school if the student is enrolled at the school and meets all other eligibility requirements.

A student shall not participate in athletics during any semester unless he/she is duly enrolled on or before the 20th day of the semester. This rule shall not apply to transfer students who have met the attendance requirements in the school last attended.

Please see FAQ's on Page 42-60.

Academic Rules

Section 2. To be eligible to participate in athletic contests during any school year, the student must earn five credits the preceding school year if less than 24 credits are required for graduation or six credits the preceding school year if 24 or more credits are required for graduation. All credits must be earned by the first day of the beginning of the school year. Academic eligibility for a student is based on the requirements of the school the student was attending at the conclusion of the previous school year.

Students who are ineligible the first semester may gain eligibility the second semester by passing five subjects (1/2 credit) or three blocks (one credit per block) or the equivalent.

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Students on trimesters who are ineligible at the beginning of the school year may gain eligibility by passing five subjects (1/2 credit) or three blocks (one credit per block) or the equivalent the first trimester. Those students will be eligible to participate in athletics when school resumes on or after January 1 of that school year.

If a student is forced to withdraw from school, or is prevented from enrolling in school, due to the student's illness, his/her accident, or his/her disability, the principal may request a ruling in regard to the student's eligibility, provided the student was eligible at the time the illness or accident forced the student to withdraw or prevented the student from enrolling in school. If ruled eligible, such a student shall be charged with a semester of attendance for athletic purposes for the semester of non-attendance or withdrawal.

A student who returns to a member school after attendance at a school of correction or alternative school may be eligible for athletic participation provided the school of correction or alternative school is accredited by the Tennessee State Department of Education and provided the student returns to the school attended before entering the school of correction or alternative school.

Section 3. For athletic purposes the scholastic record filed in the office of the principal or superintendent at the end of a semester shall be final. Credits earned in a summer school accredited by the State Department of Education shall be recognized for eligibility purposes provided the student was enrolled during the spring semester immediately preceding the summer session and attended at least 40 days of that spring semester.

Section 4. A student who drops out of school before the end of the semester shall be ineligible to participate in secondary school athletics until the student has been in school a semester and has passed in at least five full unit subjects or the equivalent. (To become eligible under this regulation, a student must attend school for at least 40 days of the semester, but in no case shall the eligibility become effective until the beginning of the succeeding semester.)

Please see FAQ’s on Page 42-60.

High School Graduate

Section 5. No student shall be eligible to participate in athletics after he/she has graduated from a secondary school. (A student who takes an accelerated course shall not lose his/her eligibility even though that student earns enough units to graduate provided he/she does not participate in a graduating exercise or accept a high school diploma, and provided the student has not attended a secondary school for eight semesters after enrolling in the ninth grade.)

Eight-Semester Rule

Section 6. A student, once enrolled in the 9^{th} grade, has eight (8) semesters of athletic eligibility. Attendance of 40 school days of any semester shall be regarded as a "semester" under this rule regardless of athletic participation. If a student participates in athletics during a period of attendance of any number of days less than 40, he/she shall be charged with a semester of attendance.

A student who registers for two or more ninth grade subjects after having completed one school year in the eighth grade shall be classified as a high school student for athletic purposes.

The seventh and eighth semesters of athletic eligibility shall be consecutive.

Please see FAQ’s on Page 42-60.

Repeating Rule

Section 7. A student who repeats the sixth, seventh, or eighth grade and plays in an interscholastic contest (Varsity, JV, or any other level) while repeating shall be ineligible in all sports at all levels in the ninth grade.

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Eighth Grade Participation

Section 8. An eighth grade student is eligible to participate for a member school if he/she is enrolled at the school. Students below the eighth grade are not eligible to practice or participate for a member school. Any student repeating the eighth grade shall not be eligible for high school participation during the year that the student is repeating the eighth grade.

Participation as an eighth grader shall not reduce the number of semesters a student is allowed to participate after enrolling in the ninth grade.

Please see FAQ's on Page 42-60.

Age Limit

Section 9. No student shall be eligible to participate in any athletic contest during any school year if he/she becomes 19 years of age on or before August 1. The age rule may be waived for the Tennessee School for the Blind when this school is competing with other schools for the blind provided such schools are permitted by their state associations to waive the age rule in competing with other schools for the blind.

Please see FAQ's on Page 42-60.

Physical Examination and Parental Consent

Section 10. It is required that no student be permitted to participate in practice sessions or in athletic contests until there is on file with the principal a preparticipation medical evaluation form signed by a doctor of medicine, osteopathic physician, physician assistant, or certified nurse practitioner stating that the student has passed a physical examination, not prior to April 15, and that in their opinion the student is physically fit to participate in interscholastic athletics. In lieu of the form, the principal may accept a signed statement from the health care provider certifying that the student has passed a physical examination that encompasses all elements on the preparticipation medical evaluation form and attesting that in their opinion the student is physically fit to participate in interscholastic athletics.

No student shall be required to submit to a physical exam if his/her parent(s) or legal guardian shall file with the principal a signed, written statement (affirmed under the penalties of perjury) declining such physical examination on grounds of sincerely held beliefs or practices.

It is required that no student be permitted to participate in practice sessions or in athletic contests until there is on file a parental consent certificate signed by a parent or legal guardian stating that the student has the consent of his/her parent(s) or legal guardian to participate

Please see FAQ's on Page 42-60.

Students Changing Schools

Section 11. General Provisions.

Residence. A student changing schools for any reason, to be eligible, must live at home with his/her parent(s) or guardian(s), unless:

(a) the student is moving to a boarding school and has no athletic record the previous twelve months in any sport;

(b) the student is moving as a direct result of the dissolution of the student's home due to death;

(c) the student is moving as a direct result of the divorce of the student's parents; or

(d) the student is moving as a direct result of the separation of the student's parents, provided a complaint or petition for absolute divorce has been filed with a court having jurisdiction to grant the divorce.

"Transfer Student" Defined. A transfer student is any student changing schools for any reason other than having completed the highest, or terminal, grade at another school. A student who must change schools because he/she has completed the highest grade at his/her previous school is not considered a transfer student and is eligible to participate in athletics at any school he/she attends, without further approval, provided he/she satisfies the residence requirement above.

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Executive Director Approval Required. A school may not allow a transfer student to participate in athletics until his/her eligibility has been verified and approved by the Executive Director. The school is responsible for the accuracy and completeness of the information supplied to the Executive Director for this purpose.

Participation While Ineligible. If a student who is ineligible, under these provisions regarding students changing schools, competes in a contest while ineligible, then the student upon becoming eligible under these provisions will nonetheless be ineligible to participate in twice the number of contests in which he/she participated as an ineligible student or will be ineligible for the remainder of the season, whichever is less.

Section 12. Eligible Transfer Students.

Except as otherwise provided in Section 13 below, the following transfer students are eligible:

a. The student has no athletic record in the previous twelve months in any sport sponsored by TSSAA;

b. There has been a bona fide change of residence by the student's entire family unit in which (1) the old residence is outside the territory of the new school, (2) the new residence is outside the territory of the old school, *and* (3) the new residence is inside the territory of the new school. If such a change of residence occurs between school years, the student must transfer at the beginning of the school year to be eligible. If the change of residence occurs during the school year, the student may transfer without loss of eligibility (1) at the time his/her parents change residence; (2) at the end of the next report card period; (3) at the close of the semester or term; or (4) at the close of the school year;

c. The student changes schools as a direct result of re-zoning or re-assignment of students by the local school system provided the student transfers at the time they are re-zoned or re-assigned;

d. The student is moving from a boarding school where they are a boarder to the school serving the territory where his/her parents live, or vice versa, provided the student has attended the school he/she is leaving for a minimum of twelve months and provided the principal at the school he/she is leaving indicates in writing that the move is not for athletic or disciplinary reasons. The move must be at the beginning of the school year. (Note: The school must be outside the day school territory of the boarding school.);

e. The student is transferring to a senior high school in the same system into the earliest grade offered at that senior high school, i.e. at the student's first opportunity to move to that school;

f. The student who has been determined by a Court to be dependent and neglected and consequently changes residences and schools as a result of a Court order;

g. The first time the student changes residence from one parent to the other as a result of a court ordered custody change, so long as the principal of the former school attests in writing that the move was not for athletic or disciplinary reasons; or

h. The first time the student changes residence from a guardian to either or both parents as a result of a court ordered custody change, so long as the principal of the former school attests in writing that the move was not for athletic or disciplinary reasons;

i. The student is attending school where the student's parent works as a full-time certified teacher, that parent takes a full-time job as a certified teacher at a different school, and the student transfers to the school where the parent takes the new job. The transfer must take place when the parent takes the job or, if the job change occurs during the school year, the transfer must take place when the parent takes the new job or must be made at the beginning of the following school year;

j. The student who transfers from school A to school B and then returns to school A without having participated in any sanctioned sport at any level or without practicing three or more days after the first official TSSAA day of practice in any sport at any level at school B. This must be verified in writing by the administration of school B.

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Section 13. Ineligible Transfer Students.

The following transfer students are ineligible for a period of twelve months from the student's last participation date:

a. A student who transfers without a bona fide change of residence;

b. A student who transfers as a result of a change of residence is ineligible unless (1) the old residence is outside the territory of the new school, (2) the new residence is outside the territory of the old school, *and* (3) the new residence is inside the territory of the new school;

c. If a student has been ruled eligible as a result of a change of residence, and the parents or guardian return to the former residence before the student has been enrolled in the new school for one complete school year (or twelve months if the transfer occurred during the school year), the student will be ineligible for twelve months from his/her last participation date;

d. If a student has satisfied all other requirements for eligibility but was under discipline at his/her former school, the student shall be ineligible at the new school in all sports for twelve months or until the disciplinary charges have been removed, whichever is less. A student is considered to be "under discipline" if he or she has been suspended from school and/or placed in an alternative setting. The discipline has been removed if the school that has imposed the disciplinary action would allow the student to re-enroll.

e. If a student with an athletic record transfers to a new school where an "athletic coaching link" existed in the past 12 months, that student is ineligible for 12 months past their first date of enrollment at the new school at all levels in the specific sports where a linkage was present. Links may include (1) attendance at an individual camp (and then transferring); (2) playing on non-school (independent) teams (and then transferring to that coach's school); (3) transferring into a school where a former coach has been hired; and (4) transferring to a school where a former or current personal trainer or strength and conditioning coach is employed.

   This rule does not apply if the student moves to his/her new schools after completion of the highest ending grade at his/her previous school.

If the ineligible transfer student has an athletic record for the previous or current school year in any TSSAA sanctioned sport, the student will be ineligible to participate in the sport(s) in which an athletic record has been established.

Section 14. Practice Rules.

Only students who are enrolled and in regular attendance at a school may participate in practice.

A student who engages in three or more days of practice after the TSSAA first official date of practice with a school in which the student is enrolled shall be ineligible in that sport for that season if the student enrolls in another school without a corresponding change in the residence of the student's parents.

Section 15. Foreign-Exchange Programs.

A foreign exchange student is an international student who attends high school in the U.S. To be eligible for interscholastic athletics in the U.S., such student must be under the auspices of and be placed with a U.S. host family by an international student exchange program that has been accepted for listing by the Council on Standards for International Education Travel (CSIET) and be recognized by the U.S. Department of State. The foreign exchange program must assign students to host families by a method that ensures that no student, or his/her parents, school or other interested party may influence the assignment for athletic or other purposes. The foreign exchange student may not be selected or placed on any basis related to his/her athletic interests or abilities.

A foreign exchange student is considered to be placed with a host family when written notice of placement is provided by the exchange organization to the student and his/her parents, and to the host family.

Neither the school the student attends nor any person associated with the school shall have input into the selection of the student.

No member of the school's coaching staff, paid or voluntary, shall serve as the host family.

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The foreign exchange student must possess a current J-1 visa, issued by the U.S. State Department.

The foreign exchange student must comply with all eligibility requirements, with the exception of Article II, Section 11 (Residence).

The foreign exchange student may participate a maximum of one school year. If the student decides to stay beyond the year in which they participate, then Article II, Section 11 (Residence) will be applied at the beginning of the next school year.

Please see FAQ's on Page 42-60.

Tuition and Financial Aid

Section 16. If tuition is charged, it must be paid by parent, bona fide guardian or other family member. If a parent, guardian or other family member secures a loan for payment of tuition, it must remain an obligation of the parents, guardian or other family member to repay the principle and interest in full with no exceptions. Any loan program, grant program, educational foundation or similar program that is established and/or administered, in whole or in part, by a school or official of a school is considered financial aid. Financial aid will be allowed under the following conditions:

1. Children of full-time faculty members may be given financial aid, but such students, if transfers, shall be ineligible for 12 months in any sport in which they have an athletic record for the previous or current year.
2. Financial aid may be awarded on the basis of need, but proof of such need must be filed in the TSSAA office on forms approved by the Executive Director. In order to determine the basis for need, all schools awarding financial aid shall use one of the following services: FACTS Grant and Aid Assessment (FACTS), Financial Aid for School Tuition (FAST), School and Student Scholastic Service for Financial Aid (SSS), Family Financial Needs Assessment (FFNA), Private School Aid Services, Smart Tuition Aid, or Tuition Aid Data Services (TADS). Schools must choose one of the companies for all student-athletes. A committee consisting of School Heads from Division II schools and one ex-officio, non-voting member from the Board of Control and Legislative Council will meet and make recommendations to the Board of Control on each student submitted. In addition, this committee will collect information from schools regarding financial aid statistics, grant procedures, and the overall financial aid program within the school. The Board of Control will then rule on all cases at the August meeting. The Board of Control shall have authority to reject the basis of need for students when in its opinion, or in the opinion of the school committee, the amount of need stated by the financial service cannot be justified.

Schools shall remove any student from athletic eligibility whose accounts with the school are 60 days overdue.

All records pertaining to financial aid or tuition assistance shall be open to TSSAA upon its request. Each school shall be responsible for securing necessary authorization to allow TSSAA to review or audit such records.

Please see FAQ's on Page 42-60.

Recruiting Rule

Section 17. Athletic recruiting is prohibited. Athletic recruiting is the use of influence on a student or the parents or guardians of a student, by any person(s) directly or indirectly associated with the school, to secure or retain a student for athletic purposes. In the event that there is a violation of this rule, there shall be a penalty against the school, and the student(s) who was the subject of the violation shall be ineligible for a minimum of one year.

The penalty and any additional period of ineligibility beyond the one-year minimum will be determined by the Executive Director based on a consideration of the number of violations involved, the number of student-athletes involved, the nature of the violation(s), the individual(s) responsible for the violation(s), and the extent to which the violation may have been knowing, deliberate, or in reckless disregard of the provisions of this rule and the commentary that accompanies this rule.

Guidelines for Understanding the Recruiting Rule

1. Athletes or prospective athletes should be treated no differently than students who are not athletes. Students should be seen as students and not singled out based on their potential athletic ability.

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2. To avoid the appearance of impropriety, a coach who is contacted by any student or family or individual about attending a school where he or she is the coach should inform that person that he or she needs to contact the administrative official or officials of the school who normally deal with the admission process.
3. To avoid the appearance of impropriety, any meeting with coaches regarding athletes or prospective athletes should be a part of the admissions process at the school and should take place at the school.

Q. How is influence for athletic purposes interpreted in the recruiting rule?

A. Examples of influence for athletic purposes may include, but are not limited to:

1. Offers of or acceptance of any special privileges not afforded to other students, whether athletes or not.
2. Offers of financial aid based on need to any prospective student-athlete by any member of the coaching staff. All financial aid questions should be referred to the principal or person in charge of financial aid.
3. Inducing or attempting to induce or encourage any prospective student-athlete to attend any member school for the purpose of participating in athletics even when the special remuneration or inducement is not given.
4. Any initial contact or prearranged contact by a member of a coaching staff or representative of the school and a prospective student-athlete in the seventh grade and above.
5. Offering or acceptance of any item with school advertisement (shirt, caps, jackets, etc.) to a prospective student; provided that this example does not apply to items of only nominal value (pencils, etc.) that a school gives to all families that participate in the school's admission process.
6. Admitting students to athletic contests free of charge based on their participation in athletics with non-school teams.
7. Recognizing students at athletic contests based on their participation in athletics with non-school teams.
8. Coaches or their representatives sending questionnaires, cards or letters, contacting, or visiting prospective student-athletes and/or their families at their homes. For purposes of the example, the terms "coach" assumes that the individual initiating the contact is acting in his or her capacity as a coach. If that person serves another role at the school and is not acting in his or her capacity as coach, then there may be no violation, unless the contact is really a method for what is in fact the use of influence for athletic purposes.
9. Coaches or their representatives providing refreshments, gifts, and/or asking prospective student-athletes or family members for contact information.
10. Any social media post that encourages prospective student-athletes to consider attending the school.

Q. What is allowed or permitted by member schools in contacting prospective students?

A. The Recruiting Rule is not intended to prevent a member school from marketing its total school program or conducting programs designed to attract students based on the school's overall educational and extracurricular programs. However, such programs must not be used as a method for securing students for athletic purposes. Examples of programs or things that would be permissible include, but are not limited to:

1. With the permission of the administration of both schools, a school may present programs or give information to elementary, junior high, or middle schools, which explain their total educational program. There should be a diversity of presenters, speaking on a variety of topics to students of all interests.
2. Once a student has pre-enrolled at a school in the spring or summer, taken necessary steps, been accepted or approved, paid a deposit (if required), and signed a contract indicating they will attend, the school may contact the student or family concerning summer programs, camps, physicals, etc., provided the student has:
    a. Completed his/her classes and exams at his/her previous school;
    b. Signed the independent school's enrollment contract; and
    c. Paid the deposit required by the independent school.

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3. Mass marketing of a school directed to a general population of students.
4. Mass media advertising.
5. Responding to inquiries from parents of prospective students about various aspects of the school's program.

Q. Are there activities that might appear inconsistent with the Recruiting Rule and the Guidelines but have been historically engaged in by many member schools and are permitted under the current Recruiting Rule and Guidelines?

A. Yes. Over the course of many years, there are a number of activities that many schools have customarily engaged in and that have not been regarded as violations of the Recruiting Rule. So long as the activity does not single out particular student-athletes, and so long as the activity is not being used to circumvent the Recruiting Rule, the following such activities are permissible regardless of any apparent inconsistency with the Recruiting Rule or the Guidelines:

1. With the permission of the administration of both schools, a coach may present programs or give information to elementary, junior high, or middle schools, which explain their total program. All information concerning a particular sport program must be given out at one or both of the schools. Any program must be presented at one or both schools. Those students in attendance or who receive information must be determined by the administration of both schools.
2. Students on school teams and/or all students in a school or particular grade may be admitted to athletic contests free of charge provided it has been approved by the administration of both schools.
3. Students on school teams and/or all students in a school or particular grade may be recognized for their accomplishments at athletic contests provided it has been approved by the administration of those schools.

Amateur Rule

Section 18. A student who has never used and is not using his/her knowledge of athletics or his/her athletic skill for pay in the sports which this Association governs and who has always contested under his/her own name is an amateur. (Accepting money for officiating athletic contests or for working as an employee in a city or county recreation program is not a violation of this regulation.) A student who violates the amateur rule shall be ineligible for 12 months in the sport in which the violation occurs. Bowling, golf and tennis students will abide by USBC, USGA, and USTA regulations in accepting pay.

Such a student may be reinstated as an amateur after a period of one calendar year from the time he/she was declared ineligible has elapsed, provided he/she has not violated the amateur rule during this period.

Award Rule

Section 19. A student may accept a medal, trophy, state championship ring, high school letter, sweater, jacket, shirt, blazer or blanket but nothing else of commercial value from his/her school. (A sweater, jacket, shirt, blazer or blanket must carry the high school letter or other appropriate award emblem.) Acceptance of forbidden awards will cause a student to become ineligible for 12 months in the sport in which the violation occurs. Bowling, golf and tennis students will abide by USBC, USGA, and USTA regulations in accepting awards.

Section 20. A member school that has any connection with the presentation of a forbidden award — such as assisting in the selection of the person to receive the award, permitting the award to be given at a school function, or holding the award for a student until he/she has graduated — shall be subject to suspension from tournament play in the involved sport(s) for one season.

