21-1365

IN THE UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

SELINA SOULE, a minor, by Bianca Stanescu, her mother; CHELSEA MITCHELL, a minor, by Christina Mitchell, her mother; ALANNA SMITH, a minor, by Cheryl Radachowsky, her mother; ASHLEY NICOLETTI, a minor, by Jennifer Nicoletti, her mother,

Plaintiffs-Appellants,

v.

CONNECTICUT ASSOCIATION OF SCHOOLS, INC. d/b/a CONNECTICUT INTERSCHOLASTIC ATHLETIC CONFERENCE; BLOOMFIELD PUBLIC SCHOOLS BOARD OF EDUCATION; CROMWELL PUBLIC SCHOOLS BOARD OF EDUCATION; GLASTONBURY PUBLIC SCHOOLS BOARD OF EDUCATION; CANTON PUBLIC SCHOOLS BOARD OF EDUCATION; DANBURY PUBLIC SCHOOLS BOARD OF EDUCATION,

Defendants-Appellees,

and

ANDRAYA YEARWOOD; THANIA EDWARDS on behalf of her daughter, T.M.; CONNECTICUT COMMISSION ON HUMAN RIGHTS,

Intervenors-Appellees.

On Appeal from the United States District Court for the District of Connecticut, Case No. 3:20-cv-00201 (RNC)

REPLY BRIEF OF APPELLANTS

ROGER G. BROOKS
ALLIANCE DEFENDING FREEDOM
15100 N. 90th Street
Scottsdale, AZ 85260
(480) 444-0020
rbrooks@ADFlegal.org

JOHN J. BURSCH
CHRISTIANA M. HOLCOMB
ALLIANCE DEFENDING FREEDOM
440 First Street NW, Ste. 600
Washington, DC 20001
(202) 393-8690
jbursch@ADFlegal.org
cholcomb@ADFlegal.org

CODY S. BARNETT
ALLIANCE DEFENDING FREEDOM
44180 Riverside Parkway
Lansdowne, VA 20176
(571) 707-4655
cbarnett@ADFlegal.org

Counsel for Appellants

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases

Other Authorities

INTRODUCTION

Sports cannot exist without rules that ensure fair play. Fair play gives athletes comparable opportunities to compete successfully against each other. Yet the Connecticut Interscholastic Athletic Conference enacted a policy that goes against the fundamentals of fair play. It allows biological men who identify as female to compete in women's events—even though "scientists agree that males and females are materially different with respect to the main physical attributes that contribute to athletic performance." Doriane Lambelet Coleman, Michael J. Joyner & Donna Lopiano, *Re-Affirming the Value of the Sports Exception to Title IX's General Non-Discrimination Rule*, 27 DUKE J. OF GENDER L. & POL'Y 69, 92 (2020) (cleaned up). Under this Policy, "even the very best females are not competitive for the win against males." *Id.* at 115; *accord* JA34.

In their opening brief, Plaintiffs Selina Soule, Chelsea Mitchell, Alanna Smith, and Ashley Nicoletti demonstrated how this Policy harmed and continues to harm them. Not only does it erect an ongoing barrier to fair play, but it also disproportionately affects their "chance to be champions" as female athletes in comparison with boys' chances. *McCormick ex rel. McCormick v. Sch. Dist. of Mamaroneck*, 370 F.3d 275, 295 (2d Cir. 2004). Each Plaintiff lost athletic opportunities or public recognition as champions in specific events—identified in their complaint—because the Policy authorized biological males to compete

against them. School records now enshrine those victories as historical and legitimate fact. Plaintiffs have a "live controvers[y]" against CIAC's discriminatory Policy and an active interest in the correction of those records to reflect their actual achievements. *Altman v. Bedford Cent. Sch. Dist.*, 245 F.3d 49, 70 (2d Cir. 2001).

CIAC and Intervenors also cannot erase the multiple actions and statements of the district judge that create at least an impression of partiality. The district judge sat on Plaintiffs' motion for a preliminary injunction for over a year without even requiring the Defendants to file an opposing brief. But when Intervenors moved to enter the case, the district judge acted expeditiously to admit them. Along the way, and before hearing the expert evidence, he denounced counsel's straight-forward articulation of the Plaintiffs' theory of the case—that males must not be permitted to compete in female athletics because of the strong physiological differences between the sexes—as not "consistent with science," as "bullying," and as contrary to "human decency." JA107. And then, while dismissing Plaintiffs' claims, the judge asserted that correcting records would be meaningless because observers "would learn that [Plaintiffs] did not *actually* finish first." JA277 (emphasis added). In saying that, he prejudged the very heart of Plaintiffs' claim on the merits before hearing the evidence, rather than accepting Plaintiffs' allegations as true. Against this record, no reasonable

observer can have confidence that Plaintiffs will receive fair and impartial adjudication of their claims on remand.

This Court should reverse the district court's dismissal, remand for further proceedings, and assign this case to a different district judge.

ARGUMENT

I. Plaintiffs' right to have Defendants' records corrected to accurately reflect Plaintiffs' achievements and championships cannot be mooted.

Like all athletes, Plaintiffs compete to win. They have worked across years to "shave mere fractions of seconds off" their run times, "train[ing] harder than ever," "never miss[ing] a practice," "squeez[ing] in extra workouts where [they] could."[1] JA72. And they did win, too—clocking in ahead of other biological females in multiple specific races and championships identified in the complaint. Yet because of the discriminatory Policy, public league and school records currently award those victories to biological males. Plaintiffs have an interest in correcting those records. Pls.' Br. 15–26.

If a high-school athlete were denied recognition in the record-books as a champion because race officials allowed a 25-year-old professional athlete to compete, contrary to federal law, any contention

[1] Even Intervenors recognize the inherent value in a fair "opportunity to achieve." Intervenor Br. 11. In their brief, Intervenors stress how they trained and "work[ed] hard to succeed on the track." *Id.*

that that athlete had no standing after graduation to pursue correction of those records would be rejected out of hand. The same must be true here. The cases are indistinguishable. Defendants attempt to obscure this large truth in a fog of technical arguments, but cannot.

Neither CIAC nor Intervenors dispute that athletes, and society at large, set great value on achieving and being recognized for *victory*—for being the very best. The saying, "That's one for the record books!" reflects the fact that records matter and are long remembered. Gold and silver Olympic medals are both treasured for life, but they are not fungible. The team that loses the Super Bowl loses. Indeed, with few exceptions, athletic contests are specifically structured to result in one clear winner, to motivate athletes to give their utmost to be that winner, and to give honor and recognition to those who do win.[2]

Defendants' attempt to belittle accurate recognition of victories as inconsequential or perhaps even egotistical ignores the real world and the law. Title IX promised Plaintiffs and all those born female an equal opportunity at "the chance to be champions," something "fundamental

[2] Intervenors argue that the records are accurate because they merely record victories "according to the rules of the game." Intervenor Br. 54. But the gravamen of Plaintiffs' claim is that CIAC's "rules of the game" illegally violate Title IX's requirement that school athletics not discriminate based on sex, effectively erasing girls like Plaintiffs from the record books. Title IX, of course, long predates the CIAC policy. Thus, it is CIAC and Intervenors—not Plaintiffs—who have acted to "change the rules for races . . . to deprive other students of victories." *Id.*

to the experience of sports." *McCormick*, 370 F.3d at 295. To athletes, "[t]he greater the potential victory, the greater the motivation." *Id.* at 294. And "[t]he proposition that females don't need to be competitive for the win is no longer viable." *Re-Affirming the Value of the Sports Exception*, 27 DUKE J. OF GENDER L. & POL'Y at 119. If Plaintiffs' substantive claims are correct—a question never yet decided by any court—then they are entitled to have records in the control of Defendants corrected to reflect their actual achievements.

CIAC responds by citing inapposite decisions that rejected the circular argument that the prospect of "psychic satisfaction" from winning *a litigation* is itself a legal interest sufficient to confer standing for that litigation. CIAC Br. 38. No such circularity is presented here. None of these cases hold, hint, or imply that Plaintiffs do not have a legally enforceable interest in correcting records to accurately record victories which have been denied them because of an illegal, discriminatory Policy.