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Independent-Game Participation

Section 21. Once a student's name is listed on the school's eligibility report**, and/or a student participates in a school contest at any level, a student cannot participate in an independent contest prior to the conclusion of the season.** If a student participates in an independent game in that sport after the first contest date allowed and before the season has closed or his/her name has been removed from the eligibility report at the request of the school principal, the student shall be ineligible at the varsity level as explained below.

Any organized game in which players not registered with TSSAA participate – regardless of whether admission is charged - is considered as an independent game. Once a violation of this rule has been confirmed, the student will be ineligible for the remainder of the season in that sport.

A student's name may be removed from the school's eligibility list (TSSAA Portal Roster) upon written request of the principal prior to the first official contest date allowed in that sport without penalty. After the first official contest allowed, a student's name may be removed from the school's eligibility list (TSSAA Portal Roster) upon written request of the principal, and he/she may then participate as an independent without penalty. If the principal requests the state office to remove a student's name after the first official contest date allowed in that sport, such student may not again be certified during the season of that sport.

Students may practice with an independent team regardless of whether or not scrimmage situations occur at the practice for the independent team as long as the scrimmage situation only involves the independent team that is conducting the practice. A group of students who are assembled to try-out for an independent team is considered a single team regardless of the number of students involved.

This rule does not apply to bowling, golf, tennis, wrestling, cross country, and track and field.

Please see FAQ's on Page 42-60.

Specialized Camps

Section 22. All expenses of an athlete who attends any athletic camp where specialized instruction is offered in any sport sponsored by TSSAA must be paid by the athlete or his/her parents.

All-Star Games

Section 23. No student shall be permitted to participate in an all-star game during that sports season.

Please see FAQ's on Page 42-60.

Special Cases Involving Hardship

Section 24. Except for the eligibility rules in regard to age and to the number of semesters in school, TSSAA shall have the authority to set aside the effect of any eligibility rule upon an individual student when:

(a) the circumstances causing the student to fail to satisfy the eligibility rule were unforeseen and unavoidable;

(b) application of the rule to the student works an undue hardship in light of the unforeseen and unavoidable circumstances;

(c) application of the rule would not accomplish the purpose for which the rule was intended; and

(d) in the case of a change of schools, the change is for reasons unrelated to participation in athletics.

The burden of establishing each of these elements to the Executive Director's satisfaction is upon the school at which eligibility is sought.

Any decision of the Executive Director on any request for a waiver of eligibility rules under this Section may be appealed *de novo* to the Board of Control at its August, November, January or March meetings. If the appeal to the Board of Control or any materials in connection with that appeal are received by TSSAA less than one full week prior to the scheduled Board of Control meeting, the member school at which eligibility is sought shall be responsible for all additional expenses associated with providing copies of that material to the Board of Control. A school appealing a decision of the Executive Director under this Section must have an administrator (principal, assistant principal, or athletic director) present at the Board of Control meeting.

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Home School Rule

Section 25. This bylaw establishes the minimum eligibility requirements for a home school student desiring to practice, tryout, and participate at any level in extracurricular athletics at a member school:

A. Definitions

1. A "home school" is a school conducted by a parent(s) or legal guardian(s) for their own child. Parents desiring to home school their own children may do so by choosing one of the following three options:

   a. **Independent Home School -** Parents may home school their own children pursuant to Tennessee Code Annotated § 49-6-3050 by registering with their local school district. The home school must be operating in compliance with state law.

   b. **Church-related Umbrella School -** By authority of the same statute, parents may also home school their own children by registering with a church-related "umbrella" school defined by Tennessee Code Annotated § 49-50-801. Parents who choose this option will be required to provide evidence to the local school district that their child is enrolled in a church-related school. An Intent to Home School form is not required for students who are enrolled in a church-related school. The church-related school will determine record keeping and test requirements for students enrolled in an umbrella program.

   c. **Accredited Online School -** Parents may also enroll their child in an accredited online school. Parents choosing this educational option must be sure to determine that the school has legitimate accreditation status and will be required to provide evidence to the local school district that their child is enrolled in an accredited online school.

   Note: Eligibility of virtual public school students does not fall under the home school rule. Eligibility of virtual public school students shall be determined by Article II, Section 27 (Virtual School Rule).

2. "Director of Schools" shall mean the chief administrative official of a public school system. In the case of a private school, the responsibilities of the Director of Schools are to be carried out by the Head of School or chief administrative official in that school.

B. Minimum Eligibility Requirements

1. a. The student shall be enrolled in a home school conducted by his or her parent(s) or legal guardian(s).

   b. The student must be taking a minimum of five (5) academic subjects or the equivalent administered by the parent(s) or guardian(s) which would count toward graduation at the school where the student wishes to participate.

2 The participating student must have a legal residence within the school district of the school where he/she will be participating, if participating with a public school. If participating with a private school, the student must have a legal residence within a 20 mile radius of the private school and meet all tuition and financial aid requirements.

3. **The parent or guardian must make application for participation in athletics to the principal of the member school in which the home school athlete wishes to try out and possibly participate before the first official practice date for that sport**.

4. a. The home school athlete shall meet the same academic and conduct standards required of a member school student-athlete to participate in the athletic program.

   b. The Director of Schools (Head of School for private schools) or their designee shall confer with the parent(s) or guardian(s) conducting the home school to determine that the home school student is academically eligible.

   c. If a home school student's course of study does not include five (5) academic subjects or the equivalent, which are being administered by the parent/guardian, then the Director of Schools (Head of School, for a private school) or their designee and the parent/guardian shall develop an alternative measure of academic progress and submit it to the TSSAA for approval.

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d. In no event shall a home school student be eligible who is not receiving the minimum four (4) hours per day of instruction administered by their parent/guardian.

e. In no event shall a home school student be eligible who has fallen three (3) or more months behind the student's appropriate grade level.

5. The home school student must provide proof of liability insurance coverage which names the TSSAA as an insured party or the administration of the school must submit to TSSAA a copy of the TSSAA Indemnity Form signed by the guardian(s).

6. **a.** The LEA may impose a participation fee for each sport in which a home school athlete participates. Such participation fee shall not exceed the fees or costs charged to or borne by students enrolled at the school and shall be paid in full prior to the first regular season contest.

b. A home school student participating at a private school must pay full tuition and abide by all financial aid rules. For the purpose of this rule, "full tuition" is defined as the same amount paid by all other students enrolled and in regular attendance at the school.

7. The home school student must meet all other TSSAA eligibility requirements.

8. Eligibility issues may be appealed in accordance with the Bylaws of the TSSAA.

9. The home school athlete must adhere to the same standards of behavior, responsibility, performance, and code of conduct as other participants of the team.

10. Ultimate decisions on team rosters are left to the member schools.

Transfer:

1. After participation at the first member school, any changes within member schools shall be governed by the transfer rule.
2. Once a student establishes an athletic record either as an enrolled student at a member school or as a home school student, any subsequent transfers to or from home school to a member school must meet the TSSAA transfer rule, even if the student will be participating for the same team.
3. Any student who withdraws from a regular school program, which for the purpose of this policy is defined as a member school, to enroll in a home school education program and who is ineligible at the time of withdrawal from the regular school program due to his/her failure to meet academic or behavioral eligibility standards shall be ineligible to compete in interscholastic athletic competition as a home education athlete until such time as he/she has satisfied this home school bylaw as well as all other eligibility bylaws of TSSAA.

Please see FAQ's on Page 42-60.

Athletes Participating in Unified Sports

Section 26. To be eligible to participate as a Special Olympics Athlete in Unified Sports the student must be enrolled and in regular attendance at the member school unless participating as a part of an approved cooperative program. All other eligibility rules do not apply to a Special Olympics Athlete in Unified Sports. Special Olympics Athletes must complete the Special Olympics of Tennessee pre-participation medical and parental release form prior to practicing or competing. The student must be identified by an agency or professional as having one of the following conditions: intellectual disabilities, cognitive delays as measured by formal assessment, or significant learning or vocational problems due to cognitive delay that require or have required specially designed instruction.

Unified Partners must meet all TSSAA eligibility requirements. They are not eligible to participate on the school team for the sanctioned sport in which they are participating in the Unified competition.

All Special Olympics Athletes and Unified Partners must be registered through the TSSAA Eligibility Portal.

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Virtual School Rule

Section 27. A public virtual school under the jurisdiction of the local Board of Education must make application and be approved for TSSAA membership in order for students enrolled in the school to participate in TSSAA athletics.

TSSAA virtual school members may choose either (a) to have their own sports' teams or (b) to allow their students to participate in all sports at their zoned public schools as assigned by the local Board of Education.

If the member virtual school administration chooses to allow their students to participate at their zoned public schools, the principal shall provide the host school(s) a list of students who will be participating in each sport and verify that the students are academically eligible prior to the date of first practice in each sport. The principal is responsible to provide the host school(s) with any additional information needed to complete student eligibility. The host school is responsible to submit eligibility to TSSAA for the virtual students participating in their program(s).

Minimum Eligibility Requirements:

This bylaw establishes the minimum eligibility requirements for a student attending a public virtual school in TN operated by the local Board of Education.

1. **In order for a student to practice or participate at any level, the student must reside in the geographic area of the LEA of the member virtual school. The virtual school must be a member of TSSAA in good standing. The administration of the virtual school must choose to allow their students to participate for their zoned public schools.**
2. **In order for a student to practice or participate at any level, the student must participate for their zoned public school as assigned by the local board of education. The zoned school where the student will participate must be a member of TSSAA in good standing.**
3. **Any student that transfers to or from a virtual school, which is under the jurisdiction of the LEA, with an athletic record in the past twelve months and no change of residence that justifies the change in schools will be ineligible to participate on the varsity level twelve months past their last date of participation in the sport where the participation record exists.**
4. **The student must meet all other TSSAA eligibility requirements.**
5. **If the virtual school decides to start their own athletic programs, the students enrolled in the public virtual school must participate in those programs at the school where they are enrolled.**
6. **After participation at the first member school, any changes within member schools shall be governed by the transfer rule.**

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Article III
Compliance

Effect of Agreeing to Join TSSAA - Sections 1 and 2
Enforcement - Sections 3, 4, 5, and 6
Unsportsmanlike Conduct - Sections 7, 8, 9, 10, and 11
Playing of Ineligible Student-Athletes – Sections 12, 13, 14, and 15

Effect of Agreeing to Join TSSAA

Section 1. Membership in the association is voluntary. By joining the association, a member school agrees to abide by all rules of the association. If a member school, or that school's governing body, files suit against the association and does not prevail on the merits, the member school shall reimburse the association for all legal fees and expenses incurred by the association in connection with said suit.

Section 2. Each member school has a responsibility to monitor its athletic program and to self-report any violations of TSSAA Bylaws to the Executive Director as soon as the school is aware of possible violations. The responsibility extends to all administrators and coaches at the school. Each member school is responsible for the conduct of its administrators and coaches and for any knowledge possessed by its administrators or coaches.

Enforcement

Section 3. The Executive Director and/or the Board of Control shall have power to suspend, to fine, or otherwise penalize any member school for the violation of any provisions of the Constitution or Bylaws of the association or for other just cause. The period of suspension or other penalty shall be left to the discretion of the Board of Control where the penalty is not fixed.

Section 4. The Executive Director shall, in his discretion, determine whether information about any possible violation of the TSSAA Constitution or Bylaws is sufficiently reliable to justify further investigation. The Executive Director shall also, in his discretion, determine whether to conduct any investigation of possible violations of the Constitution or Bylaws as well as the nature and extent of any investigation that may be conducted and the procedures to be used in any such investigation. Factors to be considered by the Executive Director in making these determinations may include, but are not limited to, the workload of the TSSAA office, the seriousness of the alleged violation, the availability of staff members to assist in any investigation, the cost of investigation, the time needed to conduct an investigation, and any other factor the Executive Director may deem relevant in making these decisions.

Section 5. (a) A violation of the TSSAA Constitution or Bylaws will not result in any investigation or penalty if it is inadvertent and the school first learns of and reports the violation after the conclusion of the following year's playoffs in the sport in which the violation occurred, (b) If it is determined that a school (or any of its administrators or coaches) had knowledge of a violation or possible violation of the TSSAA Constitution or Bylaws and failed to promptly self-report it as required in Section 2, or that a delay in self-reporting occurred as a result of a failure by the school to properly monitor its athletic program as required in Section 15, the provisions of subsection (a) shall not apply. In any such case, a violation may be investigated and penalties may be implemented regardless of when the violation occurred.

Section 6. Any school under suspension, if it has restricted its athletic program to intramural athletics for the period of suspension, may be reinstated by the Board of Control upon application made in writing, 20 days in advance of the time it desires to be reinstated, to the Executive Director by the principal of the school and by the governing board under which the school operates. The Executive Director shall present the application of the suspended school to the Board of Control for its consideration. The principal and the governing board shall agree in writing that the school will abide by all rules of the association in the future. The principal and each member of the governing board shall sign the statement.

If a school with one or more two-year contracts has its athletic program in any sport suspended for violation of TSSAA regulations -- and the first game of the two-year contract has been played at the offending school — such school shall be required to complete the contract, or contracts, when it resumes its athletic program if the school, or schools, affected desire.

Suspension of a member school shall free all existing contracts between that school and other member schools.

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Unsportsmanlike Conduct

The TSSAA and its member schools believe strongly that the major purpose of athletics at the secondary level is to be a part of the total educational program. A major part of this purpose is to stress to coaches, players, officials, and fans the vital importance of sportsmanship. It is critical that all people in each of these categories understand the major role that they play and the role model that they can be for others.

Recognizing this principle, unsportsmanlike conduct on the part of any of these groups cannot be accepted. As a result, the following actions will be taken when unsportsmanlike conduct occurs:

Section 7. Student Athletes Ejected for Unsportsmanlike Conduct in Any Sport

A. In contests in which registered TSSAA officials are involved, the officials will immediately notify the state office with a written report if players are ejected for unsportsmanlike conduct. In soccer, this does not apply if the ejection occurs as the result of a player receiving a red card for his/her second caution. In sports where registered TSSAA officials are not used, it will be the responsibility of the principal and/or coach of the player involved to report this incident to the state office.

B. On the ejection of the student-athlete, the school will be required to submit a report on the action of the player and any disciplinary action taken by the school. The minimum penalty will be as follows:

   1. Football – 1 Game Suspension

   2. Soccer – There is no mandatory minimum penalty when a player is ejected for receiving a second yellow card followed by a red card. There is a 2 Game Suspension for serious foul play except for the following offenses which shall result in a 1 Game Suspension:

      a. A player anywhere on the field (other than a goalkeeper within his/her own penalty area) who deliberately handles a ball to prevent it from going into the goal.

      b. A foul by a player against an opponent who is moving toward his/her offensive goal with an obvious opportunity to score.

   3. All other sports – 2 Game Suspension

   The student-athlete is also suspended from all levels of participation (varsity, junior varsity, freshman) the same number of contest(s) in the sport involved.

   If the student-athlete is a senior and cannot fulfill all of the disciplinary action due to the completion of the season, he/she will fulfill the action in the next sport in which they participate.

C. In addition to what is presently required when a player is ejected for unsportsmanlike conduct, a meeting shall be held with the player, coach, principal, and parent(s) or guardian(s) prior to the player's next competition. A Confirmation of Sportsmanship Meeting Form must be sent to the state office by the principal. Schools that have not submitted the required Confirmation of Sportsmanship Meeting Form by the end of the sports season in which the violation occurred shall be subject to a $100 fine.

D. If a player is ejected for a second time for unsportsmanlike conduct, a more severe punishment shall be imposed.

E. Other non-monetary penalties may be assessed by the Executive Director based on all the facts.

F. In all situations where ejections occur for unsportsmanlike conduct, the individual will be removed from the next contest(s) following the one in which the ejection occurred. If the individual plays in a subsequent contest after being ejected for unsportsmanlike conduct the minimum penalty shall be increased by an amount determined by the state office.

Section 8. Substitutes Leaving Bench Area during an Incident or Fans Coming Onto the Field or Floor

A. The school will be required to submit a report and video tape if available. All schools are instructed to inform individuals taping to continue taping all incidents.

B. For substitutes leaving the bench area during an incident, the school will be fined a minimum of $250.00. In addition, other non-monetary disciplinary action may occur, including but not limited to probation and/or restrictive probation for the sport in which the incident occurred.

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C. For fans coming onto the field or floor during an incident, the school will be fined a minimum of $250.00. In addition, other non-monetary disciplinary action may occur, including but not limited to probation and/or restrictive probation for the entire athletic program.

Section 9. Coaches Ejected for Unsportsmanlike Conduct

A. The school and coach will be required to submit a written report of the incident.

B. The school will be given a choice of removing the coach for a specified number of contest(s) and pay a fine of $250.00 or face further disciplinary action. The school shall not allow the suspended coach to attend games while under suspension.

C. In addition to what is presently required when a coach is ejected for unsportsmanlike conduct, a meeting shall be held with the coach, principal, and superintendent, or his/her appointed representative prior to the coach returning to their coaching position. A Confirmation of Sportsmanship Meeting Form must be sent to the state office by the principal. Schools that have not submitted the required Confirmation of Sportsmanship Meeting Form by the end of the sports season in which the violation occurred shall be subject to a $100 fine.

D. On any subsequent ejection by the same coach, the school will be given a choice of removing the coach for a specified number of contest(s) and pay a fine of $500.00 or face further disciplinary action. The school shall not allow the suspended coach to attend games while under suspension.

E. If the coach is ejected from the contest and an assistant coach or an employee of the school involved is not available to continue as coach, the event is terminated and forfeited to the opponent

F. Other non-monetary penalties may be assessed by the Executive Director based on all the facts.

G. In soccer, coaches who are ejected for receiving a red card, or a second (yellow card) followed by a red card, are subject to the penalties above.

Section 10. If a team is removed from competition, the school shall be fined $500.00, and the school shall face disciplinary action by TSSAA. Other non-monetary penalties may be assessed by the Executive Director based on the facts.

Section 11. Appeals

Any appeal request regarding the ejection of players or coaches shall be submitted in writing from the administrator of the school, stating which playing rule was misapplied. It should be accompanied by $50.00. If the appeal is granted, the $50.00 will be returned to the school.

Playing of Ineligible Student-Athletes

Section 12. All rulings on eligibility must be in writing, and the accidental, intentional or other use of ineligible players by a member school shall require that team victories in which the ineligible player participated Pageare forfeited to opponents; and any one or more of these additional actions may be taken:

(a) That individual or team records and performances achieved during participation by such ineligibles be vacated or stricken;

(b) That team or individual awards earned by such ineligibles be returned to the TSSAA; and

(c) That a fine for the playing of an ineligible player be assessed against the school, if deemed necessary.

Section 13. If a student is ineligible according to TSSAA rules but is permitted to participate in interscholastic competition contrary to such TSSAA rules but in accordance with the terms of a court restraining order or injunction against his/her school and/or the TSSAA, and that injunction is subsequently voluntarily vacated, stayed, reversed or finally determined by the courts that injunctive relief is not or was not justified or expires without further judicial determination, those actions stipulated in Section 12 and 14 shall be taken.

Section 14. If an ineligible contestant competes in a meet, match or tournament and any violation of TSSAA rules occurs, all points earned by that student, or by a relay team of which he/she may have been a member, in that meet or tournament are to be declared forfeited; and in team sports (baseball, basketball, football, girls soccer, soccer, girls softball and girls volleyball) the entire contest is forfeited.

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When a team plays an ineligible athlete in TSSAA tournaments or playoffs, the entire contest is forfeited, the team is removed from the tournament or playoff, and no team replaces that team in the tournament series. All awards and money earned from the post season tournament series must be returned to TSSAA.

The penalty for playing an ineligible contestant shall be $50.00 per contest at the varsity level and $25.00 per contest below the varsity level, with a maximum fine of $250.00, provided it is voluntarily reported by the school, which is in violation, to the Executive Director. If it is not voluntarily reported by the school to the Executive Director, the penalty shall be $100.00 per contest at the varsity level and $50.00 per contest below the varsity level. Other non-monetary penalties may be assessed by the Executive Director based on all the facts.