The district court tried a different tack to belittle the importance of a correction of the records, suggesting that a correction would provide no redress to Plaintiffs because those who saw the corrected records "inevitabl[y]" "would learn that [Plaintiffs] did not *actually* finish first." JA277 (emphasis added). But that prejudges the merits; Plaintiffs will prove at trial that biological males have a vast physiological advantage over females when it comes to athletic performance; each of the

Plaintiffs did "actually" finish first among the biological females they competed against.

If published "girls'" or "women's" records do not record for the world who the fastest biological *female* was, then those born female are indeed denied the "chance to be champions"—and to be recognized as champions. *McCormick*, 370 F.3d at 295. A discriminatory Policy that results in publicly proclaiming biological males as the victors in female athletic competitions deprives women of the equal opportunity that "is rightfully theirs." *Cohen v. Brown Univ.*, 101 F.3d 155, 167 (1st Cir. 1996) (cleaned up). This Court should not accept arguments that implicitly rest on an assumption that a "lesser value . . . may be placed on the success of girls in athletic competition." *Id.* Plaintiffs seek to vindicate the basic rights guaranteed them under Title IX. That is enough for standing.

In addition to Plaintiffs' legally sufficient right to an equal "chance to be champions"—and to be recognized as such—Plaintiffs also have a utilitarian interest in having public records corrected to accurately reflect their achievements. Plaintiffs Smith and Nicoletti still have the college admissions and recruiting process ahead of them. And all four Plaintiffs have a lifetime of potential employment opportunities.

All those whose responsibilities include interviewing and evaluating potential employees know that a record of a major athletic championship on a résumé attracts attention even for a "desk" job, for it

reveals something important about the candidate's drive, self-discipline, and determination. *See* Amicus Curiae Br. of 40 Business Executives. CIAC argues that employers and colleges consider such a "wide-range of information" that inaccurate athletic records will not be decisive to their decision-making. CIAC Br. 28. And they argue that future employers will take greater interest in Chelsea's and Selina's college performances than in their high-school records. But both arguments concede Plaintiffs' central point: colleges and employers *consider* athletic achievements, including high school achievements. As a result, Plaintiffs' claims to obtain corrected records cannot be mooted by the graduation of either the Intervenors or individual Plaintiffs.

CIAC and Intervenors complain that Plaintiffs do not identify *specific* future opportunities which will be lost to them if their athletic records are not corrected to reflect their true accomplishments. Of course not. Nor do they have any obligation to do so. Courts have repeatedly held that a reasonably foreseeable *general* threat to a student's future prospects posed by improper scholastic records is sufficient to preclude mootness despite the student's graduation. "When a [high school] student's record contains negative information derived from allegedly unconstitutional school regulations . . . that information may jeopardize the student's future employment or college career." *Flint v. Dennison*, 488 F.3d 816, 824 (9th Cir. 2007) (finding constitutional claims against school policy not moot despite graduation). No proof or

even allegation of any specific future lost opportunity was possible, or required, to maintain jurisdiction. On the same logic, the court in *Hatter v. Los Angeles City High School District* held that "so long as [disciplinary records based on unconstitutional school policies] remain unexpunged from school records they threaten prejudice with respect to college admission and future employment. On this basis we conclude that the District Court was in error in ruling that the controversy had been rendered moot." 452 F.2d 673, 674 (9th Cir. 1971).

What is true of *negative* information about a student included in school records because of an unconstitutional school policy must be equally true of *positive* information about a student *excluded* from a school's records as a result of an unconstitutional school policy. In both cases, future "prejudice with respect to college admission and future employment" is foreseeable, and sufficient to support standing to seek vindication of the underlying constitutional right and correction of the record. Plaintiffs have made appropriate general factual allegations of this type of harm. *See, e.g.,* JA175 (noting "loss of visibility to college recruiters").

Of course, Plaintiffs do not claim a "right" to scholarships or employment opportunities. *Contra* CIAC Br. 29 n.20. Nor do they predicate their claims on receiving an "equal number of trophies" as male athletes. *Contra* Intervenor Br. 42. What Plaintiffs do claim is the right to have the records of the Defendants accurately reflect the

achievements Plaintiffs legitimately earned on an equal playing field, for which they have been denied recognition solely because of an illegal Policy. Accurate records of athletic achievement have both inherent and utilitarian value. That is more than enough to give Plaintiffs standing to pursue their claim.

II. CIAC's discriminatory Policy actively harms female athletes like Alanna Smith and Ashley Nicoletti. Their claims against it are not moot.

Alanna Smith and Ashley Nicoletti sought injunctive relief against CIAC's discriminatory Policy. They argued that the Policy violated Title IX by failing to provide them with equal treatment and by failing to provide them with effective accommodations for their athletic interests and abilities. For support, Alanna and Ashley alleged, among other things, that the Policy harmed and will continue to harm them by erecting a discriminatory barrier that keeps them from competing on an equal footing. Pls.' Br. 26–42; *Pederson v. La. State Univ.*, 213 F.3d 858, 871 (5th Cir. 2011). And they pled concrete facts—facts that must be accepted as true and construed in their favor, *Liberian Cmty. Ass'n of Conn. v. Lamont*, 970 F.3d 174, 184 (2d Cir. 2020)—that showed how this barrier robs them of "genuine athletic participation opportunities." *Biediger v. Quinnipiac Univ.*, 691 F.3d 85, 101 (2d Cir. 2012).

For example, but for the Policy, Alanna would have finished runner-up (rather than third) in a State Open Championship race—a

remarkable feat for a freshman. JA158. And Ashley, but for the Policy, "would have advanced to the next level of competition in . . . [a] state championship . . . and competed for a spot at the State Open Championship." JA157. Instead, the Policy authorized biological males to run against Alanna and Ashley and rob them of the "thrill of victory." *Neal v. Bd. of Trs. of Cal. State Univs.*, 198 F.3d 763, 773 (9th Cir. 1999).

In response, both CIAC and Intervenors spend significant time contending that Alanna and Ashley advanced only "conclusory" arguments. *E.g.*, CIAC Br. 6. That is wrong given the specific athletic opportunities and specific races that Alanna and Ashley lost to biological males. But more fundamentally, it confuses the alleged harm here with its results. *Pederson*, 213 F.3d at 871 (noting that separate injuries "result[ ] from the imposed barrier"). For the Policy itself harms Alanna and Ashley merely by "erect[ing] a barrier that makes it more difficult" to compete on an equal footing. *Ne. Fla. Chapter of Associated Gen. Contractors of Am. v. Jacksonville*, 508 U.S. 656, 666 (1993). Alanna and Ashley will show up on race day not knowing whether all their hard work in training will be rendered naught by competition from a biological male.

In fact, in his doctoral dissertation submitted in April 2021, and discovered by Plaintiffs only this week, CIAC Executive Director Glenn Lungarini explains that "[t]he total number of transgender female athletes [competing in Connecticut] is *unknown* because they race in

the female indoor and outdoor track events and *often* do not reveal their gender identity publicly." Glenn Lungarini, The Impact of High School State Athletic Association Transgender Participating Policies on Female Transgender and Cisgender Track Athletes 55 (April 2021) (EdD dissertation, Northcentral University School of Education), (emphasis added).[3] And the *known* transgender competitors in female athletics in his study ran "significantly faster than their cisgender female peers." *Id.* at 90. Given these facts—and the fact that "the number of 'out' trans kids is growing" and on "an upward trajectory," *Re-Affirming the Value of the Sports Exception*, 27 DUKE J. OF GENDER L. & POL'Y at 115–16—the possibility that Alanna and Ashley will compete against a biological male is likely, not theoretical or remote. *See Adarand Constructors, Inc. v. Pena*, 515 U.S. 200, 212 (1995) (holding that because a State "statistic[ally]" awarded contracts in a discriminatory way in the past, it was "likely" to continue doing so given its policy).

When confronted with a discriminatory barrier, plaintiffs like Alanna and Ashley need not "wait and see" what further harms they will suffer. Yet CIAC would have Ashley and Alanna do just that, contending that, to have a claim, they must wait until another biologically male athlete "decid[es] to run track" "at some indefinite future time." CIAC Br. 23 (quoting *Lujan v. Defs. of Wildlife*, 504 U.S.

[3] Available at https://perma.cc/PUM8-28AY. Plaintiffs also attach a full copy of this dissertation as Exhibit A to this brief.

555, 564 n.2 (1983)). But in the Equal Protection context from which Title IX borrows, plaintiffs do not need to suffer an identifiable unjust *result* from a discriminatory barrier before they can seek injunctive relief against it. In *Adarand Constructors*, the Supreme Court held that a contractor who faced a discriminatory barrier could seek injunctive relief—"[e]ven though" such relief "would apply to future contracts in which the result of its bid could not yet be known." *Doe ex rel. Doe v. Vermillion Parish Sch. Bd.*, 421 F. App'x 366, 373 (5th Cir. 2011) (characterizing *Adarand Constructors, Inc. v. Pena*, 515 U.S. 200 (1995)). Likewise, though Alanna and Ashley may not face a transgender athlete this season—and even that knowledge is out of their hands and largely "unknown," as CIAC's Executive Director has stated—the very existence of the Policy, and the constant threat of unfair competition that the Policy creates, does harm them. They may therefore seek injunctive relief against the Policy.

CIAC's repeated focus on Intervenors' graduation is equally misplaced. CIAC contends that Intervenors' graduation moots Ashley and Alanna's interest in enjoining the Policy. In some cases, a student's graduation will remove her personal stake in litigation—if she is a *plaintiff*. That's what happened in *Russman*: the plaintiff wanted the local school board to fund her education at a parochial school. But by the time the case reached this Court, she "received her . . . diploma," was "no longer attending school," and had "no intention to re-enroll."

Russman v. Bd. of Educ. of Enlarged City Sch. Dist. of City of Watervliet, 260 F.3d 114, 119 (2d Cir. 2001). This Court thus could not grant her a "favorable decision" that would "inure to her benefit." *Id.* She had no "personal stake" in the case.

But no court has held that *another student's* graduation moots a *plaintiff's* personal stake. Here, after all, Ashley and Alanna seek injunctive relief not against Intervenors (or even their particular participation in female athletics) but against the Policy itself. Despite CIAC's legerdemain, it is the Policy that has harmed and will continue to harm Alanna and Ashley.

Nor would such a rule comport with how courts interpret Title IX. Consider, for instance, a situation where a high school senior repeatedly harasses a freshman student. The freshman reports the harassment to the school administration, which takes no action. The freshman then sues the school administration under Title IX for deliberate indifference. *See Davis ex rel. LaShonda D. v. Monroe Cnty. Bd. of Educ.*, 526 U.S. 629 (1999). Under CIAC's theory, the senior harasser's graduation would somehow moot the freshman victim's claims against the indifferent school administration. That cannot be.

Unlike cases where a student-plaintiff graduates, CIAC cannot demonstrate—as it must to demonstrate mootness, Pls.' Br. 27—that Alanna and Ashley will "never again" suffer the Policy's harms. *Gomes v. R.I. Interscholastic League*, 604 F.2d 733, 736 (1st Cir. 1979); *Cole v.*

Oroville Union High Sch. Dist., 228 F.3d 1092, 1098 (9th Cir. 2000). That distinguishes this case from *Cook v. Colgate University*, 992 F.2d 17 (2d Cir. 1993). By the time that case reached this Court, those female athletes had all graduated and no longer had an interest in whether Colgate offered a female varsity hockey team. Nothing this Court did would "affect their rights vis-à-vis Colgate." *Id.* at 19. But here, a favorable decision from this Court would "inure to [Alanna and Ashley's] benefit," allowing them to compete on an even playing field—even though *Intervenors* have graduated. *New England Health Care Emps. Union, Dist. 1199, SEIU AFL-CIO v. Mt. Sinai Hosp.*, 65 F.3d 1024, 1029 (2d Cir. 1995). Contrary to CIAC's position, *Cook* does not support the proposition that another student's graduation moots a student-plaintiff's otherwise valid claim against an illegal school policy.

Moreover, that Alanna and Ashley went on to win other races against biological males does not negate the Policy's harm. Even if Alanna and Ashley can overcome the Policy's discriminatory effects in some instances, they can challenge the barrier it imposes on their ability to compete on an equal footing. In *Parents Involved*, for instance, the Supreme Court found a live controversy from the mere fact that students would have to "compete in a race-based system that *may* prejudice [them]." *Parents Involved in Cmty. Schs. v. Seattle Sch. Dist. No. 1*, 551 U.S. 701, 719 (2007) (emphasis added). Some children might "not be denied admission to a school based on their race"—in fact, one

student had even "been granted a transfer" to his preferred elementary school—but that did not "eliminate the injury claimed." *Id.* at 718–19. So too here. The discriminatory barrier that Alanna and Ashley face, the barrier that "makes it more difficult" for them to compete on an equal footing and "may" prejudice their chance at winning, harms them even though they have at times overcome its effects.

Finally, CIAC repeatedly attempts to duck the "heavy" burden it bears to establish mootness, which would require proving that Alanna and Ashley "no longer [have] any need of the judicial protection [they] sought." *Adarand Constructors, Inc. v. Slater*, 528 U.S. 216, 224 (2000) (per curiam); *see* Pls.' Br. 27. CIAC would confine this burden only to voluntary-cessation cases. CIAC Br. 15. Though the "already 'heavy burden'" becomes "even heavier" in voluntary-cessation cases, *Sackett v. U.S. EPA*, 8 F.4th 1075, 1083 (9th Cir. 2021), even absent voluntary cessation, CIAC must clear a "high bar." *360Heroes, Inc. v. Mainstreet Am. Assurance Co.*, 816 F. App'x 555, 559 (2d Cir. 2020) (citing *Knox v. Serv. Emps. Int'l Union*, 567 U.S. 298, 307 (2012)). Unless CIAC can prove that "it is impossible" for this Court "to grant *any* effectual relief whatever," this case is not moot. *Knox*, 567 U.S. at 307 (cleaned up).

And CIAC cannot meet its burden by merely alleging that Alanna and Ashley currently face no biological male competitors—although as CIAC's Executive Director has recognized, whether this is true is

unknown and unknowable.[4] But in any case, the argument confuses the harm—the Policy itself—with its results. Moreover, in making this argument, CIAC subtly shifts its own burden onto Alanna's and Ashley's shoulders. CIAC and the Defendant Schools—not Alanna and Ashley—possess whatever information exists about other students within the CIAC who are now in school records under transgender identities and who may have signed up for or expressed an interest in girls' track. It is Defendants—not Alanna and Ashley—who must show that "it is impossible" that the Policy will harm Alanna and Ashley, whether through the discriminatory *barrier* the Policy imposes, or the harmful *results* therefrom. *Knox*, 567 U.S. at 307.

Until it repeals the Policy, CIAC cannot make that showing. CIAC cites *MGM Resorts International Global Gaming Development, LLC v. Malloy*, 861 F.3d 40, 47–49 (2d Cir. 2017),[5] to assert that this Court has

---

[4] CIAC and Intervenors make contradictory arguments. Their contention that Alanna and Ashley's requested injunction would itself violate Title IX and Equal Protection *assumes* that biological males will continue to want to compete in female athletics, and thus would be excluded by that injunction. The truth is, *everyone* in this litigation—Plaintiffs, CIAC, and Intervenors alike—all think it likely that biological males will continue to compete in female athletics within the CIAC. This consensus suggests that the Policy's real-world impact is far more likely than the "mere speculation" that CIAC alleges. CIAC Br. 17.

[5] Though CIAC contends Plaintiffs' cases "involve set aside programs, which are not at issue here," it ironically relies on a case about a set aside program as its strongest evidence that its discriminatory Policy

"flatly rejected" the idea that the existence of a facially discriminatory Policy itself constitutes harm to Alanna and Ashley. On the contrary, *MGM Resorts* strongly supports the vitality of Plaintiffs' claims. In *MGM Resorts*, a casino developer challenged a state law that privileged Indian tribes' bids to build casinos on non-Indian land. *Id.* at 43. This Court *agreed* that the developer "need[ed] only show that it was denied the ability to compete on an equal footing" to "allege[ ] a sufficiently concrete harm." *Id.* at 46 (cleaned up). But the developer "pleaded only that it [was] 'interested' in exploring development opportunities" and that it had "made initial studies of the viability of a casino in the state." *Id.* at 47. That did not give the developer enough skin in the game to make its harm imminent. Here, by contrast, Alanna and Ashley *have* competed in Connecticut track-and-field, *are* currently competing, and *will continue* to compete throughout the school year. Unlike the *MGM Resorts* developer, the "competitive harm" to Alanna and Ashley is not "too remote and conjectural." *Id.* at 48.