Section 15. If an otherwise ineligible student-athlete provides false information to a member school and is erroneously determined to be eligible and is allowed to participate on the basis of that false information, the student shall be ineligible at all levels in all sports at any member school for twelve (12) months from his or her last participation date.

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Article IV
Miscellaneous

Schools Which Member Schools May Play or Scrimmage – Section 1
Contests with Out-Of-State Teams – Section 2
Tournaments and Meets – Section 3
Varsity Team – Section 4
Eligibility Lists – Section 5
Filing Schedule Reports – Section 6
Rules of the Game – Section 7
TSSAA Sports Calendar – Sections 8 and 9
Jamborees – Section 10
TSSAA Share in Tournament Receipts – Section 11
Filing of Tournament and Playoff Financial Reports – Section 12
Awards – Section 13
Use of Tobacco – Section 14
Officials – Sections 15, 16, 17, 18, 19, and 20
Bond – Section 21
Amendments – Section 22

Schools Which Member Schools May Play or Scrimmage

Section 1. A member of the Tennessee Secondary School Athletic Association is permitted to play or scrimmage any secondary school team with grades 9 and above in regular season play.

For the purposes of this rule, a school team may be one school or a cooperative program of one or more schools.

A member school may play one alumni game or one preseason scrimmage with alumni in all sports except football. If the school has separate teams for boys and girls in a particular sport (e.g., girls' and boys' basketball), each team may play an alumni game or preseason scrimmage. A preseason scrimmage with alumni must count as one of the four permitted preseason scrimmages. A game with alumni must count as a regular season contest.

Please see FAQ's on Page 42-60.

Contests with Out-Of-State Teams

Section 2. All out-of-state trips must be approved by the administration of the school.

Please see FAQ's on Page 42-60.

Tournaments and Meets

Section 3. All Invitational Tournaments or Meets must be approved by the Executive Director.

A member school that wishes to host a tournament or meet that involves out-of-state teams must make application to the Executive Director for sanctioning.

Member schools must obtain sanctioning from the National Federation of State High School Associations when hosting the following types of events:

1. Any interstate or international event involving two (2) or more schools which is co-sponsored by or titled in the name of an organization outside the school community (e.g., a college/university, a theme park, an athletic shoe/apparel company).
2. Events in non-bordering states if five (5) or more states are involved.
3. Events in non-bordering states if more than eight (8) schools are involved.
4. Any event involving two (2) or more schools that involves a team from a foreign country. The host school should complete the international sanction application. This would include any event(s) that involves international traveling teams that play in multiple games in multiple states. (The exceptions to this rule are Canada and Mexico which are considered "bordering states.")

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Varsity Team

Section 4. There can be only one varsity team in any sport.

Please see FAQ's on Page 42-60.

Eligibility Lists

Section 5. An eligibility list (TSSAA Portal Roster) containing the name of each student who is to participate during the season in each sport shall be filed online prior to the first contest allowed by the Sports Calendar for each particular sport. If a student whose name does not appear on the original eligibility list (TSSAA Portal Roster) wishes to become a member of the squad, the student's name shall be filed online before the student is allowed to participate. Failure to file the eligibility online by the date required shall result in a fine of $50.00. Any school failing to file such reports promptly along with checks for penalty, after being notified by the Executive Director, shall be subject to suspension.

Filing Schedule Reports

Section 6. Member schools shall file with the state office a copy of the schedule in each sport. Schedules shall be filed online prior to the date of the first contest allowed by the Sports Calendar for each particular sport. Failure to file the schedule online by the date required shall result in a fine of $50.00.

Rules of the Game

Section 7. The official rules books as published by the National Federation of State High School Associations shall be used in football, basketball, baseball, girls' softball, wrestling, girls' soccer, soccer, track and field, cross country, and girls volleyball. The official rules of the USGA shall be used in golf. The official rules of the USTA shall be used in tennis. The official rules of the USBC shall be used in bowling.

For all unsporting acts, TSSAA Bylaws as it relates to unsportsmanlike behavior and officials' jurisdiction supersedes any other rules book.

Cheerleading squads must abide by the USA Cheer Safety Guidelines while practicing or participating in a TSSAA sanctioned event.

Religious headwear is permitted, provided it is not abrasive, hard, or dangerous to the participant and any other player, and must be attached in such a way it is highly unlikely to come off during play. Religious headwear does not need to comply with any of the color restrictions defined in applicable sport uniform codes.

Hijabs, turbans, and yarmulkes are acceptable types of religious headwear.

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TSSAA SPORTS CALENDAR

Section 8. For each sport there shall be a beginning practice date, a date for the first contest, a limit for the number of regular season contests, rules in regard to tournaments where applicable, rules in regard to off-season practice, and rules in regard to summer practice.

DEFINITIONS

Dead Period Rule – No coaching, observing, or contact between coach and players in sport involved. There is no practice, no open facilities, and no weight training/conditioning. The Dead Period, which is to be observed by all schools, is the week of the 4th of July and the preceding week – 14 days.

50% Rule – Participation (includes practice or games) during the school year on a non-school team prior to the school season by students that will play the following season on the high school team is limited to 50% of the number of players required to play the game. Only the specified number of students participating on a non-school team prior to the school season may be placed on the high school eligibility list (TSSAA Portal Roster) the following season. Those students cannot be interchanged on the school's team roster.

Off-Season – Begins with the school's elimination from postseason tournament play in a particular sport and concludes with the end of the school year. In football, girls' soccer, and soccer, individual instructions may be given to no more than six students per day. In basketball and girls' volleyball, individual instruction may be given to no more than three students per day. In baseball and girls' softball, individual instructions may be given to no more than five students per day.

Open Facilities – Permitted year round (Monday through Friday) except during the **Dead Period**. Schools may use their facilities for students in their building prior to or after the school day. Coaches may serve in a supervisory capacity only. There is no instruction, no teaching, no coaching, etc. Coaches may not participate or play in any manner. It is a free play type atmosphere. Sport specific skills cannot be taught. ATTENDANCE CANNOT BE MANDATORY.

Practice - Coach and player(s) together with instruction, teaching, coaching, etc. Try-outs are considered practice.

Practice During the School Day – All athletic practice during the regular hours of any school day shall conform to the same rules, regulations, and season as corresponding athletic practice outside the school day.

Pre-Season Practice Rule – Begins the first day of school until the first official day of practice in that particular sport. In basketball, individual instructions may be given to no more than three students per day. In soccer, individual instructions may be given to no more than six students per day. In baseball and girls' softball, individual instructions may be given to no more than five students per day.

Scrimmage Rule – After the TSSAA first official day of practice in all sports other than football, a school cannot practice with or scrimmage another school until both schools have practiced a minimum of three days. After the TSSAA first official day of practice in football, a school cannot practice with or scrimmage another school until both schools have practiced in full pads a minimum of three days. A school may have a maximum of four scrimmages or two scrimmage dates or one scrimmage date and two scrimmages (A scrimmage date is defined as more than two schools scrimmaging on the same day). No tournament format of any type may be used. Scrimmages should look more like practice than games. Once a school has played their first game, there can be no more scrimmages.

Summer – The period of time from the end of the school year until the Monday of NFHS Week 4 (opening day of practice).

Tournament – All tournaments shall be held on consecutive days with no other regular season games being played during the tournament unless permission is granted by the Executive Director. A tournament is defined as competition of three or more teams and three or more games, matches, etc., which progress to determine a winner.

Weight Training/Conditioning – Permitted at all times except during the **Dead Period**. Must be generic type program that would be beneficial to all students and not sport specific. Exception: In baseball and girls' softball, players may throw to condition arms. Sport specific skills cannot be taught. Only students who are enrolled and in regular attendance at the school may participate during the school year. ATTENDANCE CANNOT BE MANDATORY.

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TSSAA SPORTS CALENDAR

FOOTBALL

- **Pre-Season Practice Rule** does not apply.
- **Pre-Season Acclimatization:** All TSSAA Football Practice Regulations must be followed. TSSAA Football Practice Regulations can be found at http://tnhs.us/fbpractice.
- First Practice Date in pads is the Monday of NFHS Week 4.
- **Practice Regulations** All TSSAA Football Practice Regulations must be followed. TSSAA Football Practice Regulations can be found at http://tnhs.us/fbpractice.
- **Scrimmage Rule** does apply.
- The Date of the First Contest allowed is the Friday of NFHS Week 7, no earlier than Wednesday. Eligibility and schedules must be filed online prior to playing.
- Maximum number of regular season contests is 10 games. Schools that do not qualify for the playoffs may schedule an additional game for a total of 11.
- Maximum of 12 days of Off-Season team practice within a 15 consecutive school day period and one interschool scrimmage is permitted. The first two days of practice must be in helmets only.
- In the **Summer** there are no restrictions in regard to practice. No pads are permitted. Helmets may be worn.
- There can only be 10 days of team-against-team competition which must occur after the conclusion of the Dead Period (Exception: Two of the 10 days may take place in June, provided the competition takes place in Tennessee.). Pads may not be worn during team-against-team competition.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

Please see FAQ's on Page 42-60.

TSSAA SPORTS CALENDAR

GOLF (BOYS' AND GIRLS')

- **Pre-Season Practice Rule** does not apply.
- First Practice Date is the Monday of NFHS Week 2.
- **Scrimmage Rule** does apply.
- The Date of the First Contest allowed is the Monday of NFHS Week 4. Eligibility and schedules must be filed online.
- Maximum number of regular season contests is 14 dates (NOTE: Individuals accompanied by a coach may enter varsity competition at a different site on the same date and time, and this will count as two dates on the school's schedule.).
- In the **Off-Season** there are no restrictions in regard to practice.
- In the **Summer** there are no restrictions in regard to practice.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

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TSSAA SPORTS CALENDAR

GIRLS' VOLLEYBALL

- **Pre-Season Practice Rule** does not apply.
- First Practice Date is the Monday of NFHS Week 4.
- **Scrimmage Rule** does apply.
- The Date of the First Contest allowed is the Monday of NFHS Week 7. Eligibility and schedules must be filed online.
- Maximum number of regular season contests is 35 matches. Maximum number of **Tournaments** is four with each tournament counting as three matches.
- **Off-Season** team practice is not allowed.
- In the **Summer** there are no restrictions in regard to practice.
- Any school starting girls' volleyball for the first time may have five days of **Pre-Season** practice prior to the first season the sport begins.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

Please see FAQ's on Page 42-60.

TSSAA SPORTS CALENDAR

CROSS COUNTRY (BOYS' AND GIRLS')

- **Pre-Season Practice Rule** does not apply.
- First Practice Date is the Monday of NFHS Week 4.
- **Scrimmage Rule** does apply.
- The Date of the First Contest allowed is the Monday of NFHS Week 7. Eligibility and schedules must be filed online.
- Maximum number of regular season contests is 11 dates (NOTE: Individuals accompanied by a coach may enter varsity competition at a different site on the same date and time, and this will count as two dates on the school's schedule.).
- In the **Off-Season** there are no restrictions in regard to practice.
- In the **Summer** there are no restrictions in regard to practice.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

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TSSAA SPORTS CALENDAR

GIRLS' SOCCER

- **Pre-Season Practice Rule** does not apply.
- First Practice Date is the Monday of NFHS Week 4.
- **Scrimmage Rule** does apply.
- The Date of the First Contest allowed is the Monday of NFHS Week 7. Eligibility and schedules must be filed online.
- Maximum number of regular season contests is 16 matches. Maximum number of **Tournaments** is two with each tournament counting as two matches.
- **Off-Season** team practice is not allowed.
- In the **Summer** there are no restrictions in regard to practice.
- Any school starting girls' soccer for the first time may have five days of **Pre-Season** practice prior to the first season the sport begins.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

Please see FAQ's on Page 42-60.

TSSAA SPORTS CALENDAR

BOWLING (BOYS' AND GIRLS')

- **Pre-Season Practice Rule** does not apply.
- **Scrimmage Rule** does not apply.
- The Date of the First Contest allowed is the Monday of NFHS Week 13. Eligibility and schedules must be filed online.
- There is no limit on the number of regular season contests or **Tournaments**.
- In the **Off-Season** there are no restrictions in regard to practice.
- In the **Summer** there are no restrictions in regard to practice.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

Please see FAQ's on Page 42-60.

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TSSAA SPORTS CALENDAR

BASKETBALL (BOYS' AND GIRLS')

- **Pre-Season Team Practice** is not allowed.
- First Practice Date is the Monday of NFHS Week 18.
- **Scrimmage Rule** does apply.
- **50% Rule** does apply, which is three players.
- The Date of the First Contest allowed is the Monday of NFHS Week 21. Eligibility and schedules must be filed online.
- Schools may choose to play an unlimited number of **Hall of Champions Games** on any two dates during the week preceding the regular season. These games will not count against the number of regular season contests schools are allowed to schedule. Host schools shall send in 50% of the proceeds after paying referees to the TSSAA Hall of Champions fund.
- Maximum number of regular season contests is 24 games. Maximum number of **Tournaments** is two with each tournament counting as two games.
- Maximum of five days of **Off-Season** team practice within a 10 consecutive school day period.
- In the **Summer** there are no restrictions in regard to practice.
- Coaches may participate in a maximum of 10 days of team-against-team competition which must occur after the conclusion of the school year until the **Dead Period**.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

Please see FAQ's on Page 42-60.

TSSAA SPORTS CALENDAR

WRESTLING

- As far as **Pre-Season Practice**, there are no restrictions.
- First Practice Date is the Monday of NFHS Week 18.
- **Scrimmage Rule** does apply.
- The Date of the First Contest allowed is the Monday of NFHS Week 21. Eligibility and schedules must be filed online.
- Maximum number of regular season contests is 22 dates. No individual shall wrestle more than 55 matches, excluding forfeits, in the regular season (NOTE: Individuals accompanied by a coach may enter varsity competition at a different site on the same date and time, and this will count as two dates on the school's schedule.).
- In the **Off-Season** there are no restrictions in regard to practice.
- In the **Summer** there are no restrictions in regard to practice.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

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TSSAA SPORTS CALENDAR

GIRLS' WRESTLING

- As far as **Pre-Season Practice**, there are no restrictions.
- First Practice Date is the Monday of NFHS Week 18.
- **Scrimmage Rule** does apply.
- The Date of the First Contest allowed is the Monday of NFHS Week 21. Eligibility and schedules must be filed online.
- Maximum number of regular season contests is 22 dates. No individual shall wrestle more than 55 matches, excluding forfeits, in the regular season (NOTE: Individuals accompanied by a coach may enter varsity competition at a different site on the same date and time, and this will count as two days on the school's schedule.).
- In the **Off-Season** there are no restrictions in regard to practice.
- In the **Summer** there are no restrictions in regard to practice.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

Please see FAQ's on Page 42-60.

TSSAA SPORTS CALENDAR

BASEBALL

- **Pre-Season Team Practice** is not allowed.
- First Practice Date is the Monday of NFHS Week 33.
- **Scrimmage Rule** does apply.
- **50% Rule** does apply, which is five.
- The Date of the First Contest allowed is the Monday of NFHS Week 37. Eligibility and schedules must be filed online.
- Maximum number of regular season contests is 30 games. Maximum of four **Tournaments** with each tournament counting as three games.
- **Off-Season** team practice is not allowed. Exception: Coaches may be involved in a coaching capacity with students in their school on non-school teams.
- In the **Summer** there are no restrictions in regard to practice.
- Any school starting baseball for the first time may have five days of **Pre-Season** practice prior to the first season the sport begins.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

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TSSAA SPORTS CALENDAR

GIRLS' SOFTBALL

- **Pre-Season Team Practice** is not allowed.
- First Practice Date is the Monday of NFHS Week 33.
- **Scrimmage Rule** does apply.
- **50% Rule** does apply, which is five.
- The Date of the First Contest allowed is the Monday of NFHS Week 37. Eligibility and schedules must be filed online.
- Maximum number of regular season contests is 34 games. Maximum of five **Tournaments** with each tournament counting as four games.
- **Off-Season** team practice is not allowed. Exception: Coaches may be involved in a coaching capacity with students in their school on non-school teams.
- In the **Summer** there are no restrictions in regard to practice.
- Any school starting girls' softball for the first time may have five days of **Pre-Season** practice prior to the first season the sport begins.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

Please see FAQ's on Page 42-60.

TSSAA SPORTS CALENDAR

TRACK AND FIELD (BOYS' AND GIRLS') / UNIFIED TRACK AND FIELD

- As far as **Pre-Season Practice**, there are no restrictions.
- First Practice Date is the Monday of NFHS Week 33.
- **Scrimmage Rule** does apply.
- The Date of the First Contest allowed is the Monday of NFHS Week 37. Eligibility and schedules must be filed online.
- Maximum number of regular season contests is 11 dates. Each meet counts as one date (NOTE: Individuals accompanied by a coach may enter varsity competition at a different site on the same date and time, and this will count as two dates on the school's schedule.).
- In the **Off-Season** there are no restrictions in regard to practice.
- In the **Summer** there are no restrictions in regard to practice.
- Any school starting track and field for the first time may have five days of **Pre-Season** practice prior to the first season the sport begins.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

Please see FAQ's on Page 42-60.

TSSAA SPORTS CALENDAR

TENNIS (BOYS' AND GIRLS')

- As far as **Pre-Season Practice**, there are no restrictions.
- First Practice Date is the Monday of NFHS Week 33.
- **Scrimmage Rule** does apply.
- The Date of the First Contest allowed is the Monday of NFHS Week 37. Eligibility and schedules must be filed online.
- Maximum number of regular season contests is **22** matches. Each **Tournament** counts as two matches (NOTE: Individuals accompanied by a coach may enter varsity competition at a different site on the same date and time, and this will count as two matches on the school's schedule.).
- In the **Off-Season** there are no restrictions in regard to practice.
- In the **Summer** there are no restrictions in regard to practice.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

Please see FAQ's on Page 42-60.

TSSAA SPORTS CALENDAR

SOCCER

- **Pre-Season Team Practice** is not allowed.
- First Practice Date is the Monday of NFHS Week 33.
- **Scrimmage Rule** does apply.
- The Date of the First Contest allowed is the Monday of NFHS Week 37. Eligibility and schedules must be filed online.
- Maximum number of regular season contests is 16 matches. Maximum of two tournaments with each **Tournament** counting as two matches.
- **Off-Season** team practice is not allowed.
- In the **Summer** there are no restrictions in regard to practice.
- Any school starting soccer for the first time may have five days of **Pre-Season** practice prior to the first season the sport begins.
- **Dead Period Rule** does apply.

Coaches and employees of a school are subject to the guidelines of the TSSAA Sports Calendar when working with students from his/her school.

Please see FAQ's on Page 42-60.

Section 9. The sports season for a school shall end when the team has been eliminated from the TSSAA tournament series or has won the state championship. The sports season shall end for a school whose team does not enter the tournament series with the playing of the last regularly scheduled game.

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Jamborees

Section 10. A member school may participate in one jamboree per sport provided (a) the jamboree is approved by the state office and is held before any of the participating schools play their first game; (b) the jamboree is sponsored by the participating schools and all proceeds go to the participating schools; (c) the jamboree is conducted in accordance with the following regulations:

A. No team or participant shall play more than the equivalent of half of a game or contest.

B. Registered TSSAA officials must be used.

C. Schools participating in a jamboree must file the regular eligibility report (TSSAA Portal Roster) with the state office prior to participating.

D. Schools must hold membership in TSSAA or membership in a Tennessee conference in order to be eligible to participate in a jamboree. (Out-of-state schools must obtain approval from their state association before participating.)

E. Football schools may participate in a jamboree as early as Thursday of the week preceding the opening of football season.

F. Basketball schools may participate in a jamboree one week preceding the opening of basketball season.

Participation in such a jamboree shall not count as a regular-season contest or pre-season scrimmage provided the jamboree meets the above regulations.

TSSAA Share In Tournament Receipts

Section 11. Eighteen percent of the gross proceeds from district and regional girls volleyball, district and regional girls soccer, district and regional soccer, district and regional bowling, district and regional girls bowling, district and regional baseball, district and regional girls softball, regional, sub-sectional, and sectional track and field meets, two-day invitational, regional and sectional wrestling tournaments, invitational, county, conference, district and regional basketball tournaments shall be paid to TSSAA.