This Court should also reverse the dismissal of Alanna and Ashley's claims for prospective relief because the harms they have suffered are "capable of repetition, yet evading review." *United States v.*

---

does not harm Plaintiffs. CIAC cannot have it both ways. Either cases about set aside programs are relevant comparisons, or they are not. Plaintiffs argue that they are—and courts agree. *Pederson*, 213 F.3d at 871.

Sanchez-Gomez, 138 S. Ct. 1532, 1540 (2018) (cleaned up). This exception to the mootness doctrine applies where "(1) the challenged action is in its duration too short to be fully litigated prior to its cessation or expiration, and (2) there is a reasonable expectation that the same complaining party will be subject to the same action again." *Id.* (cleaned up). Alanna and Ashley satisfy both requirements.

In its reply, CIAC "assum[es] . . . that the first prong is met"—as it must, given that the district court failed to rule on Plaintiffs' motion for preliminary injunction across more than a year. *See* CIAC Br. 21. But it argues that there is no "reasonable expectation" that Alanna and Ashley will face competition from a biological male. This is factually false, given CIAC's determined adherence to its Policy and the rapid "upward trajectory" of "'out' trans kids." *Re-Affirming the Value of the Sports Exception*, 27 DUKE J. OF GENDER L. & POL'Y at 115–16.

III. This Court should reject Intervenors' request to resolve disputed factual matters in the first instance. To the extent that Intervenors present purely legal questions about Title IX, its text unambiguously supports Plaintiffs' position, not Intervenors'.

Though the district court dismissed Plaintiffs' claims on jurisdictional grounds, Intervenors spend significant time inviting this Court to engage the merits. But many issues that Intervenors address involve disputed facts. And "disputed issue[s] of fact" are "inappropriate to consider in the context of a Rule 12(b)(6) motion." *DiBlasio v. Novello*,

344 F.3d 292, 304 (2d Cir. 2003). This is all the more true when those issues were not "considered by the District Court" and would require this Court to resolve them "in the first instance." *Pullman-Standard v. Swint*, 456 U.S. 273, 291–92 (1982) (cleaned up). Instead, this Court "is merely to assess the legal feasibility of the complaint [and] not to assay the weight of the evidence which might be offered in support thereof." *Levitt v. Bear Stearns & Co., Inc.*, 340 F.3d 94, 101 (2d Cir. 2003).

To the extent that Intervenors' arguments truly present a "purely legal question," this Court should reject them. *Marshall Cnty. Health Care Auth. v. Shalala*, 988 F.2d 1221, 1226 (D.C. Cir. 1993). Intervenors urge this Court to read "sex" in a way utterly foreign to how the American public would have understood the term in 1972. Courts "normally interpret[ ] a statute in accord with the ordinary public meaning of its terms at the time of its enactment." *Bostock v. Clayton Cnty.*, 140 S. Ct. 1731, 1738 (2020). And in 1972, when Congress enacted Title IX, "sex" meant "an immutable characteristic determined solely by the accident of birth." *Frontiero v. Richardson*, 411 U.S. 677, 686 (1973); *Sex*, The American Heritage Dictionary of the English Language (1st ed. 1969) (defining sex as "[t]he property or quality by which organisms are classified according to their reproductive functions"); *see also Ulane v. E. Airlines, Inc.*, 742 F.2d 1081, 1085 (7th Cir. 1984) (opining that sex did not encompass "a person who has a sexual identity disorder, i.e., a person born with a male body who

believes himself to be female, or a person born with a female body who believes herself to be male").

Modern agency interpretations cannot change this ordinary meaning. CIAC contends that, in 2015, the Department of Education interpreted Title IX to require biological males to compete against female athletes.[6] *See* JA241. But agency interpretations only come into play when the underlying statute is "genuinely ambiguous." *Kisor v. Wilkie*, 139 S. Ct. 2400, 2415 (2019).

And Title IX is not ambiguous. When Congress enacted Title IX, "virtually every dictionary definition of 'sex' referred to the physiological distinctions between males and females." *G.G. ex rel. Grimm v. Gloucester Cnty. Sch. Bd.*, 822 F.3d 709, 736–37 (4th Cir. 2016) (Niemeyer, J., concurring and dissenting in part) (collecting sources).

In *Bostock*, the Supreme Court said nothing inconsistent with this long-established meaning and did *not* read "gender identity" to be interchangeable with "sex." 140 S. Ct. at 1739. On the contrary, the Court accepted the two concepts as distinct, noting that it is not possible even to consider an individual's transgender identity except in contradistinction to that individual's sex. *Id.* at 1741. Title IX thus uses sex to "refer[ ] only to biological distinctions between male and female." *Id.* at 1739.

[6] As CIAC concedes, the Department has since rescinded that letter.

Alternatively, Intervenors argue that while Title IX "allows schools to provide sex-separated teams," it "does not require [them] to do so." Intervenor Br. 38. But Title IX *does* require that schools provide boys and girls with "equal athletic opportunity." *Williams v. Sch. Dist. of Bethlehem*, 998 F.2d 168, 171 (3d Cir. 1993). And whether "realistic athletic opportunity" exists "turn[s] on whether there are real and significant physical differences between boys and girls"—between male bodies and female bodies. *Id.* at 175. As Plaintiffs' proffered evidence demonstrates, if gender identity supplanted sex as the basis for eligibility for girls' sports, "even the best female would be rendered invisible by the sea of men and boys who would surpass her." *Re-Affirming the Value of the Sports Exception*, 27 DUKE J. OF GENDER L. & POL'Y at 88–89. In sports, the evidence demonstrates that sex-segregation is necessary to preserve Title IX's promise of equal and realistic athletic opportunities for girls.

And this evidence renders many of CIAC's cited cases inapposite. CIAC contends that "every Court of Appeals to consider the issue . . . has held that Title IX requires schools to treat transgender students consistent with their gender identity," but its cases largely involved restrooms. CIAC Br. 47. And "sport is different from restrooms not only in its policy objectives but also in the extent to which sex actually matters." *Re-Affirming the Value of the Sports Exception*, 27 DUKE J. OF GENDER L. & POL'Y at 86. Whereas restrooms "are designed to provide a

space for people to relieve themselves," sport "is designed to develop and showcase the capacities of the physical body." *Id.* And while "girls' and women's restrooms are designed to secure safety and privacy," "girls' and women's [sports] are designed to secure sex equality." *Id.*

Finally, Intervenors argue that Plaintiffs' requested relief would violate Equal Protection and Title IX. But that is not an appropriate basis on which to affirm dismissal. Courts cannot "dismiss[ ] on the basis that the relief requested was inappropriate." *Norwalk CORE v. Norwalk Redevelopment Agency*, 395 F.2d 920, 925–26 (2d Cir. 1968). If "a complaint states a case justifying *any* relief within the court's power to grant, the prayer for relief must be disregarded and the action may not be dismissed under Rule 12(b)(6)." *Babcock v. Frank*, 729 F. Supp. 279, 286 (S.D.N.Y. 1990). Intervenors' arguments to the contrary are inapposite.

IV. CIAC did not need prelitigation notice that its actions violated Title IX because it intentionally adopted a discriminatory Policy. In any event, CIAC had notice.

In some settings, to be liable for damages, a school must be on notice that its actions violate Title IX. But this rule applies only where the alleged violation is based on deliberate indifference rather than intentional sex discrimination, and specifically only where "the alleged Title IX violation . . . do[es] not involve" the school's official policies.

Mansourian v. Regents of Univ. of Cal., 602 F.3d 957, 967 (9th Cir. 2010) (cleaned up).

Here, CIAC intentionally enacted a Policy that allowed biological males to compete against biological females. That decision was "easily attributable to [CIAC]" and was, "by definition[,] intentional." *Id.* at 967–68. CIAC needed no further notice. Intentional conduct always "violates the clear terms of" Title IX. *Davis*, 526 U.S. at 642. Time and again the Supreme Court has admonished that schools are "on notice" that their intentional conduct violates Title IX, because courts have "consistently interpreted Title IX's private cause of action broadly to encompass various forms of intentional sex discrimination." *Jackson v. Birmingham Bd. of Educ.*, 544 U.S. 167, 183 (2005). And courts have specifically found that schools have sufficient notice that their athletic policies violate Title IX when they intentionally enact athletic policies that discriminate against women, even if the school did not intend the discrimination. *Mansourian*, 602 F.3d at 968; *see* Pls.' Br. 42–47.

Once again, CIAC does not engage with these decisive precedents and principles. Instead, it continues to dress up its merits arguments—that its Policy does not violate Title IX—as a notice problem. For the reasons explained above, those arguments fail. But more fundamentally, CIAC cannot bootstrap those arguments to also argue that it lacked notice. "Funding recipients [like CIAC's member schools] have been on notice that they could be subjected to private suits for

intentional sex discrimination under Title IX since 1979." *Jackson*, 544 U.S. at 182. CIAC thus had more than enough notice that its intentional Policy could subject it to liability.

V. The district judge went beyond his duty to maintain civility and displayed unfair bias that reasonably impugns his impartiality. This Court should reassign the case on remand.

Though reassignment is a "serious" step, it is not a "drastic" one. Pls.' Br. 48. Nor are Plaintiffs attempting to claim "partiality" based on adverse rulings on the merits. *Contra* CIAC Br. 49. Rather, Plaintiffs have identified repeated statements by the district judge, made before hearing any evidence, that create an appearance that the judge has prejudged issues at the heart of Plaintiffs' case—issues rightly reserved to the jury. *See* Pls.' Br. 49–53. This Court should reassign this case on remand "to preserve the appearance of justice." *Ligon v. City of New York*, 736 F.3d 118, 128 (2d Cir. 2013) (per curiam).

CIAC and Intervenors attempt to obscure the real the issue by injecting questions of pronouns and courtesy. But Plaintiffs have scrupulously avoided any use of male pronouns for Intervenors.[7] And

[7] Even as to pronouns, CIAC and Intervenors ignore the recent Sixth Circuit holding that the choice of pronouns is far more than a question of courtesy, but rather may "convey a message" on a hotly debated question of public concern, *Meriwether v. Hartop*, 992 F.3d 492, 508–12 (6th Cir. 2021), and the Fifth Circuit holding that an attempt by a court to require litigants to use particular pronouns "could raise delicate

the question is different when it comes to the basic biological terminology designating sex: "male" and "female."

Defendants defend the judge's actions by labeling Plaintiffs' biological terminology as "needless[ ]." JA22–23. Not so. The physical, objective distinction between the sexes is central to Plaintiffs' claims, both with respect to the scientific *facts* of an overwhelming sex-linked male physiological advantage, and with respect to the *law*—that is, what Title IX means when it promises female athletes that they will not be discriminated against based on their "sex." Plaintiffs maintain that "sex" in Title IX today means what it meant when Congress enacted Title IX: "an immutable characteristic determined solely by the accident of birth." *Frontiero*, 411 U.S. at 686. So when Plaintiffs use the biological terms "male" and "female" to describe their case and the nature of the harm suffered by Plaintiffs, these terms are not "needless[ ]," "gratuitous[ ]," "inflammatory," or "harmful." They are essential to Plaintiffs' theory of the case. Plaintiffs used the long-established and indeed *only* accepted terms denoting the biological sexes, precisely to refer to the biological sexes.

---

questions about judicial impartiality" and "evenhanded justice" at least in cases (like this one) that "turn on hotly-debated issues of sex and gender identity," *United States v. Varner*, 948 F.3d 250, 256 (5th Cir. 2020). Similarly, the American Bar Association "model rule" cited by CIAC has been adopted by only a single state, while being rejected as unconstitutional for multiple reasons by the Attorneys General of multiple states. *See* CIAC Br. 52.

The district judge betrayed "an appearance of partiality" when, on his own initiative, he "raise[d] a point" that he acknowledged would "cause some consternation" for Plaintiffs—and ordered Plaintiffs not to refer to the male athletes who had deprived them of opportunities and victories as "male athletes." JA104. In doing so, the judge abandoned his role as "neutral arbiter" and improperly decided to "frame the issues" himself. *United States v. Sineneng-Smith*, 140 S. Ct. 1575, 1579 (2020).

Plaintiffs made clear that "[g]ender identity is not the point of this case." JA105. But the district judge did not want to listen. Instead, he supplanted Plaintiffs' theory of the case with his own. Whereas Plaintiffs wish to present a case about "physiology of bodies driven by chromosomes and the documented athletic advantage that comes from a male body, male hormones, and male puberty," JA105–06, the district judge insisted on framing the case as "about" gender identity, and ordered Plaintiffs to use the terminology consistent with his own framing. JA104–06 ("This isn't a case involving males who have decided that they want to run in girls' events. This is a case about girls who say that transgender girls should not be allowed to run in girls' events.").

Given the district judge's mandate requiring Plaintiffs to adopt his preferred framing of the case rather than the framing which is essential to Plaintiffs' case and construction of Title IX, and given that the district judge below believes it is not possible to speak clearly about the

sexes—in a case about sex discrimination and the physiological advantages of male athletes—without violating "science" and "human decency," JA107, a reasonable observer would see at least an "appearance of partiality," which is all that is needed for this Court to reassign the case on remand. *Ligon*, 736 F.3d at 129.

CONCLUSION

In Connecticut, boys do not show up on race day and worry that they will face Usain Bolt—someone so far out of their league that they have no realistic chance at winning. Nor do they worry that their achievements will be "erased" or "wiped from the books" due to unfair competition. JA74, 78.

Girls do. "It is fact, not myth or stereotype, that beginning at the onset of male puberty, an *insurmountable* performance gap between males and females emerges such that even the very best females are not competitive for the win against males, including against second-tier males." *Re-Affirming the Value of the Sports Exception*, 27 DUKE J. OF L. & GENDER POL'Y at 115. Yet CIAC's discriminatory Policy allows biological males to compete in women's athletics anyway.

Selina, Chelsea, Alanna, and Ashley have all suffered as a result. They showed up on race day already one step behind any biological male competitors. They lost races and other athletic opportunities to those competitors. And they missed out on honors and public recognition that they would have otherwise received.

Nonetheless, they have persisted. Alanna and Ashley continue to run, even in the shadow of the discriminatory Policy. The barrier that Policy imposes to fair competition is more than sufficient to give Alanna and Ashley an interest in seeking an injunction.

All four Plaintiffs have an interest in seeking accurate athletic records that reflect their true accomplishments. The district court failed to consider the inherent value to Plaintiffs in having their achievements showcased. Moreover, it erred when it cavalierly dismissed the utilitarian value of those records.

For all the reasons set forth above and in Plaintiffs' opening brief, this Court should reverse the decision below. On remand, this Court should reassign this case to a different district judge to ensure that the "appearance of justice" is not compromised.

Respectfully submitted,

/s/ John J. Bursch

ROGER G. BROOKS
ALLIANCE DEFENDING FREEDOM
15100 N. 90th Street
Scottsdale, AZ 85260
(480) 444-0020
rbrooks@ADFlegal.org

JOHN J. BURSCH
CHRISTIANA M. HOLCOMB
ALLIANCE DEFENDING FREEDOM
440 First Street NW, Ste. 600
Washington, DC 20001
(202) 393-8690
jbursch@ADFlegal.org
cholcomb@ADFlegal.org

CODY S. BARNETT
ALLIANCE DEFENDING FREEDOM
44180 Riverside Parkway
Lansdowne, VA 20176
(571) 707-4655
cbarnett@ADFlegal.org

Counsel for Appellants

October 28, 2021

CERTIFICATE OF SERVICE

I hereby certify that on October 28, 2021, this brief was filed electronically with the Clerk of the Court for the United States Court of Appeals for the Second Circuit through the Court's CM/ECF system. I certify that all participants in the case who are registered CM/ECF users will be served by the appellate CM/ECF system.

/s/ John J. Bursch
John J. Bursch

CERTIFICATE OF COMPLIANCE

This brief complies with the word limit of Local Rule 32.1(a)(4)(B) because, excluding the portions exempted by Fed. R. App. R. 32(f), this brief contains 6,731 words.