After all expenses in connection with the holding of the state tournaments in football, basketball, bowling, track and field, cross country, baseball, tennis, golf, girls softball, girls volleyball, soccer and wrestling have been paid, the retention and/or disbursement of any remaining funds shall be determined by the Board of Control.

Filing of Tournament and Playoff Financial Reports

Section 12. All checks for district, regional, and sectional tournaments and playoffs must be distributed within 10 business days of the completion of the tournament or game. Failure, without good cause, will result in a $100.00 late fee to be paid to TSSAA and used in the A.F. Bridges sportsmanship program to go to schools or individuals receiving awards. Failure, without good cause, to distribute funds within 20 business days will result in an additional $200.00 late fee (total $300.00). Failure, without good cause, to distribute funds within 40 days will result in an additional $200.00 late fee (total $500.00). The school may not host any tournament or playoff until the principal or athletic director appears before the Board of Control to explain the reasons. The Board would then determine whether the school could host tournaments or playoffs in the future.

Awards

Section 13. TSSAA shall furnish trophies, plaques, ribbons and medals in TSSAA-sponsored sports as determined by the Board of Control.

Please see FAQ's on Page 42-60.

Use of Tobacco

Section 14. The use of tobacco in any form by coaches, officials, and athletes is prohibited at TSSAA sanctioned events.

Officials

Section 15. Officials used in contests in which TSSAA member schools participate are independent contractors and are not employees of TSSAA. Individuals desiring to serve as officials in contests in which TSSAA member

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schools participate must register with TSSAA. The Executive Director shall establish the minimum qualifications and standards for registration with TSSAA.

Section 16. (a) For varsity contests, all officials must be assigned by the TSSAA approved local association. (b) These officials must be registered and approved by TSSAA. If a registered official who has been engaged for an athletic contest fails to appear, the principal of the home school may, with the approval of the visiting school, select an official for the contest. If this is done, the principal of the home school must mail to the Executive Director within 48 hours evidence showing that a registered official was employed for the game and that the official did not appear. The principal of the home school shall give the name and address of the registered official who was employed to officiate the game, and the name and address of the non-approved official used as a substitute.

Section 17. In all sports sanctioned by TSSAA, the officials' jurisdiction begins upon the arrival of one official within the visual confines of the field or court and ends when the last official leaves the premises at the conclusion of the game. It shall be the duty of a game official to file immediately a report with the state office if there is any unusual incident involving unsportsmanlike conduct on the part of the players, coaches, cheerleaders, or fans.

Section 18. The Executive Director shall have authority to suspend the registration of officials who are guilty of unsportsmanlike or unethical conduct or who fail to file immediately required reports with the state office. Such decisions shall be subject to review by the Board of Control upon appeal by the official.

Section 19. An official shall be prohibited from working in an athletic contest in which a member of his/her immediate family — son, daughter, brother, sister, mother, father, husband or wife — is playing or is serving as a coach for either team. If an official is a teacher, the official is prohibited from working in an athletic contest if one of the teams represents the school in which the official is employed as a teacher unless otherwise approved by the Executive Director.

Section 20. A school may drop an official from a game after the official has been engaged. If a school decides that it is wise to break its agreement with an official, it may be done by paying the official the regular fee for the game. Canceled and postponed games do not come under the above provision, provided that the official is duly notified. In the case of postponed games, the officials that were originally employed must be given the opportunity to work on the new date.

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Bond

Section 21. The Executive Director of the TSSAA shall execute annually a Surety Bond on $30,000 or more if the Board of Control directs, covering TSSAA funds held by him. The fee on this bond is to be paid from the Association funds.

Amendments

Section 22. The Bylaws of the TSSAA shall be amended by the same method as the Constitution.

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TENNESSEE SECONDARY SCHOOL ATHLETIC ASSOCIATION
CONSTITUTION FREQUENTLY ASKED QUESTIONS

1.

Q. How are members of the Board of Control and Legislative Council selected?

A. Members of the Board of Control and of the Legislative Council are selected at the annual regional meetings in the fall. Each school represented has one vote. The sites, dates, and times of these meetings are determined by the Board of Control and posted on the TSSAA Calendar of Events.

2.

Q. How may a school charged with violating TSSAA regulations present its case?

A. The principal of the school may request the Executive Director to call a hearing in regard to the charges. Such a hearing is held before the Executive Director and two or more Board of Control members representing the Grand Division of the state in which the school is located.

3.

Q. May a decision made by the Executive Director be appealed to the Board of Control?

A. Yes.

4.

Q. What procedure is followed by a school that wishes to appeal to the Board of Control a decision of the Executive Director?

A. The school principal should notify the Executive Director in writing that the principal wants the Board of Control to review the case. If it is satisfactory to hold the review of the case at the next regular meeting of the Board of Control, it will be listed on the agenda. If the case is of such nature that the school wants immediate action, the principal should so indicate. The Executive Director will then communicate with the president of the Board who will call a special session to consider the case. When such a special session of the Board is called, the school requesting the special session shall pay all expenses of the meeting in the event the Board of Control sustains the decisions of the Executive Director.

5.

Q. Does the Executive Director have a vote on matters that are presented to the Board of Control?

A. No. The Executive Director is not a member of the Board of Control and therefore can have no vote on matters being considered by it.

6.

Q. May a member of the Board vote on a matter involving the school which he represents?

A. No. A member of the Board of Control cannot sit in on a case involving his/her own school.

7.

Q. How may a member school submit a proposal to amend the Constitution or to change the Bylaws?

A. By putting the suggested change in writing and filing it with the Executive Director no later than October 15 preceding the December meeting of the Legislative Council.

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TENNESSEE SECONDARY SCHOOL ATHLETIC ASSOCIATION BYLAWS FREQUENTLY ASKED QUESTIONS

Membership

1.

Q. How much are a school's membership dues?

A. Membership dues are based on where the enrollment of a school would place them in their respective Division.

Class 4A – $550.00 ($250.00 Dues; $300.00 Catastrophic Insurance Assessment.

Class 3A – $550.00 ($250.00 Dues; $300.00 Catastrophic Insurance Assessment.

Class 2A – $400.00 ($200.00 Dues; $200.00 Catastrophic Insurance Assessment) if your school plays football. $300.00 ($200.00 Dues; $100.00 Catastrophic Insurance Assessment) if your school does not play football.

Class 1A – $300.00 ($150.00 Dues; $150.00 Catastrophic Insurance Assessment) if your school plays football. $250.00 ($150.00 Dues; $100.00 Catastrophic Insurance Assessment) if your school does not play football.

Junior High – $200.00 ($100.00 Dues; $100.00 Catastrophic Insurance Assessment)

2.

Q. If a school is not currently a member of TSSAA, what must they do in order to join TSSAA?

A. If the school meets the requirements as set forth in Article I, Section 1 of the TSSAA Bylaws, the school should send a letter to the Executive Director asking to be put on the next Board of Control Agenda for consideration for membership. A copy of the certificate indicating whom the school is accredited/approved by should be included with the letter.

Responsibility of the Principal

1.

Q. Who is held responsible for a member school's observance of TSSAA regulations?

A. The principal or administrative head of the school.

2.

Q. Who is the proper person to sign eligibility reports, contracts, etc.?

A. The principal or administrative head of the school.

3.

Q. Who is responsible for the conduct of the spectators at a game?

A. The principal and coach of the host school are primarily responsible. It is the duty of the host school to see that adequate security is present and assigned so that any disorder can be handled immediately. If the game is played on a neutral field and no host team is designated, the competing schools are jointly responsible for providing adequate security protection. Each school is responsible for the conduct of its students and fans, regardless of where an athletic contest is played.

Non-Faculty Coaches and Classified Employees

1.

Q. If a non-faculty coach or a classified employee has successfully completed the ASEP Coaches Education Course and the TSSAA Online Coaches Training Session prior to May 15, 2013, must they complete the NFHS "Fundamentals of Coaching" and "First Aid, Health, & Safety for Coaches" courses?

A. No.

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2.

Q. How long does a non-faculty coach or a classified employee have to successfully complete NFHS “Fundamentals of Coaching” and “First Aid, Health, & Safety for Coaches” courses after being submitted to the TSSAA?

A. All non-faculty coaches and classified employees must successfully complete the NFHS courses prior to coaching.

3.

Q. How often does a non-faculty coach or a classified employee have to complete the NFHS “Fundamentals of Coaching” and “First Aid, Health, & Safety for Coaches” courses?

A. Once a non-faculty high school coach or classified employee successfully completes the courses, he/she will not be required to take any additional courses.

4.

Q. Where can I obtain information about the NFHS “Fundamentals of Coaching” and “First Aid, Health, & Safety for Coaches” courses? How do I access the courses?

A. Information regarding the NFHS courses can be found at nfhslearn.com. Persons required to take these courses will first have to register as a new user at nfhslearn.com. This can be done by selecting "Register" in the upper right hand corner of the homepage. Once you have registered, you will need to click on “Courses” on the tool bar at the top of the page and search for the appropriate courses. Each participant must pay online with a credit or debit card when they register for the courses.

5.

Q. Are student-teachers considered non-faculty coaches?

A. If he/she is currently student teaching, he/she is allowed to do whatever his/her supervising teacher (college professor in charge) allows him/her to do as part of his/her total educational experience. He/She would not be considered non-faculty while he/she is student teaching and should be submitted as a full-time teacher in the portal.

6.

Q. Are retired educators considered non-faculty coaches?

A. No.

7.

Q. If one of my coaches is a Full-Time Teacher/Administrator at another school, are they considered non-faculty coaches?

A. No. When submitting their names in the portal, they should be marked as a full-time teacher.

8.

Q. Do non-faculty cheerleading coaches or classified employees serving as a cheerleading coach have to be registered with TSSAA?

A. Yes. However, it is not necessary for you to pay for cheerleading coaches. We only need the names for insurance purposes. Cheerleading coaches do not have to complete the NFHS “Fundamentals of Coaching” and “First Aid, Health, & Safety for Coaches” courses. Also, cheerleading coaches must attend or complete online the Cheerleading Rules Meeting every year.

9.

Q. Can I register a non-faculty coach or classified employee online throughout the school year?

A. Yes. Once they have been approved by the principal, superintendent, and/or local board of education, they can be submitted online. Also, the registration fee of $50.00 per non-faculty coach must be submitted to the state office.

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10.

Q. Can a non-faculty coach or a classified employee be a head coach?

A. Yes. Provided they have successfully completed the NFHS “Fundamentals of Coaching” and “First Aid, Health, & Safety for Coaches” courses OR the ASEP Coaches Education Course in a TSSAA-approved course combined with the TSSAA Online Coaches Training Session prior to May 15, 2013, and have been properly submitted to the TSSAA office.

11.

Q. Are high schools limited to the number of non-faculty coaches they can use?

A. No.

12.

Q. As a first year teacher who is coaching, do I have any requirements?

A. No.

Contracts

Q. Will the TSSAA enforce verbal contracts?

A. No. All contracts, to be binding, should be written on the regular contract forms.

Enrollment and Attendance

Q. Is there any regulation about the time a student must enroll in order to be eligible during a given semester?

A. Yes. A student must enroll on or before the twentieth day of a semester.

Academic Rules

1.

Q. A school requires 28 units of credit for graduation. How many credits must a student earn by the first day of the next school year in order to be eligible?

A. Students in a school that requires 24 or more credits for graduation must earn six credits the preceding school year.

2.

Q. A school requires 21 units of credit for graduation. How many credits must a student earn by the first day of the next school year in order to be eligible?

A. Students in a school that requires less than 24 units of credit for graduation must earn five credits the preceding school year.

3.

Q. A student is academically eligible at the beginning of the school year. At the end of the first semester the student passes only one subject. Is the student eligible to participate in athletics the second semester?

A. Students that are academically eligible at the beginning of the school year will be academically eligible the entire school year.

4.

Q. A student is currently attending a school that requires less than 24 credits for graduation. At the end of the school year the student earns five credits and transfers due to a change of residence to a school that requires 28 credits for graduation. What is the student's eligibility status?

A. Eligible. The student will be academically eligible since he/she would have been eligible to participate at his/her previous school. Academic eligibility for a student is based on the requirements of the school the student was attending at the conclusion of the previous school year.

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5.

Q. A student is currently attending a school that requires 28 credits for graduation. The student earns five credits at the end of the school year. The student has a bona fide change of residence to a school that requires only 21 credits for graduation. What is the student's eligibility status?

A. Ineligible. The student was ineligible academically at the school he/she was attending at the conclusion of the previous school year. Students cannot transfer in order to gain academic eligibility.

6.

Q. At the beginning of the school year, a student is academically ineligible to participate in athletics. May the student gain eligibility the second semester?

A. Yes. Students who are academically ineligible first semester may gain eligibility second semester by passing five subjects (1/2 credit), three blocks (one credit per block), or the equivalent. Students on trimesters may gain eligibility the second semester by passing five subjects (1/2 credit), three blocks (one credit per block), or the equivalent.

7.

Q. A school requires 21 credits for graduation. The student fails every course the first semester. He/she earns three credits the second semester. Can the student attend summer school and earn two credits toward academic eligibility?

A. Yes. Credits earned in summer school may be counted toward academic eligibility. All credits must be earned by the first day of the beginning of the school year.

8.

Q. At the end of the second semester, a student has earned four credits for the school year. The student is in a school that requires 24 or more credits for graduation. Can the student attend summer school and earn one credit and, also, take a correspondence course and receive one credit toward academic eligibility?

A. Correspondence courses approved by the local board of education may count toward athletic eligibility provided the student receives credit toward graduation.

9.

Q. An 8th grade student in middle school finishes the highest ending grade and is academically promoted to the next higher grade. What is his/her eligibility status?

A. The student will be academically eligible the entire school year.

10.

Q. A special education student meets the academic requirements of his/her IEP by the beginning of the school year. What is his/her eligibility status?

A. The student will be academically eligible the entire school year.

11.

Q. A student attends a school that requires 24 or more credits for graduation. The student does not attend school during the fall semester. He/she re-enters school the spring semester and earns four units of credit. What must the student do in order to be academically eligible for athletics the next school year?

A. The student must enroll in summer school or correspondence courses that are recognized by the local board of education and counts toward graduation and earn two full units of credit by the first day of the beginning of the school year. The student must earn six full units of credit. Academic eligibility is based on credits earned and not subjects passed.

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12.

Q. The school passing mark is 70. At the close of the first semester an athlete has a grade of 80. At the close of the second semester the grade in the same subject is 65. At the end of the school year the two grades are averaged and the student is allowed one unit of credit. May this subject be used in meeting the academic requirements?

A. Yes.

13.

Q. A student passes both semesters of a course, but does not receive credit toward graduation at the end of the school year because he/she does not meet the attendance policy. Is the student academically eligible to participate in athletics?

A. No. If the student does not receive credit toward graduation, the course may not be counted toward athletic eligibility.

14.

Q. Are subjects such as physical education and ROTC counted in determining the eligibility of a player?

A. Yes. Provided these subjects carry one full credit for the year or one-half credit for the semester and meet one hour each day for five days a week or the equivalent.

15.

Q. Is a student who drops out of school for one or more semesters eligible to participate when that student returns, provided he/she completes the last semester he/she was in school and receives the required number of credits the preceding school year?

A. No. A student must attend school one semester before he/she becomes eligible to participate.

16.

Q. A student is forced to withdraw from school, or is prevented from enrolling in school, due to illness or accident to the student. After being out of school for a semester, or a part of a semester, the student recovers from and enters school at the beginning of the next semester. Is it possible for such a student to be eligible to participate in athletics?

A. Such a case may be considered as a special case by the Executive Director provided the principal submits details in regard to the absence of the student. If the student is ruled eligible, that student shall be charged with a semester of attendance for athletic purposes, even though he/she attended less than forty days of the semester, or did not even enroll.

17.

Q. A student has an incomplete or is conditioned at the end of the school year. Will the student be eligible for participation as soon as the conditions are removed?

A. A student who receives an incomplete in a subject which causes him/her not to meet minimum scholastic requirements is ineligible until the course is satisfactorily completed. His/Her eligibility is restored at that point.

18.

Q. A student was not in school during the spring semester. May that student attend summer school and become eligible for athletic participation the following fall by passing five subjects in summer school that would give him/her the required number of credits for eligibility?

A. No. A student must have been in school the preceding semester or the last semester school was in session in order to be eligible. A summer session is counted as a continuation of the spring semester.

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19.

Q. A student repeats a course for which the student has already received a passing grade or is taking a course for which the student is not receiving credit toward graduation. Will this subject count as one of the credits earned the preceding school year for athletic eligibility?

A. No. A student may not repeat a course that he/she has already passed for athletic eligibility purposes nor may a student count a subject for which he/she is not receiving credit towards graduation for athletic eligibility purposes.

20.

Q. A student enrolls in a school and attends only two days. Is this considered enrollment?

A. No. In the definition of "enrolled", (c) states, ''A student is considered "enrolled" at a school when the student has either attended classes for three days, has engaged in three or more days of football, girls volleyball, cross country, golf, or girls soccer practice during the period, on or after the Monday of the week of August 1, or has participated in an athletic contest in any sport.''

21.

Q. A student attends school for twenty-five days and then drops out. During the twenty-five days of attendance: (a) he/she participated in one or more athletic contests; (b) he/she did not participate in any athletic contest?

A. (a) Student will be charged with a semester since he/she participated in an athletic contest.

(b) Student will not be charged with a semester since that student did not attend forty or more days. (See Article II, Section 1 of the TSSAA Bylaws.)

22.

Q. A student who was ineligible the first semester becomes eligible the second semester by passing five subjects or three blocks or the equivalent. May he/she participate the weekend that marks the close of the first semester?

A. No. A student is not eligible until the opening day of the second semester.

Eight-Semester Rule

1.

Q. What is the maximum number of semesters a student can attend school and still be eligible for athletic participation in the Senior High Division?

A. After a student has attended school EIGHT SEMESTERS he/she is ineligible for further athletic participation.

2.

Q. When does the EIGHT SEMESTER count begin?

A. As soon as a student enrolls in the ninth grade. A student is considered as enrolled in the ninth grade when he/she schedules two or more ninth grade subjects after having completed one school year in the eighth grade.

3.

Q. How does the semester rule apply to teams playing in the Junior High Division?

A. A student is limited to four semesters of eligibility after entering the 8^{th} grade. The semester count starts when the student enrolls in the 8^{th} grade.

Repeating Rule

1.

Q. If a student repeats the 6^{th}, 7^{th}, or 8^{th} grade, what is the status of the student's eligibility?

A. If a student repeats the 6^{th}, 7^{th}, or 8^{th} grade and participates in an interscholastic contest (Varsity, JV, or any level) at the school during the year he/she repeats, they will be ineligible during their 9^{th} grade year.

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Eighth Grade Participation

1.

Q. If an eighth grade student participates as a member of a senior high school team, is such participation charged against the student?

A. No. Such a student will still be entitled to four years of high school participation.

2.

Q. May a seventh grade student participate or practice as a member of a senior high team?

A. No, a student must be enrolled in the 8^{th} grade or higher grade before he/she can participate or practice in the senior division.

Age Limit

1.

Q. Is a student whose nineteenth birthday falls on August 1 ineligible for participation in the Senior High Division?

A. Yes, any student who becomes nineteen years of age on or before August 1 of any school year is ineligible.

2.

Q. If a student becomes nineteen years of age on August 2, or any date thereafter, is that student eligible to participate for the remainder of the school year?

A. Yes.

Physical Examination and Parental Consent

1.

Q. A student receives a pre-participation physical on May 1 of the current school year. How long is that physical valid for the purposes of the TSSAA Bylaws?

A. The physical would be valid for the following school year, through the summer, and up until the first official day of practice for fall sports the next school year.

2.

Q. A student who has not participated in sports during the current school year receives a pre-participation physical on April 1 in preparation for their school's spring football practice which begins on April 2 How long is that physical valid for the purposes of eligibility and the TSSAA Bylaws?

A. The physical would be valid for the current school year and the summer up until the first official day of practice for fall sports the next school year. The physical would not be valid for the next school year for the purposes of eligibility. Physicals must be dated on or after April 15 to be valid for the upcoming school year.