This brief also complies with the typeface requirements of Fed. R. App. P. 32 (a)(5) and the type-style requirements of Fed. R. App. P. 32(a)(6) because this brief has been prepared in a proportionally spaced typeface using Microsoft Word in 14-point Century Schoolbook font.

/s/ John J. Bursch
John J. Bursch
Counsel for Appellants

Dated: October 28, 2021

EXHIBIT A

The Impact of High School State Athletic Association Transgender Participation Policies on Female Transgender and Cisgender Track Athletes

Dissertation Manuscript

Submitted to Northcentral University

School of Education

in Partial Fulfillment of the

Requirements for the Degree of

DOCTOR OF EDUCATIONAL LEADERSHIP

by

GLENN MICHAEL LUNGARINI

LaJolla, California

April 2021

Approval Page

The Impact of High School State Athletic Association Transgender Participation Policies on Female Transgender and Cisgender Track Athletes

By

GLENN MICHAEL LUNGARINI

Approved by the Doctoral Committee:

DocuSigned by: Donna Rice DDF9DD8E70E045A...	PhD	06/08/2021 | 14:47:13 MST
Dissertation Chair: Donna Rice	Degree Held	Date
DocuSigned by: Patricia Davis 7F5F5FB68E0548F...	Ph.D.	06/13/2021 | 11:18:19 MST
Committee Member: Patricia Davis	Degree Held	Date
DocuSigned by: Deborah Nelson 2E009EA2D166401...	PhD	06/08/2021 | 16:28:21 MST
Committee Member: Deborah Nelson	Degree Held	Date

Abstract

The problem addressed in this study was the lack of knowledge and quantitative research on transgender female, cisgender female, and cisgender male high school track athletes' race time performances when considering inclusive high school transgender participation policies. Research on the physiological differences between cisgender male and female athletes is limited in scope to elite athletes and is directed at whether such differences result in an inequitable cultural and athletic environment. The purpose of this quantitative descriptive case study was to examine the extent to which transgender male-to-female athletes perform in comparison to their cisgender male and female high school track athlete peers. The 1,149 participants in this study's nonpurposive archival sample were high school female, male, and transgender athletes whose top race times were ranked and recorded for the Connecticut 55-meter (n = 304), National 55-meter (n = 313), Connecticut 100-meter (n = 217), and National-100 meter (n = 315). The research questions addressed the extent to which high school transgender female student-athletes outperform their cisgender female and male peers. High school transgender female track race time rankings were examined to determine whether transgender female athletes have an unfair advantage over their cisgender female peers to finish higher in high school girls track events and to qualify for NCAA Division I and II athletic scholarships. Overall, results showed cisgender male athletes ran significantly faster than transgender female athletes, who ran significantly faster than cisgender female athletes. Findings indicated transgender female athletes do not always finish in the first three places in the Connecticut 55-meter, Connecticut 100-meter, and National 55-meter races or qualify for an NCAA Division I scholarship. In view of these findings, it is recommended that mixed-method research be conducted with high school student-athletes to examine the differences, if any, between cisgender and transgender athlete

performances across all track and field events and whether transgender female athletes' rankings provide an advantage over their cisgender female peers in eligibility for NCAA scholarships and to provide a clearer definition of the role of sex or gender within high school sports.

Acknowledgments

First and foremost, I must thank my family. To my wife, Marcy, thank you for being my inspiration. You are an amazing mother, teacher, and wife. Without your unconditional love and support, this accomplishment would not be possible. I am fortunate always to have my best friend and the love of my life by my side. Kocham cię.

To my children, Antoś, Zosia, and Emily, thank you for your patience, love, understanding, and always being there with a smile and a hug. There is no greater joy than watching you grow up. Chase your dreams. Live each day with enthusiasm and love in your heart. Face adversity with courage and conviction. Always remember that you are loved more than you will ever know.

To my parents, Ron and Elaine, you taught me to dream big and never give up. I watched you sacrifice to give me and my brother opportunities that you never had. I learned from both of you that success should be measured by the meaningful relationships developed along the way and the contributions we make beyond our personal gain. Thank you for all your love and support. It is always a little easier knowing that you are behind me.

To my brother, Jason, I have always aspired to achieve your level of accomplishment. Thank you for inspiring me to push myself and being there with support whenever it was needed.

Finally, I would like to thank my NCU team. Dr. Rice, your unwavering support and expert guidance has brought me to where I am today. Thank you for the encouragement, lessons, compassion, and inspiration that you provided throughout this journey. I am forever ever grateful. Likewise, Dr. Davis and Dr. Nelson, your expert guidance and detailed feedback were critical to my success. Thank you for sharing your expertise and helping me grow as a learner and a professional.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

Sex and gender identity are at the heart of much debate within the public education community because of federal policies addressing transgender students' rights (Kosciw et al., 2020; Moorad, 2020; Philips, 2017). Across the United States, transgender athletic participation policies implemented by state high school interscholastic athletic governing bodies have become the focus of whether Title IX compliance is inclusive of gender identity (Mahoney et al., 2015). In particular, the Connecticut Interscholastic Athletic Conference's (CIAC) transgender participation policy, which allows transgender high school athletes to participate on male or female teams based on the gender with which they identify, is being challenged on the basis that it discriminates against cisgender (i.e., identify with the sex assigned at birth) female track athletes (Hilton & Lundberg, 2021). A complaint filed by three parents with the U.S. Department of Education Office of Civil Rights (OCR) alleged that the inclusion of transgender male-to-female athletes in high school girls track events is unfair to cisgender female high school track athletes because the transgender male-to-female athletes have a physiological advantage (Malagrino, 2020). As the debate over transgender athletes' rights evolves, it is necessary to examine the impact of high school transgender athlete participation policies on transgender and cisgender student-athletes (Mavhandu-Mudzusi, 2014).

State high school athletic association transgender policies range from inclusive policies that permit transgender athletes' participation based on gender identity to restrictive policies that restrict participation to gender assigned at birth or gender transformation criteria (Gleaves & Lehrbach, 2016). Exclusionary interscholastic transgender participation policies are often established based on the misconception that physiological differences among transgender athletes and nontransgender students impair competitive fairness and diminish sport

participation's internal values (Gleaves & Lehrbach, 2016). CIAC's transgender policy addresses physiological difference between cisgender males and cisgender females by requiring member schools to declare that each student's gender identity is bona fide and not for the purpose of competitive advantage. Research on collegiate and Olympic-level athletes has shown cisgender males physiologically outperform cisgender females in most every category (Hollings et al., 2014). Therefore, both the International Olympic Committee (IOC) and the National Collegiate Athletic Association (NCAA) enacted policies governing the participation of transgender athletes based on those assumptions (Gray et al., 2018).

In 2004, the IOC adopted transgender participation guidelines that served as a template for athletic governing agencies (Gray et al., 2018). The 2004 IOC policy required individuals to provide legal documentation of their assigned sex at birth, verification of completed sex reassignment surgery, and documentation of subsequent hormone therapy for a minimum of 2 years (Gray et al., 2018). In 2016, the IOC updated its policy, citing legal and societal shifts as well as a concern that requiring gender reassignment surgery may infringe upon human rights (Gray et al., 2018). Under the 2016 updated policy, transgender men have unrestricted access to male events, and transgender women are eligible for competition when their testosterone counts are measured at appropriate levels for at least one year (Gray et al., 2018). The IOC's updated policy, which no longer requires gender reassignment surgery, more closely aligns with the NCAA policy established in 2011 (Gray et al., 2018).

In 2011, the NCAA established transgender participation rules to define specific hormone criteria for eligibility on men's and women's teams (Gray et al., 2018). Transgender male-to-female athletes are permitted to participate in either men's or women's teams if they do not take testosterone (Gray et al., 2018). Once a transgender female athlete begins testosterone treatment,

they are disqualified from participation on women's teams and must receive a medical exception to participate on men's teams, as testosterone is a banned substance under NCAA rules (Gray et al., 2018). Transgender male athletes are permitted to participate on men's teams, but transgender female athletes are only eligible to participate on women's teams after undergoing testosterone suppression treatment for at least one year (Gray et al., 2018).

The IOC and NCAA transgender policies are grounded in research that shows there is a physiological difference between cisgender men and women in athletic performance (Hollings et al., 2014). This research is often cited in arguments against state high school athletic governing agencies implementing inclusive transgender participation policies. However, the limitation of this research is that the participants in such studies have been predominantly elite-level collegiate or Olympic-level athletes. According to the NCAA, approximately 6% of all high school student-athletes will move on to play at the college level, and only 2% of collegiate athletes will play professionally (Barnard, 2017). That leaves 94% of the 7,300,000 high school student-athletes out of the elite skill level demographic from which study participants are most frequently selected. This population gap results in a lack of data on the impact of inclusive transgender participation policies at the high school level.

Research on the positive impact of inclusionary transgender policies on transgender student-athletes is evident; however, the analyses have failed to identify the effect on cisgender participants (Athlete Ally, 2018; Gleaves & Lehrbach, 2016). Further research is needed to close the gap in performance research at the high school level and examine the impact of high school transgender participation policies on transgender and cisgender female students (Acklin, 2017; Mavhandu-Mudzusi, 2014). Examining transgender male-to-female, cisgender female, and

cisgender male high school track performance times provided the necessary data to address both research gaps.

Statement of the Problem

The problem addressed in this study was the lack of knowledge and quantitative research on transgender female, cisgender female, and cisgender male high school track athletes' race time performances when considering inclusive high school transgender participation policies (Hilton & Lundberg, 2021; Khattab et al., 2020). Research on the physiological differences between cisgender male and female athletes is limited in scope to elite athletes and is directed at whether such differences result in an inequitable cultural and athletic environment (Capranica et al., 2013). Further research is needed to understand how inclusive participation policies affect athletic culture (Mavhandu-Mudzusi, 2014).

Permitting high school transgender students an opportunity to participate on interscholastic athletic teams associated with their gender-identified peers is essential to their physical, social, emotional, and mental health (Skinner-Thompson & Turner, 2013). Consequently, if the impact of inclusive participation policies is not examined, transgender high school student-athletes, who are primarily minors, may be subject to unjust and impractical medical interventions for participation based on the state in which they live (Skinner-Thompson & Turner, 2013). Additionally, the lack of evidence about the effects of inclusive policies contributes to the assumption that female cisgender track athletes' college scholarship opportunities are negatively affected by inclusionary transgender participation policies. Examining the impact of inclusive athletic participation policies may deepen athletic organizers' understanding of how transgender students self-identify through sport (Hargie et al., 2017). Left unexamined, state high school athletic associations and school system leaders will rely on local

law, data from the study of physiological gender differences in elite-level athletes, and assumptions from cisgender advocates without any understating of the extent to which inclusive transgender participation policies affect both cisgender and transgender female students (Demissie et al., 2018).

Purpose of the Study

The purpose of this quantitative descriptive case study was to examine the extent to which transgender male-to-female athletes perform in comparison to their cisgender male and female high school track athlete peers. High school track sprinting event results were examined to understand the extent to which inclusive transgender participation policies affect transgender and cisgender female athletes. Race times as measured by Hy-Tek Meet Manager timing systems were the outcome variable. Gender identity, including cisgender female, cisgender male, and transgender female, were the predictor variables. The targeted population included all female and male high school track athletes from Connecticut's 186 high schools registered with the Connecticut Interscholastic Athletic Association and female and male high school track athletes from across the United States whose race times were submitted to Athletic.net. The sample included the 2017–2018, 2018–2019, and 2019–2020 Connecticut and National 55-meter and 100-meter race times for transgender (n = 12), cisgender female (n = 560), and cisgender male (n = 577) athletes. The outcome variables (i.e., race times) were analyzed by gender identity. The Statistical Package for the Social Sciences (SPSS, Version 27) software was used to conduct a one-way analysis of variance (ANOVA) to determine whether athletes' race times were significantly different based on gender identity. Normality assumptions were addressed by the inspection of data for outliers and evaluations of skewness and kurtosis. Variance homogeneity was assessed using Levene's test. Any necessary post hoc test was conducted based on violations

of assumptions. The descriptive data are reported in means and standard deviations. Differences in the mean race times for transgender, female, and male athletes are presented.

Introduction to Theoretical Framework

Transgender theory, which emerged from queer theory, feminism, and poststructuralism, provides a framework for understanding the unique transgender experience (Nagoshi & Brzuzy, 2010; Oakleaf & Richmond, 2017). Structuration theory contends that individuals' behaviors are formed by their socialization within a structure or conformance to societal expectations regarding social class or gender (Turner et al., 2019). Queer theory is grounded in the belief that there is no established "normal," there are merely evolving norms that individuals do or do not fit (Chaudhry, 2019). Feminist theory refers to the feminist movement shift with a focus on diversity, identity, individualism, and sexuality (Cott, 1987). Transgender theory increasingly emerged in the queer and feminist theoretical discourse around the year 2010 (Nagoshi & Brzuzy, 2010). Whereas queer theory and feminist theory involve "fixed" representations of gender identity, transgender theory provides a "fluid" conceptualization of gender identity (Evans, 2018). Poststructuralist theory, as presented by Judith Butler (1999) and Michel Foucault (1980), was integral to this study because it can be used to explain how gender is viewed within the context of society and culture and how this concept informed the formation of transgender theory.

Gender and sex are two different constructs within transgender theory, which raises challenges to traditional views of gender binary (Nagoshi & Brzuzy, 2010; Stryker et al., 2008). Gender binary is the view that male and female are the only two genders that exist, which underscores and perpetuates the assumption of a heteronormative perspective that heterosexuality is the cultural norm (Lampe et al., 2020). Transgender theory emerged in

response to the need to provide a framework that translated the transgender experience (Nagoshi & Brzuzy, 2010).

Transgender theory incorporates characteristics of queer theory and feminist theory by integrating the concept that there are fluidly represented, socially constructed, and self-identified characteristics of social identity and the dynamic interactions of these parts of a person's identity influence their lived experience (Pardo, 2011). Harrison suggested transgender theory is "about identity – relating to oneself. It's more an inward thing" (as cited in Bornstein, 2016, p. 67). Transgender theory arose from individuals' need "for [a] recognizable identity, and the need to belong to a group of people with a similar identity – these are driving forces in our culture, and nowhere is this more evident than in the areas of gender and sexuality" (Bornstein, 2016, pp. 3-4). Transgender theory provides a theoretical framework that transcends the gender binary and gender role conceptualizations related to queer and feminist theories (Bornstein, 2016; Pardo, 2011). Transgender theory can be applied in diverse fields (e.g., education, sports) to enhance the understanding of the unique aspects of a human being. In this study, a case study design was used to extend the lens of the transgender theory to the unique experiences of transgender athletes in sports.

Introduction to Research Methodology and Design

This study was guided by a quantitative method with a descriptive case study design. A nonpurposive sample ($N = 1,149$) of Connecticut and National high school female, male, and transgender female track athletes was used for this study to yield a homogenous sample that was representative of the population characteristics of cisgender female, cisgender male, and transgender female athletes. In Connecticut, approximately 4,800 female athletes participate in indoor track, and 6,700 female athletes participate in outdoor track annually. Publicly recorded

times for these athletes were used in the data collection and analysis. The top 50 Connecticut 55- and 100-meter and National 55- and 100-meter race times (N = 1,149) of female, male, and transgender female athletes for the 2017–2018, 2018–2019, and 2019–2020 school years recorded on Athletic.net, a public database of high school track and field performance times, were examined. Finally, NCAA Division I and II female scholarship eligibility requirements were examined to determine the degree, if any, of transgender female athletes' unfair advantage.

Internal validity was accounted for in that each subject self-identified as either a transgender female, cisgender male, or cisgender female, and that determination was validated by the individual's high school administration. External validity was addressed by collecting data from a large sample of cisgender female, cisgender male, and transgender female high school track athletes using reliable statistics software and setting a significance level of .05.

Researchers often select a case study design to test a theory or when a phenomenon was previously inaccessible (Mills et al., 2010). In this case study, the tested theory was that inclusive high school transgender participation policies negatively affect cisgender female track athletes' performance opportunities as a result of transgender female athletes finishing in the top three places of races in which they compete, and always running times that meet the NCAA Division I qualifying standard for scholarships. A descriptive design was used because the athletes' times were measured once per race.