STUDENTS CHANGING SCHOOLS

1.

Q. A student changes school because of the death of his/her parents or guardians. The change is necessary in order for the student to have a home. Is he/she eligible?

A. Such cases should be submitted to the Executive Director who will make a decision based on the facts submitted.

2.

Q. It becomes desirable for a student to live with his/her grandparents. The change in residence causes a change of school. If the grandparents are designated as the guardians of this student will the student be eligible to participate in athletics?

A. Such a student may be ruled eligible by the Executive Director if he/she is convinced that the guidelines as set forth in Article II, Section 24 of the TSSAA Bylaws have been met.

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3.

Q. If an athlete with or without an athletic record lives with a guardian, instead of his/her parents, is the student eligible for athletic participation?

A. He/She may be approved by the Executive Director if the student has lived with the guardian for twelve months or longer. If the athlete has lived with his/her guardian, for a period of less than twelve months, he/she is ineligible unless approved by the Executive Director under the provisions of the hardship rule.

4.

Q. A student with or without an athletic record moves to live with a guardian other than a parent. Is the student eligible?

A. No. A student must live with the new guardian, if other than their parent, for 12 months or longer.

5.

Q. A student whose parents are divorced or separated (provided divorce papers have been signed and processed through the courts) participates in athletics at school A while residing with one parent. The student then transfers to school B where they are residing with the other parent. Is the student eligible to participate in athletics?

A. Yes, provided it is the first change from parent to parent since establishing an athletic record, there is a court-ordered custody change, and a letter from the principal of the student's former school indicating that the move was not for athletic reasons.

6.

Q. A student whose parents are divorced or separated (provided divorce papers have been signed and processed through the courts) participates in athletics at school A while residing with one parent. The student then transfers to school B where they are residing with a guardian other than a parent. Is the student eligible to participate in athletics?

A. No. The student will be ineligible until he/she has lived with his/her new guardian for twelve months.

7.

Q. A student who has a record of participation the previous year in baseball only transfers to a nearby school without any change of residence on the part of the student's parents. Is that student eligible to participate in football or basketball?

A. Yes, provided they meet all other eligibility rules. However, the student is ineligible in baseball for a period of 12 months from the last participation date in baseball. (See Article II, Section 13 of the TSSAA Bylaws regarding eligibility in tennis, volleyball, wrestling, soccer, girls' soccer, bowling, cross country and golf.)

8.

Q. A student transfers to a school because the student's parents have moved to the community in which the school is located. The student's scholastic and athletic records are satisfactory. May such a student be allowed to participate pending the approval of his/her transfer by the Executive Director?

A. No. All transfer students must be approved by the Executive Director before being allowed to participate.

9.

Q. If the parents of an athlete move from the territory in which the athlete has been attending school, may this student remain in the school to which he/she has been going and live with someone other than his/her parents without forfeiting his/her eligibility?

A. Yes, provided he/she has been enrolled in that school for a year or longer, provided no ''undue influence'' has been used to cause the student to continue in the same school, and provided the parents pay the expenses incurred as a result of the student not living at home.

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10.

Q. If an athlete's parents change residence after the beginning of the school year, must the athlete transfer immediately to the school serving the district into which his/her parents have moved?

A. No. The athlete may transfer to the new school without loss of eligibility at the time his/her parents move, at the end of the next grading period, at the end of the semester or at the beginning of the next school year. (If the athlete remains in his/her former school and participates in an athletic contest after his/her parents have moved, he/she cannot become eligible to participate in that sport in the second school until he/she has completed the report card period or the semester.)

11.

Q. How are the words ‘‘change of residence’’ to be interpreted?

A. As moving from one community to another so as to justify a change of schools. Moving across the street or a few blocks away from the former residence, or similar moves, cannot be accepted as justifying a transfer to another school. TSSAA does not recognize ‘‘dual’’ residences (maintaining two homes, apartments, etc.)

12.

Q. What are guidelines that are used in determining whether a bona fide change of residence has taken place?

A. Some guidelines are, but not limited to:

1. Changing of mailing address 2. Disconnecting phone in previous residence 3. Disconnecting of utilities in previous residence 4. All furniture moved from previous residence 5. The original residence should be closed, rented, or disposed of and not used by family.

13.

Q. Is it possible for an athlete who does not live at home with his/her parents or guardians to become eligible?

A. Yes. After such a student has attended school for a full school year, and has lived in the community in which the school is located for a period of at least twelve months, the student's case may be submitted to the Executive Director for a ruling.

14.

Q. A student transfers from School A to School B without a bona fide change in residence by the parents. The change is a result of school zone changes made by the local board of education. Is the student eligible?

A. Yes. Provided he/she meets all other eligibility requirements.

15.

Q. A student with an athletic record the previous year lives in Town A. His/Her father gets work in Town B and decides it will be more convenient for his son or daughter to enter school in Town B since he/she can ride with him as he goes to and from work. Will such a student be eligible to participate on the school team of Town B?

A. No. There has been no change of residence.

16.

Q. An eighth grade student participates as a member of a high school or junior high school team. The next year the student transfers to another school without any change of residence on the part of his parents. Is the student eligible for athletic participation?

A. No. The student is a transfer with an athletic record the previous year. His/Her parents have not changed residence. (This regulation is sometimes misinterpreted due to the statement that eighth grade participation does not count against a student. Such participation does not count as one of the four years he/she is allowed to participate while in high school, but the student is charged with an athletic record the previous year and cannot therefore transfer to another school unless there has been a corresponding change of residence on the part of his/her parents.)

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17.

Q. A student participates in basketball at school A. He changes to school B without a corresponding change of residence by the parents and wants to play basketball. Is he eligible?

A. No. A student will be eligible twelve months from his/her last participation date. Example: A student last played basketball on January 16, 2016 at school A. That student would be eligible at school B on January 17, 2017.

18.

Q. A student with an athletic record transfers from school A to school B without a corresponding change of residence of his/her parents. After attending school B, the student returns to school A. Is the student eligible to participate at school A?

A. Yes, provided the student did not participate in contests or practice in any sport at any level at school B. This must be verified in writing by the administration of school B.

19.

Q. A student who transfers from school A to school B due to a bona fide change of residence by his/her parents is ruled eligible at school B and participates in athletics at school B. One month later the family of the student returns to the original residence where the student was attending school A. Is the student eligible to participate in athletics?

A. No. The student is ineligible to participate in athletics for twelve months from his/her last participation date, since the parents have returned to the original residence serving school A before the student has been enrolled in school B for one year.

20.

Q. What is meant by the term “system-wide” public school in the definition of “territory” as defined in the Definitions?

A. A system-wide public school is a school without geographic zones or bus routes that draws students throughout the school system. Examples of system-wide public schools are, but not limited to: Chattanooga School for the Arts & Sciences, Martin Luther King, the magnet portion of Liberty Technology High School, etc**.**

21.

Q. An international student attends a TSSAA school and lives with someone other than his/her parents. Is the student eligible?

A. Yes, provided the student possess a J-1 visa and is in a Foreign Exchange program which has been approved by the Council on Standards for International Educational Travel (CSIET). Students possessing an F-1 visa are ineligible at the varsity level until they have lived with a guardian for 12 months.

22.

Q. An international student comes to live with a new guardian and enrolls in a school where the guardians reside. The student is not in a Foreign Exchange program approved by the CSIET. Is the student eligible?

A. No. A student must be in a Foreign Exchange program approved by CSIET. The student is ineligible at the varsity level but may be eligible at the junior varsity level provided he/she meets the requirements of Article II, Section 15 of the TSSAA Bylaws.

23.

Q. An international student attends a TSSAA school and is in a foreign exchange program that is not approved by CSIET. Is the student eligible?

A. No. A student must be in a Foreign Exchange program approved by CSIET.

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24.

Q. An international student is in a Foreign Exchange program approved by the CSIET. The student participates in athletics with a TSSAA school while living with one host parent then transfers to another school as a result of a change of host parents. Is the student eligible at the new school?

A. No. As a result of the change of guardians the student must now comply with Article II, Section 11 and Article II, Section 12 of the TSSAA Bylaws in the same manner as all other students.

25.

Q. A student attending School A with an athletic record in basketball at School A is receiving individual instruction from a basketball coach at School B in the spring of the current school year. The student transfers to School B with a bona fide change of residence in August. Is the student eligible at School B?

A. The student is ineligible at School B in the sport of basketball. A coaching link exists in the previous 12 months, therefore the student is ineligible for twelve months in the sport where a link is present at all levels of competition.

26.

Q. A student attending School A with an athletic record in basketball at School A attends a summer team camp at School B. The student transfers to School B with a bona fide change of residence in August. Is the student eligible at School B?

A. The student is eligible at School B, provided they meet all other eligibility requirements. Attendance at a team camp where a coach from another school is present does not constitute a coaching link. Attendance at an individual camp where a coach from another school is present would constitute a coaching link and would render the student ineligible at all levels of competition.

27.

Q. A student attending School A with an athletic record plays on a softball team during the summer where an assistant coach at School B is serving as the summer softball team's head coach. The student transfers to School B with a bona fide change of residence prior to or during the following school year. Is the student eligible at School B?

A. The student is ineligible at School B in the sport of softball. A coaching link was established when the student played for the coach's summer softball team. If a coaching link exists in the previous 12 months, the student is ineligible in the sport where a link is present at all levels of competition.

28.

Q. A student attending School A has an athletic record in football, wrestling and soccer at School A. He is receiving strength and conditioning training during the summer from a personal trainer who happens to be the strength and conditioning coach at School B. The student transfers to School B with a bona fide change of residence the following school year. Is the student eligible at School B?

A. The student is ineligible at School B in all sports. A coaching link has been established in all sports since the strength and conditioning coach at School B works with all sports programs at School B.

29.

Q. A student attending School A was injured on September 10 in a varsity football game and was not able to participate in sports the rest of the school year. The student transfers to School B with no change of residence at the beginning of the following school year. The student wants to play football, basketball, and baseball at school B. When is the student eligible at the varsity level in each sport, assuming that the student meets all other eligibility requirements?

A. The student will become eligible in football on September 11. The student will be eligible immediately in basketball and baseball. The student's participation in football does not impact their eligibility in baseball or basketball. Athletic records from each sport are treated independently of each other.

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30.

Q. A student plays volleyball and establishes an athletic record at School A. At the end of the first semester, the family has a bona fide change of residence into another school zone where they reside for two months. She enrolls and attends School B. They then return to a residence in School A's zone and the student enrolls in School C. Is she eligible?

A. No. Since the student participated at School A within the past twelve months, she will be ineligible in volleyball twelve months past her last date of participation. Athletic eligibility is always based on what the student has done the past twelve months. In this case, the student participated for a member school in the same zone within the last twelve months. Therefore, the last move does not justify a change in schools.

Tuition and Financial Aid

1.

Q. Is it permissible for a school to employ a student for summer work who has not attended the school the previous year?

A. No. In order for a student, who will be participating in athletics, to be employed by a school during the summer the student must have attended the school the previous school year.

2.

Q. Can a Division II school employ student-athletes to "work off" tuition?

A. No. Article II, Section 16 of the TSSAA Bylaws sets forth the only means for reduction of tuition. A school may employ student-athletes as long as the remuneration or consideration for work is not in excess of the amount regularly paid for such service.

3.

Q. Must all financial aid to student-athletes be need-based?

A. Yes.

4.

Q. Who is allowed to pay a student-athlete's tuition?

A. If tuition is charged, it must be paid by a parent, bona fide guardian, or other family member.

5.

Q. Can TSSAA member schools participating in Division II offer particular groups of employees tuition discounts?

A. Yes, provided it is written into the school's policies. For example, schools may choose to offer a tuition discount to a specific group (all full-time faculty members, all non-faculty head coaches, all trainers, etc.). The discount MUST be given to ALL individuals in a particular category or else it will be considered financial aid.

Award Rule

1.

Q. If a student accepts a gift card or apparel from an outside entity during a camp, combine, showcase, etc., will he/she lose his/her eligibility?

A. No. Accepting these items from an outside source during a camp, combine, or showcase, etc., would not make a student ineligible. Bowling, golf and tennis students must abide by USBC, USGA, and USTA regulations in regards to accepting awards.

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Independent-Game Participation

1.

Q. Team A is eliminated in the district basketball tournament. May players on Team A participate in an independent game or tournament without endangering their eligibility?

A. The basketball season ends for any member school when the school is eliminated from tournament play. Students may participate in a game as members of independent teams in any sport after the season for that sport has closed without affecting their eligibility, provided the amateur rule is not violated.

2.

Q. A golfer wishes to participate in a club tournament during the golf season. Is this a violation of the independent rule?

A. No, provided the golfer participates as an individual and not as a member or representative of his/her school. The independent rule does not apply to sports with an individual championship (golf, tennis, bowling, wrestling, track and field, and cross country).

3.

Q. May a player participate in a scrimmage, practice game or game with an independent team after being registered with TSSAA past the first official day of competition in that sport?

A. No. The student shall be ineligible once TSSAA is made aware of the incident in the sport in which the violation occurs.

4.

Q. Is it a violation for a registered athlete in baseball or softball to practice with an independent team?

A. No, provided the independent team is not scrimmaging another independent team as a part of their practice.

5.

Q. Is it a violation for a registered athlete in track or cross country to participate in a road race?

A. No. The independent rule does not apply to track and field or cross country.

6.

Q. A basketball player participates in an independent game and the school notifies the state office of the violation. What is the penalty for the student athlete?

A. The student will be ineligible for the remainder of the season.

7.

Q. A student is registered on the girls' softball team with School A after the first official day of competition for girls' softball. The student then participates in an independent girls' softball game. She then returns to School A's softball team where she plays three games. The coach of School A determines that the student has played in an independent game and reports the violation to the state office. What is the penalty?

A. The player is deemed ineligible for the remainder of the season. School A is not penalized for games the player may have played in after participating on an independent team during the school season.

8.

Q. Is it a violation for a soccer player to participate in an indoor soccer tournament or a girls' softball player to participate in a slow pitch softball tournament or a basketball player to participate in a three-on-three tournament during the school season?

A. Yes. Participation in a similar sport during the season constitutes a violation of the independent game participation rule.

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9.

Q. What are some examples of scrimmage situations that would not be considered a violation of the Independent Game Participation Rule?

A. Following are two examples:

- 48 students are trying out for an AAU basketball, travel baseball or softball, club soccer or 7 on 7 football team. This group of students would be considered one team and could participate in scrimmage situations.
- 65 students are invited to a college university to practice with a college team. This group of students, along with the college students, would be considered one team and could participate in scrimmage situations.

All-Star Games

1.

Q. A civic club plans to hold an all-star basketball game. Only seniors who do not participate in spring sports will participate. Would it be a violation for a coach of a member school to coach one of the teams; for the coach and principal to permit the players to use school equipment; for a registered TSSAA official to officiate the game?

A. Yes, if a game is played during the school year officials and game officials shall have no connection whatsoever with such a contest.

2.

Q. What is the difference between an independent team and an all-star team?

A. An independent team is a team that is organized to play a schedule. An all-star team is a team composed of players from different schools who are usually assembled as a team for playing one particular game.

Home School Rule

1.

Q. Who is eligible to tryout, as a home school athlete, for a TSSAA member school team?

A. Only those who meet all ten criteria outlined within TSSAA's Home School Bylaw are eligible.

2.

Q. Are there any requirements that the parent conducting the home school must meet for purposes of the TSSAA Bylaws?

A. Yes. First, the home school athlete must meet all ten criteria outlined within TSSAA's Home School Bylaw. Additionally, the parent-teacher must satisfy all state law requirements in order for the home school student to be eligible to try out for a TSSAA member school team.

3.

Q. What are the academic requirements for a home school athlete?

A. The academic courses must be approved by the local board of education (or private school) in compliance with state law. TSSAA does not regulate where or how any student athlete receives credit toward graduation. TSSAA is concerned with the following: (1) Are the participants enrolled in a minimum of five academic courses which have been approved by the school and/or school system? And (2) If taken at a member school would the course count towards graduation? If the answer to both questions is "yes", the home school athlete would meet the requirements set forth in the "Academic Rule" and "Home School" Bylaw.

4.

Q. What if a student takes four of the five academic courses at an independent home school, but registers and attends a non-public school for the fifth credit (i.e. science lab,) would this potential home school athlete be eligible under the Home School Bylaw?

A. Yes, provided the student meets the definition of a home school student according to state law.

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5.

Q. What is the last date that a home school student can make application for participation in athletics to the principal of the member school in which the athlete wishes to tryout and possibly participate?

A. The parent or guardian must make application for participation in athletics to the principal of the member school in which the home school athlete wishes to try out and possibly participate before the first official practice date for that sport.

6.

Q. Can a home school student tryout for a team prior to meeting all requirements of the rule in the TSSAA Bylaws?

A. No. All requirements of the rule must be met prior to the home school student trying out for a team, with the exception of the participation fee. If a participation fee is imposed by the LEA, the home school student would only be required to pay that fee only if they become a member of the team.

7.

Q. What type of insurance, if any, does a home school athlete participating on a TSSAA member school team need to maintain?

A. The home school student must provide proof of liability insurance coverage which names the TSSAA as an insured party or the administration of the school must submit to TSSAA a copy of the TSSAA Indemnity Form signed by the guardian(s). TSSAA Catastrophic Insurance will extend to the home school athlete as it does with all other student-athletes participating at a member school.

8.

Q. If the LEA imposes a participation fee, could the home school athlete be responsible for any additional monetary payments after he/she makes a particular team?

A. Yes, but this will be left to the LEA, and not TSSAA. Many LEAs charge an additional fee to all the athletes participating in a particular sport, such as golf. Some LEAs charge an equipment fee or uniforms fee, while other LEAs require athletes to raise a certain amount of money with fundraising. If the non-home school student athlete is being held responsible for monetary contributions, the home school athlete can be held responsible for those same monetary contributions, which will vary within LEAs.

9.

Q. If a home school athlete makes the roster of a TSSAA member school team in football, basketball, and baseball, what is the participation fee?

A. The answer will vary by LEA. The maximum amount that the home school athlete could pay shall not exceed the fees or costs charged to or borne by students enrolled at the school.

10.

Q. If a home school athlete wants to participate on a TSSAA member private school team, what must the home school athlete do?

A. (1) The parent or guardian must make application for participation in athletics to the principal **prior to the first official practice date for that sport.** (2) Additionally, the home school athlete must pay full tuition and abide by all financial aid rules.

11.

Q. If a student has dropped out, withdrawn, or been expelled from a TSSAA member school, will that student be eligible to participate at another TSSAA member school as a home school athlete?

A. No. If the student was expelled then he/she would be carrying a discipline record which makes them ineligible for one year or until the disciplinary charges have been removed. If the student dropped out or withdraws from school he/she would be subject to the TSSAA's transfer rules.

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12.

Q. If a home school athlete tries out for a TSSAA member school team, is the home school athlete automatically on the roster?

A. No, like all sports rosters, the ultimate decisions are left to the member schools regarding the athletes that make the team as well as the amount of playing time that each athlete receives.

Virtual School Rule

1.

Q. A student lives outside the geographic area of the LEA of any TSSAA member virtual schools. Is there a scenario where this student could participate in athletics for a TSSAA member school?

A. No. Students must live in the geographic area of the LEA of the member virtual school. Their residence must also be in the zone (territory) of the public school where they wish to participate as assigned by the local board of education.

2.

Q. A student lives inside the geographic area of the LEA of a TSSAA member virtual school. School A and School B are both in the geographic area of the same LEA. The student's residence is in the zone (territory) of School A, but they wish to play for School B. The student lives outside the zone (territory) of School B. Can the student play for School B?

A. No. Students must live in the zone (territory) established by the LEA of the school they are participating for.

Schools Which Member Schools May Play or Scrimmage

1.

Q. What schools may a member school of TSSAA scrimmage during pre-season or play during regular season?

A. TSSAA member schools may play or scrimmage the following:

1. Any secondary school team with grades 9 and above.
2. An individual home schooled student who might be invited to participate in a track meet, wrestling competition, golf competition, etc. This would primarily apply to individual sports.
3. A home school team in a team sport, such as basketball, baseball, softball, etc., where home schooled students go together to form a cooperative team.

2.

Q. Who can a member school of TSSAA not play during regular season?

A. Any non-school team. Examples would be a club team, recreational park league team, or any type of independent team.

Contests and Tournaments with Out-Of-State Teams

1.

Q. May a TSSAA school participate in tournaments or meets involving out-of-state teams that have not been sanctioned?

A. No. All tournaments or meets involving out-of-state teams must be sanctioned by TSSAA, the other state associations concerned, and the National Federation.

Varsity Teams

Q. Can a school's junior varsity team participate against another school's varsity team?

A. No. A game is either a varsity game for both teams, a junior varsity game for both teams, or a scrimmage for both teams. An exception may be made by the Executive Director when a school is beginning an athletic program.

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TSSAA SPORTS CALENDAR

1.

Q. A coach has a weight lifting program at school during off-season and in the time permitted by the sports calendar. The program is open to both players and non-players. Is this a violation?

A. No, provided activities are limited to weight lifting, and provided no player is required to attend.

2.

Q. Can a coach have a conditioning program in the off season, provided it is not during the Dead Period?

A. Yes, provided it is a program that would benefit all students and is open to all players and non-players.

3.

Q. May a school with grades 7-12, 8-12 or 9-12 have 12 days of varsity spring football practice and 12 days of freshman spring football practice?

A. No. A school may have only 12 days of off-season practice in football.

4.

Q. Is it permissible for a school to have try-outs before the first practice date?

A. Try-outs are considered practice. During the school-year, no school may hold try-outs prior to the first practice date as set forth by the TSSAA Sports Calendar. Try-outs in football and basketball may be held during spring practice but only students enrolled and in regular attendance at that school may participate. Try-outs may be held in the summer during the time outlined for practice in that sport.

5.

Q. In football, five schools come together on a Saturday for a five-way scrimmage on two practice fields. Team A is working a half line scrimmage against Team B, Team C is working 7-on-7 with secondary against quarterbacks and receivers, etc. Later in the day, Team B is scrimmaging Team A, B vs. C, etc. How would this be counted?

A. This is one scrimmage date. All schools would have either two scrimmages or one scrimmage date remaining in preseason.

6.

Q. Three schools go together for a three-way scrimmage with A vs. B, B vs. C, and C vs. A set up during the day. How would this be counted?

A. This is either two scrimmages for each team or one scrimmage date for each team. It really does not make any difference. All three schools would have either two scrimmages or one scrimmage date remaining in preseason.

7.

Q. School A and School B get together and set up a scrimmage with their two schools. During the scrimmage the freshman teams are working against each other at 2:00; the junior varsity teams are working against each other at 3:30; and the varsity teams come back that night and work against each other at 7:00. How would this be counted in preseason scrimmages.

A. This is one preseason scrimmage for both schools, provided all of the scrimmaging is at one site.

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8.

Q. A school invites nine schools to participate in an all-day scrimmage on a Saturday. What can occur and how is this counted toward the scrimmage rule?

A. If any of the schools invited scrimmage more than one school, then it would count as a scrimmage date for that school and for all the schools that participate against more than one school in the all-day affair. The schools would then have either two scrimmages remaining or one scrimmage date.

There cannot be any tournament format set up or play that would reflect a regular season game. Preseason scrimmages are an extension of preseason practice and should be learning experiences for athletes and coaches as they prepare for regular season games.

9.

Q. How many students may receive individual instructions during the pre-season and/or off-season?

A. During the pre-season and off-season, individual instruction may be given to no more than three students per day in basketball and girls' volleyball. In football, girls' soccer, and soccer, individual instructions may be given to no more than six students per day. In baseball and girls' softball, individual instruction may be given to no more than five students per day. IT DOES NOT MATTER HOW MANY COACHES YOU HAVE IN A PARTICULAR SPORT. THE TOTAL NUMBER OF STUDENTS THAT ARE ALLOWED TO RECEIVE INSTRUCTIONS ARE GIVEN ABOVE.

10.

Q. Are school personnel/coaches permitted to coach non-school teams with players from their school in the preseason or offseason?

A. If the TSSAA sports calendar does not permit practice during the time of year that the non-school team is practicing or playing, then school personnel are not permitted to coach these teams regardless of how many or how few players from their school are participating for the non-school team.

11.

Q. Does the 50% rule apply to summer teams in any sport?

A. No. The 50% rule applies only to basketball, baseball, and softball and only from the beginning of the school year until the season begins in the sport involved.

12.

Q. School A has one gym and is scheduled to have volleyball practice until 6:00 PM. Can School A have Open Facilities for basketball beginning at 6:30 PM?

A. Yes. Open Facilities is permitted year round (Monday through Friday) except during the Dead Period. It does not have to occur immediately after the school day ends.

Awards

1.

Q. Does TSSAA name All-District, All-Region, or All-State Teams?

A. No. These teams are normally selected by the coaches, the Tennessee Sports Writers Association, or the Associated Press.

Officials and Contracts with Officials

1.

Q. May a school use one or more non-registered officials in a contest provided the other officials are registered?

A. All football officials, including the clock operator, must be registered with TSSAA. All basketball officials, except the timer and scorer, must also be registered with TSSAA. All baseball and girls softball umpires must be registered with TSSAA; also wrestling, girls soccer, soccer and girls volleyball officials.

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2.

Q. What is the penalty for using a non-registered football, basketball, wrestling, girls volleyball, girls soccer, soccer, girls softball or baseball official?

A. Schools using non-registered officials shall be fined $15 for the first offense. Continued use of non-registered officials will subject school to suspension or other penalty as determined by the Board of Control.

3.

Q. If a registered official has been employed but for some reason fails to appear, may a school use a non-registered official without being subject to any penalty?

A. Yes, provided the state office is notified in writing within 48 hours after the game is played. This report should give the name and address of the registered official who was employed to work the game and the reason for his/her failure to do so if known; also the name and address of the official who was used in place of the registered official.

4.

Q. What is the policy of TSSAA toward the decisions of officials?

A. The decisions of officials are accepted as final and binding.

5.

Q. May a school drop an official from the game after the official has been engaged?

A. Yes, if a school decides that it is wise to break its agreement with an official, it may be done by paying the official the regular fee for the game.

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COACHING REQUIREMENTS CHECKLIST

Classified Employees and Non-Faculty Coaches serving as Head Coaches

______ Must be approved by the principal, director of schools, and/or school board each year.
______ Must be submitted by the principal to TSSAA each year.
______ Must successfully complete the NFHS “Fundamentals of Coaching” and “First Aid, Health, & Safety for Coaches” courses prior to his/her employment.*****

Classified Employees and Non-Faculty Coaches serving as Assistant Coaches

______ Must be approved by the principal, director of schools, and/or school board each year.
______ Must be submitted by the principal to TSSAA each year.
______ Must successfully complete the NFHS “Fundamentals of Coaching” and “First Aid, Health, & Safety for Coaches” courses prior to his/her employment.*****

Retired Educators (five or more years of teaching experience) **& Full-Time Certified Teachers** (those who are currently teaching a minimum of 100 school days) are not considered non-faculty. These individuals have no other requirements. These individuals must be submitted by the principal to TSSAA each year.

Middle School Non-Faculty Coaches

______ Must be approved by the principal, director of schools, and/or school board each year.
______ Must be submitted by the principal to TMSAA each year.
______ Must successfully complete the NFHS “Fundamentals of Coaching” and “First Aid, Health, & Safety for Coaches” courses prior to his/her employment.*****

**Coaches who have successfully completed the ASEP Coaches Education Course AND the TSSAA Online Coaches Training Session prior to May 15, 2013, will not be required to take the NFHS courses.*

2022-23 GENERAL OFFICIAL'S INFORMATION

The following fees for regular season varsity contests have been set by the Board of Control. With the exception of basketball, these fees do not apply to invitational tournaments. J.V. or B-Team, freshman, and middle school fees are not set by TSSAA and are negotiable with the local officials' association.

2022-23 Mileage Fees

The Board of Control has set the following fees for mileage, which applies to all officials, and is to be based on mileage that is calculated in Arbiter:

1. If an official travels 30 to 60 miles one-way, they will receive an additional $10.
2. If an official travels more than 60 miles one way, they will receive an additional $20.
3. If an official travels less than 30 miles one way, no additional fee will be paid.

Sport	2022-23		2023-24	
Senior High Football	$115.00 E.C.O. – $85.00		$115.00 E.C.O. – $85.00	
Senior High Basketball	**Two Officials** Single Game $90.00 Doubleheader $120.00	**Three Officials** Single Game $80.00 Doubleheader $110.00	**Two Officials** Single Game $90.00 Doubleheader $120.00	**Three Officials** Single Game $80.00 Doubleheader $110.00
	Doubleheader fees apply to all regular season contests, including Invitational Tournaments and Classics, where there is no more than 15 minutes between contests.			
Senior High Girls' Volleyball	**Two Officials** One Match $70.00 Two Matches $100.00 Three Matches $130.00		**Two Officials** One Match $70.00 Two Matches $100.00 Three Matches $130.00	
	Two officials must be used for all matches, including Invitational Tournaments and Post-Season Tournaments.			
Senior High Girls Soccer and Soccer	**Two Officials** One Game $85.00 Each	**Three Officials** One Game – $85.00, $75.00, $75.00	**Two Officials** One Game $85.00 Each	**Three Officials** One Game – $85.00, $75.00, $75.00
Senior High Baseball	**Two Officials** Single Game $90.00 Doubleheader (JV/JV) $120.00 Doubleheader (JV/V) $120.00 Doubleheader (V/V) $180.00	**Three Officials** Single Game $85.00 Doubleheader (JV/JV) $110.00 Doubleheader (JV/V) $110.00 Doubleheader (V/V) $170.00	**Two Officials** Single Game $90.00 Doubleheader (JV/JV) $120.00 Doubleheader (JV/V) $120.00 Doubleheader (V/V) $180.00	**Three Officials** Single Game $85.00 Doubleheader (JV/JV) $110.00 Doubleheader (JV/V) $110.00 Doubleheader (V/V) $170.00
	Doubleheader fees apply to regular season contests only when there is no more than 30 minutes between games. If one game of the doubleheader is a JV game, it is limited to 5 innings or a 1:15 time limit, whichever comes first. NO EXCEPTIONS.			
Senior High Girls' Softball	**Two Officials** Single Game $80.00 Doubleheader (JV/JV) $110.00 Doubleheader (JV/V) $110.00 Doubleheader (V/V) $160.00	**Three Officials** Single Game $75.00 Doubleheader (JV/JV) $100.00 Doubleheader (JV/V) $100.00 Doubleheader (V/V) $150.00	**Two Officials** Single Game $80.00 Doubleheader (JV/JV) $110.00 Doubleheader (JV/V) $110.00 Doubleheader (V/V) $160.00	**Three Officials** Single Game $75.00 Doubleheader (JV/JV) $100.00 Doubleheader (JV/V) $100.00 Doubleheader (V/V) $150.00
	Doubleheader fees apply to regular season contests only when there is no more than 30 minutes between games.			
Senior High Wrestling	Dual Meet – $85.00 Two Dual Meets @ Same Site – $120.00 Three Dual Meets @ Same Site – $165.00		Dual Meet – $85.00 Two Dual Meets @ Same Site – $120.00 Three Dual Meets @ Same Site – $165.00	

Catastrophic Insurance 2022-23 School Year

When Athletes, Coaches, and Athletic Directors are Covered

1. Participating in a TSSAA sanctioned sport during the time outlined in the TSSAA Sports Calendar.
2. Practicing in a TSSAA sport during the time that conforms with the rules, regulations, and season outlined in the TSSAA Sports Calendar.
3. Summer Practice – Must be a school team practicing as a unit during the time specified in the TSSAA Sports Calendar with a school coach in charge.
4. Weight lifting and conditioning is only covered during the season when teams are allowed to practice.
5. Preseason Scrimmages
6. Team travel to and from an athletic practice and/or contest with a school coach in charge. Independent travel is not covered, i.e. athletes driving their own vehicles.
7. Coaches and athletic directors are covered working all TSSAA sanctioned activities including travel to and from (Medical Limit - $50,000; Deductible (Integrated) - $5,000).

When Athletes, Coaches, and Athletic Directors are Not Covered

1. Open Facilities
2. Weight Training and Conditioning – At no time during the off-season is anyone covered.
3. Summer Camps – TSSAA catastrophic insurance does not cover team camps. The camp may be able to provide the coverage for the participants attending team camps or schools have the option to purchase the individual school coverage that would cover camps.
4. Student-athletes are not covered under the supervision of non-approved coaches or a coach that has not met the TSSAA coaching requirements.
5. Coaches and Athletic Directors are not covered during open facilities, during off-season coaching (i.e. weight training and conditioning), or while coaching/working summer camps

How to Report a Claim

1. The following information should be emailed to sports@loomislapann.com on school letterhead or a school incident report form.

    a. Name of injured party.
    b. Name, address, email, and phone number of injured party's parents or guardian.
    c. Date of accident or injury
    d. Brief overview of what took place

2. Keep a copy to verify you have reported the incident.
3. Loomis & LaPann will send out a claim form and claim filing instructions to injured party's parent or guardian. The claim form **MUST** be signed by Coach/AD at the school verifying the incident. Once the claim form has been signed it would be the responsibility of the parent or guardian to file the claim.
4. It is not necessary to report all injuries. The general procedure is to report any injury that may require surgery. Injuries that require surgery will probably penetrate the $15,000.00 deductible.

Contact Information

For any questions regarding Catastrophic Insurance Coverages, How to Report a Claim, or the Optional Catastrophic Insurance Plan, please contact Greg Joly or Karen Boller at Loomis & LaPann, Inc. at (800) 566-6479 or e-mail:

gjoly@loomislapann.com
kboller@loomislapann.com

2022-23 TSSAA Regional Rules Meetings

ADMINISTRATOR'S MEETINGS

Sept. 19	9:00 AM	Cookeville High School
	10:00 AM	Middle School Meeting
Sept. 20	9:00 AM	Daniel Boone High School
	10:00 AM	Middle School Meeting
Sept. 21	9:00 AM	Hardin Valley Academy
	10:00 AM	Middle School Meeting
Sept. 22	9:00 AM	Silverdale Baptist Academy
	10:00 AM	Middle School Meeting
Sept. 26	9:00 AM	Ensworth High School
	10:00 AM	Middle School Meeting
Sept. 27	9:00 AM	White Station High School
	10:-00 AM	Middle School Meeting
Sept. 28	9:00 AM	Liberty Tech. Magnet High School
	10:00 AM	Middle School Meeting
Sept. 29	9:00 AM	Spring Hill High School
	10:00 AM	Middle School Meeting

REGIONAL MEETINGS

Nov. 7	11:00 AM	Hardin Valley Academy
Nov. 9	10:00 AM	Liberty Tech. Magnet High School
Nov. 10	10:00 AM	Ensworth High School

BASEBALL RULES MEETINGS

Jan. 8	3:00 PM	Cookeville High School
Jan. 9	6:30 PM	Daniel Boone High School
Jan. 11	6:30 PM	Fulton High School
Jan. 12	6:30 PM	Silverdale Baptist Academy
Jan. 15	3:00 PM	Goodpasture Christian School
Jan. 16	6:30 PM	Marshall Co. High School
Jan. 18	6:30 PM	Memphis University School
Jan. 19	6:30 PM	Liberty Tech. Magnet High School

BASKETBALL RULES MEETINGS

Sept. 11	3:00 PM	Morristown East High School
Sept. 12	6:00 PM	Daniel Boone High School
Sept. 13	6:00 PM	Hardin Valley Academy
Sept. 14	6:00 PM	Silverdale Baptist Academy
Sept. 15	6:00 PM	Shelbyville Central High School
Sept. 18	2:00 PM	MUS (Coaches)
Sept. 18	4:00 PM	MUS (Officials)
Sept. 19	6:00 PM	Dresden High School
Sept. 20	6:00 PM	Liberty Tech. Magnet High School
Sept. 21	6:00 PM	DeKalb Co. High School
Sept. 22	6:00 PM	Goodpasture Christian School

FOOTBALL RULES MEETINGS

July 18	6:00 PM	Notre Dame High School
July 19	6:00 PM	Rossview High School
July 25	6:00 PM	Peabody High School
July 26	6:00 PM	Memphis University School
July 27	6:00 PM	Henderson City Hall
July 28	6:00 PM	Shelbyville Central High School
July 31	6:00 PM	Watertown High School
Aug. 1	6:00 PM	Daniel Boone High School
Aug. 2	6:00 PM	Hardin Valley Academy
Aug. 3	6:00 PM	Goodpasture Christian School
Aug. 4	6:00 PM	McMinn Co. High School

GIRLS' SOFTBALL RULES MEETINGS

Jan. 8	2:00 PM	Cookeville High School
Jan. 9	5:30 PM	Daniel Boone High School
Jan. 11	5:30 PM	Fulton High School
Jan. 12	5:30 PM	Silverdale Baptist Academy
Jan. 15	2:00 PM	Goodpasture Christian School
Jan. 16	5:30 PM	Marshall Co. High School
Jan. 18	5:30 PM	Memphis University School
Jan. 19	5:30 PM	Liberty Tech. Magnet School

TRACK RULES MEETINGS

TBA

THE FOLLOWING RULES MEETINGS WILL BE OFFERED ONLINE: GOLF, GIRLS' VOLLEYBALL, GIRLS' SOCCER, BOWLING, TENNIS, SOCCER

NOTE: In order to complete the online coaches meetings, coaches must log into their personal TSSAA Portal Account and be assigned as a coach for the sport in which they are taking the online rules meetings.

EXHIBIT 31

Section I:

Instructional Goals and Objectives

Knox County Board of Education Policy

Descriptor Term:	Descriptor Code:	Issued:
Interscholastic Athletics	**I-171**	**7/95**
	Reviewed: **9/21**	Revised: **11/21**

Interscholastic athletics shall be administered as a part of the regular school program and shall be the principal's responsibility. The principal or his designee must accompany an athletic team on trips.

The Bylaws of the Tennessee Secondary School Athletic Association (TSSAA) shall regulate the operation and control of secondary athletics.

School athletics shall be coached only by persons on contract to the Board of Education and approved by the Tennessee Secondary School Athletic Association.

There shall be an annual physical examination of every student prior to his participation in interscholastic athletic practice.[1] Cost of the examination shall be borne by the parent or guardian of the student. These records shall be on file in the principal's office.

A student's gender for purposes of participation in middle or high school athletics is determined by the student's sex at the time of the student's birth. A valid original birth certificate must be provided for this purpose. At the principal's discretion, if there are any issues regarding the birth certificate, the student and the student's parent/guardian must provide other satisfactory evidence of the student's sex at birth.[2]

Every participant in athletics shall participate in the Knox County Schools Athletic Insurance Program.

There shall be no practice of organized school athletics schedules within the school day without approval of the Superintendent.[3]

Each school may play two home athletic events during the school day without requesting permission from the Board of Education.

The conduct of players, spectators, or school personnel reflects directly upon the school system as a whole. Therefore, conduct of players, spectators, or school personnel that does not exemplify the best sportsmanship may result in that school's program, players, spectators, or school personnel being suspended from attendance or participation in the sport concerned with the infraction. The Board of Education will determine the duration of the suspension.

Maximum admission prices to all athletic events shall be approved by the Board of Education, upon the recommendation of the Superintendent.

SCHEDULING OF ATHLETIC CONTESTS

A. District/regional games shall be scheduled first.
B. **No contract shall be signed until the following process is complete:**
   (1) Complete the schedule and submit to the principal for approval.
   (2) Upon approval by the principal, submit to the Superintendent's office for final approval.

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C. If an adequate schedule is not obtained by each school, a rescheduling meeting shall be designated by the Superintendent's office to resolve existing problems.
D. No contracts are to be signed prior to the Superintendent's approval of the schedule.

Middle School basketball and track are sanctioned sports of the Knox County Schools and shall be regulated by bylaws of the Tennessee Middle School Athletic Association (TMSAA).

ELIGIBILITY OF HOME SCHOOLED STUDENTS FOR PUBLIC SCHOOL INTERSCHOLASTIC ATHLETICS[4]

As a member of the Tennessee Secondary Schools Athletic Association, the Knox County Schools shall honor the bylaws of the TSSAA/TMSAA with respect to home school students' participation in TSSAA sanctioned public school interscholastic athletic activities. The following conditions shall also apply to home school students seeking to participate in the Knox County Schools Interscholastic athletics program:

1. Home school students who meet the requirements established by the TSSAA and who meet all other eligibility and selection criteria set forth by the school and the coach will be allowed to participate on an interscholastic athletic team of their zoned school. With regard to sports that do not require tryouts for eligible Knox County Schools students, participation will be allowed pursuant to the compliance with the requirements listed in this policy. With regard to sports requiring tryouts, compliance with the requirements listed in this policy will only ensure the opportunity to tryout and will not ensure a position on the respective team.

2. If selected for membership on the zoned school athletic team, home school students will be subject to all rules, requirements and restrictions that are applicable as members of the team and the school community;

3. Home school students shall pay all fees associated with each sport in which they may participate and these fees shall be paid in full prior to the first contest of the regular season.

4. In the event that the Knox County School's insurance provider does not extend coverage to an athlete, that athlete must provide proof of independently secured catastrophic coverage, and liability coverage, with the school system as a named insured, of not less than the limits set forth in Tennessee Code Annotated § 29-20-403.

Legal References:

1. TRR/MS § 0520-1-3-.08(2)(b).
2. T.C.A. § 49-6-310.
3. T.C.A. § 49-6-1002(a).
4. T.C.A. § 49-6-3050(c); By Laws, Tennessee Secondary School Athletic Association, Article II, Section 25.

Approved as to Legal Form
By Knox County Law Director 9/22/2021
/*Gary T Dupler*/Deputy Law Director

EXHIBIT 32

TSSAA/TMSAA TRANSGENDER POLICY

Philosophy of Gender Identity Participation:

The TSSAA/TMSAA allows participation for all students regardless of their gender identity **OR** expression. The purpose of this policy is to designate a set of criteria in which student-athletes are able to compete on a level playing field in a safe, competitive and friendly environment, free of discrimination. Fundamental fairness, as well as some local, state, and federal rules and regulations require schools to provide transgender student-athletes with equal opportunities to participate in athletics. This policy is designed to create a framework in which the participation may occur in a safe and healthy manner that is fair to all competitors.

Gender Identity Policy/Procedure:

All students should have the opportunity to participate in TSSAA/TMSAA activities in a manner that is consistent with their gender identity, irrespective of the gender listed on a student's records. Once the student has been granted eligibility to participate in the sport consistent with his/her gender identity, the eligibility is granted for the duration of the student's participation and does not need to be renewed every sports season or school year.

Privacy Statement:

To the extent permitted by law, all discussions and documents at all levels of the process either by a member school and/or the TSSAA/TMSAA shall be kept confidential, and the proceeding will be sealed unless the student and family make a specific request.

Definitions:

1. **Transgender Person** – A person whose gender identity does not match the sex assigned to him or her at birth.
2. **Gender Identity** – A person's deeply-felt internal sense of being male or female.
3. **Gender Expression** – A person's external characteristics and behaviors that are socially defined as either masculine or feminine (dress, speech, mannerisms, social interactions, etc.)

Steps Required for Consideration to Participate:

1. **Notice to the School:**

   The student and/or parent(s)/guardian(s) shall contact the administration at their member school indicating that the student has a consistent gender identity different than listed on the student's school registration records or birth certificate and that the student desires to participate in athletics in a manner consistent with his/her gender identity.

2. **Notice to the TSSAA/TMSAA:**

The member school administration shall contact the TSSAA office, which will assign a facilitator who will assist the school and student in preparation and completion of the TSSAA/TMSAA Gender Identity Eligibility Process.

3. **Necessary Documentation:**

The member school shall assist in collecting the following information:

A. Current transcript and school registration information;
B. Documentation from individuals such as, but not limited to, parent(s)/guardian(s), friends, and/or teachers which affirm that the action, attitudes, dress, and manner demonstrate the student's consistent gender identification and expression;
C. Documentation from the member school administration outlining specific accommodations that have been made for the student;
D. Written verification from an appropriate health care professional (i.e. doctor, psychiatrist, psychologist) of the student's consistent gender identification and expression; and
E. Any other pertinent documentation or information.

4. **Referral to Gender Identity Eligibility Committee:**

Upon receipt of the required documentation from the member school, the Executive Director will refer all necessary documentation to the TSSAA/TMSAA Gender Identity Eligibility Committee (GIEC) for consideration. The GIEC will be selected by the TSSAA/TMSAA and will make a determination on the gender eligibility from the member school. The GIEC will be comprised of a minimum of three of the following individuals:

A. Physician with experience in gender identity health care and the World Professional Association of Transgender Health (WPATH) Standards of Care;
B. Psychiatrist, psychologist, or licensed mental health professional familiar with the WPATH;
C. School administrator from a non-appealing member school;
D. TSSAA/TMSAA staff member; or
E. Advocate familiar with Gender Identity and Expression issues.

5. **Notification:**

Written notification of the decision of the GIEC will be rendered to the member school administration by the Executive Director.

6. **Appeals:**

A. A member school desiring to appeal the Gender Identity Eligibility Committee's decision on behalf of a denied student shall file a "written notice of appeal" with the Executive Director.
B. All appeals will be to the TSSAA Board of Control.
C. The TSSAA Board of Control will have the authority to require that additional specified information be submitted.
D. The TSSAA Board of Control shall hear appeals during their next regularly scheduled meeting.
E. Written notification of the decision of the TSSAA Board of Control will be rendered to the member school administration by the Executive Director.
F. The decision of the TSSAA Board of Control shall be final and binding.

Suggested Areas of Awareness for Member Schools:

1. Have a plan in place
2. Use correct names/pronouns according to the student's self-identification
3. Gender appropriate restroom accessibility
4. Locker room accessibility
5. Educational training for teachers, counselors, coaches, administrators, parents, students, and fans on transgender sensitivity in relation to students
6. Manner of dress according to gender identity
7. Recognize that the student is living in the "gender identity"
8. Provide access to resources and accurate information to ensure healthy competition

EXHIBIT 33

DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS

FIFTH EDITION

DSM-5™

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American Psychiatric Association

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American Psychiatric Publishing
A Division of American Psychiatric Association

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Manufactured in the United States of America on acid-free paper.

ISBN 978-0-89042-554-1 (Hardcover)

ISBN 978-0-89042-555-8 (Paperback)

American Psychiatric Association
1000 Wilson Boulevard
Arlington, VA 22209-3901
www.psych.org

The correct citation for this book is American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. Arlington, VA, American Psychiatric Association, 2013.

Library of Congress Cataloging-in-Publication Data
Diagnostic and statistical manual of mental disorders : DSM-5. — 5th ed.
p. ; cm.
DSM-5
DSM-V
Includes index.
ISBN 978-0-89042-554-1 (hardcover : alk. paper) — ISBN 978-0-89042-555-8 (pbk. : alk. paper)
I. American Psychiatric Association. II. American Psychiatric Association. DSM-5 Task Force.
III. Title: DSM-5. IV. Title: DSM-V.
[DNLM: 1. Diagnostic and statistical manual of mental disorders. 5th ed. 2. Mental Disorders—classification. 3. Mental Disorders—diagnosis. WM 15]
RC455.2.C4
616.89'075—dc23

2013011061

British Library Cataloguing in Publication Data
A CIP record is available from the British Library.

Text Design—Tammy J. Cordova

Manufacturing—Edwards Brothers Malloy

RC
455
.2
.C4
D54
2013

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Gender Dysphoria

In this chapter, there is one overarching diagnosis of gender dysphoria, with separate developmentally appropriate criteria sets for children and for adolescents and adults. The area of sex and gender is highly controversial and has led to a proliferation of terms whose meanings vary over time and within and between disciplines. An additional source of confusion is that in English "sex" connotes both male/female and sexuality. This chapter employs constructs and terms as they are widely used by clinicians from various disciplines with specialization in this area. In this chapter, *sex* and *sexual* refer to the biological indicators of male and female (understood in the context of reproductive capacity), such as in sex chromosomes, gonads, sex hormones, and nonambiguous internal and external genitalia. Disorders of sex development denote conditions of inborn somatic deviations of the reproductive tract from the norm and/or discrepancies among the biological indicators of male and female. *Cross-sex* hormone treatment denotes the use of feminizing hormones in an individual assigned male at birth based on traditional biological indicators or the use of masculinizing hormones in an individual assigned female at birth.

The need to introduce the term *gender* arose with the realization that for individuals with conflicting or ambiguous biological indicators of sex (i.e., "intersex"), the lived role in society and/or the identification as male or female could not be uniformly associated with or predicted from the biological indicators and, later, that some individuals develop an identity as female or male at variance with their uniform set of classical biological indicators. Thus, *gender* is used to denote the public (and usually legally recognized) lived role as boy or girl, man or woman, but, in contrast to certain social constructionist theories, biological factors are seen as contributing, in interaction with social and psychological factors, to gender development. *Gender assignment* refers to the initial assignment as male or female. This occurs usually at birth and, thereby, yields the "natal gender." *Gender-atypical* refers to somatic features or behaviors that are not typical (in a statistical sense) of individuals with the same assigned gender in a given society and historical era; for behavior, *gender-nonconforming* is an alternative descriptive term. *Gender reassignment* denotes an official (and usually legal) change of gender. *Gender identity* is a category of social identity and refers to an individual's identification as male, female, or, occasionally, some category other than male or female. *Gender dysphoria* as a general descriptive term refers to an individual's affective/cognitive discontent with the assigned gender but is more specifically defined when used as a diagnostic category. *Transgender* refers to the broad spectrum of individuals who transiently or persistently identify with a gender different from their natal gender. *Transsexual* denotes an individual who seeks, or has undergone, a social transition from male to female or female to male, which in many, but not all, cases also involves a somatic transition by cross-sex hormone treatment and genital surgery (*sex reassignment surgery*).

Gender dysphoria refers to the distress that may accompany the incongruence between one's experienced or expressed gender and one's assigned gender. Although not all individuals will experience distress as a result of such incongruence, many are distressed if the desired physical interventions by means of hormones and/or surgery are not available. The current term is more descriptive than the previous DSM-IV term *gender identity disorder* and focuses on dysphoria as the clinical problem, not identity per se.

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Gender Dysphoria

Diagnostic Criteria

Gender Dysphoria in Children 302.6 (F64.2)

A. A marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months' duration, as manifested by at least six of the following (one of which must be Criterion A1):

1. A strong desire to be of the other gender or an insistence that one is the other gender (or some alternative gender different from one's assigned gender).
2. In boys (assigned gender), a strong preference for cross-dressing or simulating female attire; or in girls (assigned gender), a strong preference for wearing only typical masculine clothing and a strong resistance to the wearing of typical feminine clothing.
3. A strong preference for cross-gender roles in make-believe play or fantasy play.
4. A strong preference for the toys, games, or activities stereotypically used or engaged in by the other gender.
5. A strong preference for playmates of the other gender.
6. In boys (assigned gender), a strong rejection of typically masculine toys, games, and activities and a strong avoidance of rough-and-tumble play; or in girls (assigned gender), a strong rejection of typically feminine toys, games, and activities.
7. A strong dislike of one's sexual anatomy.
8. A strong desire for the primary and/or secondary sex characteristics that match one's experienced gender.

B. The condition is associated with clinically significant distress or impairment in social, school, or other important areas of functioning.

Specify if:

With a disorder of sex development (e.g., a congenital adrenogenital disorder such as 255.2 [E25.0] congenital adrenal hyperplasia or 259.50 [E34.50] androgen insensitivity syndrome).

Coding note: Code the disorder of sex development as well as gender dysphoria.

Gender Dysphoria in Adolescents and Adults 302.85 (F64.1)

A. A marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months' duration, as manifested by at least two of the following:

1. A marked incongruence between one's experienced/expressed gender and primary and/or secondary sex characteristics (or in young adolescents, the anticipated secondary sex characteristics).
2. A strong desire to be rid of one's primary and/or secondary sex characteristics because of a marked incongruence with one's experienced/expressed gender (or in young adolescents, a desire to prevent the development of the anticipated secondary sex characteristics).
3. A strong desire for the primary and/or secondary sex characteristics of the other gender.
4. A strong desire to be of the other gender (or some alternative gender different from one's assigned gender).
5. A strong desire to be treated as the other gender (or some alternative gender different from one's assigned gender).
6. A strong conviction that one has the typical feelings and reactions of the other gender (or some alternative gender different from one's assigned gender).

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B. The condition is associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

With a disorder of sex development (e.g., a congenital adrenogenital disorder such as 255.2 [E25.0] congenital adrenal hyperplasia or 259.50 [E34.50] androgen insensitivity syndrome).

Coding note: Code the disorder of sex development as well as gender dysphoria.

Specify if:

Posttransition: The individual has transitioned to full-time living in the desired gender (with or without legalization of gender change) and has undergone (or is preparing to have) at least one cross-sex medical procedure or treatment regimen—namely, regular cross-sex hormone treatment or gender reassignment surgery confirming the desired gender (e.g., penectomy, vaginoplasty in a natal male; mastectomy or phalloplasty in a natal female).

Specifiers

The posttransition specifier may be used in the context of continuing treatment procedures that serve to support the new gender assignment.

Diagnostic Features

Individuals with gender dysphoria have a marked incongruence between the gender they have been assigned to (usually at birth, referred to as *natal gender*) and their experienced/expressed gender. This discrepancy is the core component of the diagnosis. There must also be evidence of distress about this incongruence. Experienced gender may include alternative gender identities beyond binary stereotypes. Consequently, the distress is not limited to a desire to simply be of the other gender, but may include a desire to be of an alternative gender, provided that it differs from the individual's assigned gender.

Gender dysphoria manifests itself differently in different age groups. Prepubertal natal girls with gender dysphoria may express the wish to be a boy, assert they are a boy, or assert they will grow up to be a man. They prefer boys' clothing and hairstyles, are often perceived by strangers as boys, and may ask to be called by a boy's name. Usually, they display intense negative reactions to parental attempts to have them wear dresses or other feminine attire. Some may refuse to attend school or social events where such clothes are required. These girls may demonstrate marked cross-gender identification in role-playing, dreams, and fantasies. Contact sports, rough-and-tumble play, traditional boyhood games, and boys as playmates are most often preferred. They show little interest in stereotypically feminine toys (e.g., dolls) or activities (e.g., feminine dress-up or role-play). Occasionally, they refuse to urinate in a sitting position. Some natal girls may express a desire to have a penis or claim to have a penis or that they will grow one when older. They may also state that they do not want to develop breasts or menstruate.

Prepubertal natal boys with gender dysphoria may express the wish to be a girl or assert they are a girl or that they will grow up to be a woman. They have a preference for dressing in girls' or women's clothes or may improvise clothing from available materials (e.g., using towels, aprons, and scarves for long hair or skirts). These children may role-play female figures (e.g., playing "mother") and often are intensely interested in female fantasy figures. Traditional feminine activities, stereotypical games, and pastimes (e.g., "playing house"; drawing feminine pictures; watching television or videos of favorite female characters) are most often preferred. Stereotypical female-type dolls (e.g., Barbie) are often favorite toys, and girls are their preferred playmates. They avoid rough-and-tumble play and competitive sports and have little interest in stereotypically masculine toys (e.g., cars, trucks). Some may pretend not to have a penis and insist on sitting to urinate. More

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rarely, they may state that they find their penis or testes disgusting, that they wish them removed, or that they have, or wish to have, a vagina.

In young adolescents with gender dysphoria, clinical features may resemble those of children or adults with the condition, depending on developmental level. As secondary sex characteristics of young adolescents are not yet fully developed, these individuals may not state dislike of them, but they are concerned about imminent physical changes.

In adults with gender dysphoria, the discrepancy between experienced gender and physical sex characteristics is often, but not always, accompanied by a desire to be rid of primary and/or secondary sex characteristics and/or a strong desire to acquire some primary and/or secondary sex characteristics of the other gender. To varying degrees, adults with gender dysphoria may adopt the behavior, clothing, and mannerisms of the experienced gender. They feel uncomfortable being regarded by others, or functioning in society, as members of their assigned gender. Some adults may have a strong desire to be of a different gender and treated as such, and they may have an inner certainty to feel and respond as the experienced gender without seeking medical treatment to alter body characteristics. They may find other ways to resolve the incongruence between experienced/expressed and assigned gender by partially living in the desired role or by adopting a gender role neither conventionally male nor conventionally female.

Associated Features Supporting Diagnosis

When visible signs of puberty develop, natal boys may shave their legs at the first signs of hair growth. They sometimes bind their genitals to make erections less visible. Girls may bind their breasts, walk with a stoop, or use loose sweaters to make breasts less visible. Increasingly, adolescents request, or may obtain without medical prescription and supervision, hormonal suppressors ("blockers") of gonadal steroids (e.g., gonadotropin-releasing hormone [GnRH] analog, spironolactone). Clinically referred adolescents often want hormone treatment and many also wish for gender reassignment surgery. Adolescents living in an accepting environment may openly express the desire to be and be treated as the experienced gender and dress partly or completely as the experienced gender, have a hairstyle typical of the experienced gender, preferentially seek friendships with peers of the other gender, and/or adopt a new first name consistent with the experienced gender. Older adolescents, when sexually active, usually do not show or allow partners to touch their sexual organs. For adults with an aversion toward their genitals, sexual activity is constrained by the preference that their genitals not be seen or touched by their partners. Some adults may seek hormone treatment (sometimes without medical prescription and supervision) and gender reassignment surgery. Others are satisfied with either hormone treatment or surgery alone.

Adolescents and adults with gender dysphoria before gender reassignment are at increased risk for suicidal ideation, suicide attempts, and suicides. After gender reassignment, adjustment may vary, and suicide risk may persist.

Prevalence

For natal adult males, prevalence ranges from 0.005% to 0.014%, and for natal females, from 0.002% to 0.003%. Since not all adults seeking hormone treatment and surgical reassignment attend specialty clinics, these rates are likely modest underestimates. Sex differences in rate of referrals to specialty clinics vary by age group. In children, sex ratios of natal boys to girls range from 2:1 to 4.5:1. In adolescents, the sex ratio is close to parity; in adults, the sex ratio favors natal males, with ratios ranging from 1:1 to 6.1:1. In two countries, the sex ratio appears to favor natal females (Japan: 2.2:1; Poland: 3.4:1).

Development and Course

Because expression of gender dysphoria varies with age, there are separate criteria sets for children versus adolescents and adults. Criteria for children are defined in a more con-

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crete, behavioral manner than those for adolescents and adults. Many of the core criteria draw on well-documented behavioral gender differences between typically developing boys and girls. Young children are less likely than older children, adolescents, and adults to express extreme and persistent anatomic dysphoria. In adolescents and adults, incongruence between experienced gender and somatic sex is a central feature of the diagnosis. Factors related to distress and impairment also vary with age. A very young child may show signs of distress (e.g., intense crying) only when parents tell the child that he or she is "really" not a member of the other gender but only "desires" to be. Distress may not be manifest in social environments supportive of the child's desire to live in the role of the other gender and may emerge only if the desire is interfered with. In adolescents and adults, distress may manifest because of strong incongruence between experienced gender and somatic sex. Such distress may, however, be mitigated by supportive environments and knowledge that biomedical treatments exist to reduce incongruence. Impairment (e.g., school refusal, development of depression, anxiety, and substance abuse) may be a consequence of gender dysphoria.

Gender dysphoria without a disorder of sex development. For clinic-referred children, onset of cross-gender behaviors is usually between ages 2 and 4 years. This corresponds to the developmental time period in which most typically developing children begin expressing gendered behaviors and interests. For some preschool-age children, both pervasive cross-gender behaviors and the expressed desire to be the other gender may be present, or, more rarely, labeling oneself as a member of the other gender may occur. In some cases, the expressed desire to be the other gender appears later, usually at entry into elementary school. A small minority of children express discomfort with their sexual anatomy or will state the desire to have a sexual anatomy corresponding to the experienced gender ("anatomic dysphoria"). Expressions of anatomic dysphoria become more common as children with gender dysphoria approach and anticipate puberty.

Rates of persistence of gender dysphoria from childhood into adolescence or adulthood vary. In natal males, persistence has ranged from 2.2% to 30%. In natal females, persistence has ranged from 12% to 50%. Persistence of gender dysphoria is modestly correlated with dimensional measures of severity ascertained at the time of a childhood baseline assessment. In one sample of natal males, lower socioeconomic background was also modestly correlated with persistence. It is unclear if particular therapeutic approaches to gender dysphoria in children are related to rates of long-term persistence. Extant follow-up samples consisted of children receiving no formal therapeutic intervention or receiving therapeutic interventions of various types, ranging from active efforts to reduce gender dysphoria to a more neutral, "watchful waiting" approach. It is unclear if children "encouraged" or supported to live socially in the desired gender will show higher rates of persistence, since such children have not yet been followed longitudinally in a systematic manner. For both natal male and female children showing persistence, almost all are sexually attracted to individuals of their natal sex. For natal male children whose gender dysphoria does not persist, the majority are *androphilic* (sexually attracted to males) and often self-identify as gay or homosexual (ranging from 63% to 100%). In natal female children whose gender dysphoria does not persist, the percentage who are *gynephilic* (sexually attracted to females) and self-identify as lesbian is lower (ranging from 32% to 50%).

In both adolescent and adult natal males, there are two broad trajectories for development of gender dysphoria: early onset and late onset. *Early-onset gender dysphoria* starts in childhood and continues into adolescence and adulthood; or, there is an intermittent period in which the gender dysphoria desists and these individuals self-identify as gay or homosexual, followed by recurrence of gender dysphoria. *Late-onset gender dysphoria* occurs around puberty or much later in life. Some of these individuals report having had a desire to be of the other gender in childhood that was not expressed verbally to others. Others do not recall any signs of childhood gender dysphoria. For adolescent males with late-onset gender dysphoria, parents often report surprise because they did not see signs of gender

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dysphoria during childhood. Expressions of anatomic dysphoria are more common and salient in adolescents and adults once secondary sex characteristics have developed.

Adolescent and adult natal males with early-onset gender dysphoria are almost always sexually attracted to men (androphilic). Adolescents and adults with late-onset gender dysphoria frequently engage in transvestic behavior with sexual excitement. The majority of these individuals are gynephilic or sexually attracted to other posttransition natal males with late-onset gender dysphoria. A substantial percentage of adult males with late-onset gender dysphoria cohabit with or are married to natal females. After gender transition, many self-identify as lesbian. Among adult natal males with gender dysphoria, the early-onset group seeks out clinical care for hormone treatment and reassignment surgery at an earlier age than does the late-onset group. The late-onset group may have more fluctuations in the degree of gender dysphoria and be more ambivalent about and less likely satisfied after gender reassignment surgery.

In both adolescent and adult natal females, the most common course is the early-onset form of gender dysphoria. The late-onset form is much less common in natal females compared with natal males. As in natal males with gender dysphoria, there may have been a period in which the gender dysphoria desisted and these individuals self-identified as lesbian; however, with recurrence of gender dysphoria, clinical consultation is sought, often with the desire for hormone treatment and reassignment surgery. Parents of natal adolescent females with the late-onset form also report surprise, as no signs of childhood gender dysphoria were evident. Expressions of anatomic dysphoria are much more common and salient in adolescents and adults than in children.

Adolescent and adult natal females with early-onset gender dysphoria are almost always gynephilic. Adolescents and adults with the late-onset form of gender dysphoria are usually androphilic and after gender transition self-identify as gay men. Natal females with the late-onset form do not have co-occurring transvestic behavior with sexual excitement.

Gender dysphoria in association with a disorder of sex development. Most individuals with a disorder of sex development who develop gender dysphoria have already come to medical attention at an early age. For many, starting at birth, issues of gender assignment were raised by physicians and parents. Moreover, as infertility is quite common for this group, physicians are more willing to perform cross-sex hormone treatments and genital surgery before adulthood.

Disorders of sex development in general are frequently associated with gender-atypical behavior starting in early childhood. However, in the majority of cases, this does not lead to gender dysphoria. As individuals with a disorder of sex development become aware of their medical history and condition, many experience uncertainty about their gender, as opposed to developing a firm conviction that they are another gender. However, most do not progress to gender transition. Gender dysphoria and gender transition may vary considerably as a function of a disorder of sex development, its severity, and assigned gender.

Risk and Prognostic Factors

Temperamental. For individuals with gender dysphoria without a disorder of sex development, atypical gender behavior among individuals with early-onset gender dysphoria develops in early preschool age, and it is possible that a high degree of atypicality makes the development of gender dysphoria and its persistence into adolescence and adulthood more likely.

Environmental. Among individuals with gender dysphoria without a disorder of sex development, males with gender dysphoria (in both childhood and adolescence) more commonly have older brothers than do males without the condition. Additional predisposing

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factors under consideration, especially in individuals with late-onset gender dysphoria (adolescence, adulthood), include habitual fetishistic transvestism developing into autogynephilia (i.e., sexual arousal associated with the thought or image of oneself as a woman) and other forms of more general social, psychological, or developmental problems.

Genetic and physiological. For individuals with gender dysphoria without a disorder of sex development, some genetic contribution is suggested by evidence for (weak) familiality of transsexualism among nontwin siblings, increased concordance for transsexualism in monozygotic compared with dizygotic same-sex twins, and some degree of heritability of gender dysphoria. As to endocrine findings, no endogenous systemic abnormalities in sex-hormone levels have been found in 46,XY individuals, whereas there appear to be increased androgen levels (in the range found in hirsute women but far below normal male levels) in 46,XX individuals. Overall, current evidence is insufficient to label gender dysphoria without a disorder of sex development as a form of intersexuality limited to the central nervous system.

In gender dysphoria associated with a disorder of sex development, the likelihood of later gender dysphoria is increased if prenatal production and utilization (via receptor sensitivity) of androgens are grossly atypical relative to what is usually seen in individuals with the same assigned gender. Examples include 46,XY individuals with a history of normal male prenatal hormone milieu but inborn nonhormonal genital defects (as in cloacal bladder exstrophy or penile agenesis) and who have been assigned to the female gender. The likelihood of gender dysphoria is further enhanced by additional, prolonged, highly gender-atypical postnatal androgen exposure with somatic virilization as may occur in female-raised and noncastrated 46,XY individuals with 5-alpha reductase-2 deficiency or 17-beta-hydroxysteroid dehydrogenase-3 deficiency or in female-raised 46,XX individuals with classical congenital adrenal hyperplasia with prolonged periods of non-adherence to glucocorticoid replacement therapy. However, the prenatal androgen milieu is more closely related to gendered behavior than to gender identity. Many individuals with disorders of sex development and markedly gender-atypical behavior do not develop gender dysphoria. Thus, gender-atypical behavior by itself should not be interpreted as an indicator of current or future gender dysphoria. There appears to be a higher rate of gender dysphoria and patient-initiated gender change from assigned female to male than from assigned male to female in 46,XY individuals with a disorder of sex development.

Culture-Related Diagnostic Issues

Individuals with gender dysphoria have been reported across many countries and cultures. The equivalent of gender dysphoria has also been reported in individuals living in cultures with institutionalized gender categories other than male or female. It is unclear whether with these individuals the diagnostic criteria for gender dysphoria would be met.

Diagnostic Markers

Individuals with a somatic disorder of sex development show some correlation of final gender identity outcome with the degree of prenatal androgen production and utilization. However, the correlation is not robust enough for the biological factor, where ascertainable, to replace a detailed and comprehensive diagnostic interview evaluation for gender dysphoria.

Functional Consequences of Gender Dysphoria

Preoccupation with cross-gender wishes may develop at all ages after the first 2–3 years of childhood and often interfere with daily activities. In older children, failure to develop age-typical same-sex peer relationships and skills may lead to isolation from peer groups and to distress. Some children may refuse to attend school because of teasing and harass-

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ment or pressure to dress in attire associated with their assigned sex. Also in adolescents and adults, preoccupation with cross-gender wishes often interferes with daily activities. Relationship difficulties, including sexual relationship problems, are common, and functioning at school or at work may be impaired. Gender dysphoria, along with atypical gender expression, is associated with high levels of stigmatization, discrimination, and victimization, leading to negative self-concept, increased rates of mental disorder comorbidity, school dropout, and economic marginalization, including unemployment, with attendant social and mental health risks, especially in individuals from resource-poor family backgrounds. In addition, these individuals' access to health services and mental health services may be impeded by structural barriers, such as institutional discomfort or inexperience in working with this patient population.

Differential Diagnosis

Nonconformity to gender roles. Gender dysphoria should be distinguished from simple nonconformity to stereotypical gender role behavior by the strong desire to be of another gender than the assigned one and by the extent and pervasiveness of gender-variant activities and interests. The diagnosis is not meant to merely describe nonconformity to stereotypical gender role behavior (e.g., "tomboyism" in girls, "girly-boy" behavior in boys, occasional cross-dressing in adult men). Given the increased openness of atypical gender expressions by individuals across the entire range of the transgender spectrum, it is important that the clinical diagnosis be limited to those individuals whose distress and impairment meet the specified criteria.

Transvestic disorder. Transvestic disorder occurs in heterosexual (or bisexual) adolescent and adult males (rarely in females) for whom cross-dressing behavior generates sexual excitement and causes distress and/or impairment without drawing their primary gender into question. It is occasionally accompanied by gender dysphoria. An individual with transvestic disorder who also has clinically significant gender dysphoria can be given both diagnoses. In many cases of late-onset gender dysphoria in gynephilic natal males, transvestic behavior with sexual excitement is a precursor.

Body dysmorphic disorder. An individual with body dysmorphic disorder focuses on the alteration or removal of a specific body part because it is perceived as abnormally formed, not because it represents a repudiated assigned gender. When an individual's presentation meets criteria for both gender dysphoria and body dysmorphic disorder, both diagnoses can be given. Individuals wishing to have a healthy limb amputated (termed by some *body integrity identity disorder*) because it makes them feel more "complete" usually do not wish to change gender, but rather desire to live as an amputee or a disabled person.

Schizophrenia and other psychotic disorders. In schizophrenia, there may rarely be delusions of belonging to some other gender. In the absence of psychotic symptoms, insistence by an individual with gender dysphoria that he or she is of some other gender is not considered a delusion. Schizophrenia (or other psychotic disorders) and gender dysphoria may co-occur.

Other clinical presentations. Some individuals with an emasculinization desire who develop an alternative, nonmale/nonfemale gender identity do have a presentation that meets criteria for gender dysphoria. However, some males seek castration and/or penectomy for aesthetic reasons or to remove psychological effects of androgens without changing male identity; in these cases, the criteria for gender dysphoria are not met.

Comorbidity

Clinically referred children with gender dysphoria show elevated levels of emotional and behavioral problems—most commonly, anxiety, disruptive and impulse-control, and de-

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pressive disorders. In prepubertal children, increasing age is associated with having more behavioral or emotional problems; this is related to the increasing non-acceptance of gender-variant behavior by others. In older children, gender-variant behavior often leads to peer ostracism, which may lead to more behavioral problems. The prevalence of mental health problems differs among cultures; these differences may also be related to differences in attitudes toward gender variance in children. However, also in some non-Western cultures, anxiety has been found to be relatively common in individuals with gender dysphoria, even in cultures with accepting attitudes toward gender-variant behavior. Autism spectrum disorder is more prevalent in clinically referred children with gender dysphoria than in the general population. Clinically referred adolescents with gender dysphoria appear to have comorbid mental disorders, with anxiety and depressive disorders being the most common. As in children, autism spectrum disorder is more prevalent in clinically referred adolescents with gender dysphoria than in the general population. Clinically referred adults with gender dysphoria may have coexisting mental health problems, most commonly anxiety and depressive disorders.

Other Specified Gender Dysphoria

302.6 (F64.8)

This category applies to presentations in which symptoms characteristic of gender dysphoria that cause clinically significant distress or impairment in social, occupational, or other important areas of functioning predominate but do not meet the full criteria for gender dysphoria. The other specified gender dysphoria category is used in situations in which the clinician chooses to communicate the specific reason that the presentation does not meet the criteria for gender dysphoria. This is done by recording "other specified gender dysphoria" followed by the specific reason (e.g., "brief gender dysphoria").

An example of a presentation that can be specified using the "other specified" designation is the following:

The current disturbance meets symptom criteria for gender dysphoria, but the duration is iess than 6 months.

Unspecified Gender Dysphoria

302.6 (F64.9)

This category applies to presentations in which symptoms characteristic of gender dysphoria that cause clinically significant distress or impairment in social, occupational, or other important areas of functioning predominate but do not meet the full criteria for gender dysphoria. The unspecified gender dysphoria category is used in situations in which the clinician chooses *not* to specify the reason that the criteria are not met for gender dysphoria, and includes presentations in which there is insufficient information to make a more specific diagnosis.

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EXHIBIT 34

‹ PRESS RELEASES

ICYMI: As Lawmakers Escalate Attacks on Transgender Youth Across the Country, Some GOP Leaders Stand Up for Transgender Youth

by **Henry Berg-Brousseau** • March 24, 2022

SHARE

Two Republican governors vetoed anti-transgender legislation this week, breaking ranks with their GOP colleagues

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WASHINGTON– This week, Indiana Gov. Eric Holcomb, Utah Gov. Spencer Cox, and Former Speaker of the Texas House Joe Straus – all Republicans – each chose to stand on the right side of history by speaking out against the coordinated legislative attacks on the LGBTQ+ community – especially transgender youth – underway in their states and nationwide.

With more than 300 anti-LGBTQ+ bills introduced this year, more than 130 of which specifically target transgender people, the voices of lawmakers who are willing to push back against this wave of bills – whether they are Democratic or Republican – are more important than ever before.

Hear what these Republican leaders, including two sitting Governors, had to say in response to anti-transgender legislation:

Gov. Spencer Cox, *Utah (R):*

"**We love you. We care deeply about you.** We need you to be okay and we want to help you in any way possible." (Source)

“Anyone that’s interacted with the transgender community understands how amazing they are and how difficult it can be for them. **I don’t want to make things harder for them than they have to be**.” (Source)

“All this bill does is invite a lawsuit. **As conservatives, it doesn't make any sense for us to just buy a lawsuit.**” (Source)

“**These kids are ... they’re just trying to stay alive**. [...] **When you spend time with these kids, it changes your heart in important ways**, and so I want to try to improve that message and see if we can’t find a better way to work together.” (Source)

Gov. Eric Holcomb, *Indiana (R):*

"**The presumption of the policy laid out in HEA 1041 is that there is an existing problem in K-12 sports in Indiana that requires further state government intervention.** It implies that the goals of consistency and fairness in competitive female sports are not currently being met. **After a thorough review, I find no evidence to support either claim even if I support the overall goal.**" (Source)

"[O]f the several states that have passed similar legislation, lawsuits have been filed or have threatened to be filed. **In the two cases with initial rulings thus far, the courts have enjoined or prohibited laws with these same substantive provisions from taking effect based on equal protection grounds.**" (Source)

Joe Straus, *Former Speaker of the Texas House (R):*

"There's no other way to describe it. It is a fixation. In my view, it's going after a very vulnerable population, a population of people who have a much higher risk of suicidal thoughts, if not action. **I thought it was mean-spirited, I thought all of these (bills) are examples of legislatures trying to pass laws to address problems that don't exist.**" (Source)

BACKGROUND:

We are facing the worst attack on LGBTQ+ dignity and humanity that we have seen in decades:

This year, anti-equality legislators have launched an unprecedented legislative assault on LGBTQ+ people in state legislatures across the country– surpassing 2021 as the worst year on record for introducing and enacting anti-LGBTQ+ legislation in statehouses across the country.

In 2021, More than 290 anti-LGBTQ+ bills were introduced across 33 states in 2021, including more than 140 specifically anti-transgender bills. Each of these marks set a new record for anti-equality legislation being introduced and enacted in a single state legislative session since the Human Rights Campaign began tracking legislation.

In 2021, the worst year on record for anti-LGBTQ+ legislation, 25 bills were enacted, 13 of which targeted transgender youth despite legislators failing to provide examples of what exactly they were legislating against.

2022 has seen even more bills introduced. HRC is tracking 583+ pieces of potentially LGBTQ+-related legislation introduced in the 2022 state legislative session. 313+ of these bills are harmful, and 137+ are anti-trans bills

These bills aren't popular and are not driven by constituent demand:

This unprecedented wave of discriminatory legislation is not organic – **these bills are part of a coordinated effort driven by well-funded, powerful interests and promoted by a tight network of anti-LGBTQ+ forces – including the Heritage Foundation, SPLC-designated hate group Alliance Defending Freedom, and Focus on the Family – who often write and lobby for passage of carbon copy bills in as many states as possible.** These groups peddle in fear and pit people against each other to marginalize and punish LGBTQ+ people — and especially transgender children.

The reality is, support for LGBTQ+ rights has grown exponentially. **Polling shows that LGBTQ+ rights are broadly supported – and continue to tick upwards – in contrast to the onslaught of anti-LGBTQ+ legislation moving in states across the country.**

This wave of dangerous proposals exacts a heartbreaking toll on LGBTQ+ people– especially trans youth:

These bills highlight the discrimination, marginalization, and pain that LGBTQ+ people – especially young people, trans youth, and their families – continue to face. Too often, it's transgender young people who are caught in the crosshairs of anti-LGBTQ+ equality legislator's divisive political strategy. 2020 set a record number for anti-transgender bills filed with 79 bills; 2021 surpassed that record with 147 such bills, and now 2022 is now on track to break the record yet again. **For transgender youth – who are simply trying to navigate their adolescence – to bear the weight of these attacks year after year, these bills take a toll.**

Politicians working to discriminate against LGBTQ+ people will be responsible for very real harm. According to recent surveys, **higher numbers of LGBTQ+ people experience depressive symptoms in states considering discriminatory bills** while **a startling 85% of transgender or gender non-binary youth say their mental health had been negatively affected by these legislative attacks.**

For LGBTQ+ young people, anti-LGBTQ+ laws indicate that they are unworthy of respect, decency, and visibility with heartbreaking results: just listen to 11-year-old Libby Gonzales describing how it feels to be subjected to repeated attacks by her state legislature, or 14-year-old Rebekah about how much being able to play sports means to her, and 11–year-old Maya who details how she is able to be the person she's always been because of life-saving gender-affirming medical care.

Unfortunately, the discrimination peddled by anti-equality legislators can be deadly. According to data from the Trevor Project, 42% of LGBTQ+ youth nationwide seriously considered attempting suicide in the past year, including more than half of transgender and nonbinary youth. **Discrimination can also instigate intolerance and signal permission to single out LGBTQ+ individuals – which has had deadly consequences for transgender people.** 2021 and 2020 were the deadliest and second deadliest years on record for trans & gender non-conforming people respectively, with the Human Rights Campaign tracking at least 50 violent deaths in 2021 alone.

Discrimination is bad policy and bad for businesses:

The nation's leading child health and welfare groups representing more than 7 million youth-serving professionals and more than 1,000 child welfare organizations released an open letter calling for lawmakers in states across the country to oppose dozens of bills that target LGBTQ+ people, and transgender children in particular.

More than 180 major U.S. corporations have stood up and spoken out to oppose discriminatory legislation being proposed in states across the country. Companies like Amazon, American Airlines, Apple, Airbnb, Dell, Dow, Google, IBM, Lyft, Marriott, Microsoft, Nike and Paypal have objected to anti-LGBTQ+ state legislation. Four of the largest U.S. food companies also condemned "dangerous, discriminatory legislation that serves as an attack on LGBTQ+ individuals, particularly transgender and nonbinary people," and the Walton Family Foundation issued a statement expressing "alarm" at the trend of anti-transgender legislation that recently became law in Arkansas.

The Human Rights Campaign is America's largest civil rights organization working to achieve equality for lesbian, gay, bisexual, transgender and queer people. HRC envisions a world where LGBTQ+ people are embraced as full members of society at home, at work and in every community.

Contact Us

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