The impact of transgender athlete participation has been widely researched at the elite level by the NCAA and the IOC; however, this phenomenon has recently become contentious at the high school level (Capranica et al., 2013). Most state high school athletic associations began implementing transgender policies around 2011 (Buzuvis, 2016a). In 2016, the U.S. Department of Education published guidelines that encouraged the inclusion of transgender students in

school activities (Lhamon & Gupta, 2016). In 2017, the U.S. Department of Education rescinded that guidance and issued a statement referring decisions regarding transgender athlete participation in sports to the state or local district levels (Battle & Wheeler, 2017). The attention given to transgender rights since the year 2016 has resulted in increased scrutiny at the high school level, particularly when it comes to track athletes. The U.S. Department of Education OCR opened an inquiry into the CIAC's transgender athlete participation policy in the Fall of 2019. This inquiry was the first such case involving a high school athletic association and focused on high school transgender athlete participation in the sport of track.

Research Questions

RQ1

To what extent do Connecticut's high school transgender female athletes significantly outperform their cisgender female peers?

RQ2

To what extent do Connecticut's high school transgender female athletes significantly outperform their cisgender male peers?

Hypotheses

$H1_0$

Connecticut high school transgender female track athletes do not run significantly faster than their cisgender female peers.

$H1_a$

Connecticut high school transgender female track athletes run significantly faster than their cisgender female peers.

H2$_0$

Connecticut high school transgender female track athletes do not run significantly faster than their cisgender male peers.

H2$_a$

Connecticut high school transgender female track athletes run significantly faster than their cisgender male peers.

Significance of the Study

Individuals opposed to inclusive transgender participation policies have argued that transgender male-to-female athletes have a biological advantage over their cisgender female peers that diminishes the ability of cisgender female athletes to compete and earn college scholarships. However, there is a lack of research supporting such claims. Researchers have identified high school as a time during which students explore who they are and have suggested restrictive transgender athletic participation policies negatively affect transgender students (Doull et al., 2018; Gleaves & Lehrbach, 2016).

In 2016, public-school transgender students' rights were defined in a Dear Colleague Letter issued by the OCR (Lhamon & Gupta, 2016) that provided guidance under Title IX to protect transgender students from discrimination in educational programs and activities (U.S. Department of Education, 2016; West-Sell et al., 2019). Under this guidance, schools could not treat transgender students differently than other students (West-Sell et al., 2019). However, in the 2016 Dear Colleague Letter, a section about athletics addressed competitive fairness and physical safety by permitting policy requirements backed by medical research that limited transgender athletes' access to gender-identified participation (West-Sell et al., 2019).

In February of 2017, another Dear Colleague Letter was issued by the current OCR administration rescinding the 2016 guidance (Battle & Wheeler, 2017; West-Sell et al., 2019). Under the 2017 Dear Colleague Letter, the guidance provided that state and local school districts, not the OCR, should determine transgender student educational policy (Battle & Wheeler, 2017; West-Sell et al., 2019). In February of 2017, Connecticut Governor Dannel P. Malloy met this new guidance by issuing Executive Order Number 56, clarifying that Connecticut law affords all public-school children equal opportunities to participate in school activities regardless of their gender identity or expression (Malloy, 2017). Furthermore, in September of 2017, the Connecticut State Department of Education (CSDE), in consultation with the Connecticut Commission of Human Rights and Opportunities (CHRO), issued guidance to assist school district leaders in clarifying that the 2017 Dear Colleague Letter acknowledged a state's authority and obligation to protect students from discrimination (CSDE, 2017). Connecticut law clearly indicates individuals cannot be discriminated against based on gender identity or expression (CSDE, 2017). Therefore, the CSDE requires school leadership, educators, and coaches to treat transgender students according to the students' gender identity and expression (CSDE, 2017). However, the CIAC's transgender participation policy, which allows high school transgender male-to-female athletes to participate in high school girls' sports, was challenged by three parents of cisgender female athletes.

A problem identified by previous researchers is the lack of consideration of the impact of inclusive transgender participation policies on athletic culture (Atteberry-Ash & Woodford, 2018). Historically, sport has played a meaningful role as an organizing principle in the expression of an individual's gendered narrative (Doull et al., 2018; Gleaves & Lehrbach, 2016). High school transgender athlete inclusion enriches sport diversity while reducing societal stigma

in gender narrative construction (Gleaves & Lehrbach, 2016). Transgender high school students who are excluded from participation with their cisgender female and cisgender male peers are not afforded the benefits of increased self-esteem, healthier decision-making, decreased levels of stress and anxiety, and low rates of depression (Doull et al., 2018). Research shows LGBTQ youth have sport dropout rates nearly twice those of their peers due to a lack of an athletic governing body's support, among other factors (Doull et al., 2018). When youth drop out of sports, they experience more difficulty coping with mental health challenges than their peers who remain engaged with sports (Doull et al., 2018). Transgender youth who are forced to participate on teams that do not align with their gender identity often drop out of the sport experience (Buzuvis, 2016a).

Research identifying performance gaps between males and females will remain limited until the sociocultural inequities of training, cultural acceptance, and opportunities presented to females are addressed by national and international sport governing bodies (Capranica et al., 2013). This study was designed to contribute to the high school culture by educating administrators, parents, and students about the impact of binary gender-based education policies on cisgender and transgender athlete placement (Hargie et al., 2017).

Definitions of Key Terms

Cisgender

Cisgender persons identify and live their lives as male or female according to their birth-assigned sex (Lagos, 2018).

Cisnormativity

Cisnormativity is the assumption that all people identify as their birth gender or are cisgender (McBride & Neary, 2021).

Civil Rights

Civil rights are a wide range of rights and privileges that guarantee equal protection and social opportunities regardless of gender, race, ethnicity, religion, or other personal traits (Gay and Transgender Rights, 2019).

14th Amendment

The 14th amendment prohibits states from denying citizens liberty, property, or life without due process first and established equal protection under the law. The 14th amendment extended civil rights protections to all Americans and is the most-cited constitutional amendment in litigation (Philips, 2017).

Gender

Gender is being female, male, or neutral. The difference between "sex" and "gender" for human beings reflects how the terms are used in context. The term "sex" references a person's biological traits of femaleness or maleness, whereas "gender" refers to the behavioral, social, psychological, and cultural aspects of being female or male (e.g., femininity, masculinity; American Psychological Association & National Association of School Psychologists, 2015).

Gender Expression

Gender expression refers to how a person chooses to express their gender role or identity (e.g., clothing, physical appearance, behaviors; American Psychological Association & National Association of School Psychologists, 2015).

Gender Identity

Gender identity references a person's sense of being female, male, or transgender. When the person's gender identity and gender assigned at birth are not congruent, they may identify as

either transgender or transsexual (American Psychological Association & National Association of School Psychologists, 2015).

Heteronormativity

Heteronormativity is the assumption that heterosexuality is the cultural norm (Krebbekx, 2021).

Interscholastic or High School State Athletic Associations

Regulatory bodies govern secondary education-based sports contests and activities within a state (T. L. Sawyer, 2015).

Intersex

People who are intersex are born with sex features (e.g., chromosome patterns, genitalia, gonads) that do not match stereotypical binary conceptualizations of female or male bodies. Intersex is a general term used to depict many types of hereditary body variations. Some intersex traits are visually obvious, whereas others become apparent during puberty. Some intersex chromosomal pattern variations are not visually apparent (United Nations Office of the High Commissioner for Human Rights, 2017).

Title IX of the Education Amendments Act of 1972

Title IX 20 U.S.C. §1681-§1688 indicates no individual in the United States shall be precluded from participating, receiving benefits, or discriminated against, based on sex, in any educational activity or program that is federally funded (Buzuvis, 2013).

Transgender

Transgender persons identify and live their lives according to the gender identity opposite from their birth-assigned sex (Centers for Disease Control and Prevention, 2019; Lagos, 2018).

Summary

State high school athletic association transgender participation policies are widely debated as inclusive for transgender students or discriminatory against either transgender or cisgender students (Buzuvis, 2016a). Athletics is one of the most popular extracurricular activities engaged in by high school students (T. L. Sawyer, 2015). Through education-based sport experiences, high school student-athletes express their individuality and identity (Doull et al., 2018; Gleaves & Lehrbach, 2016). However, state athletic association transgender participation policies range from inclusive, based on gender identity or expression, to restrictive, based on birth sex (Gleaves & Lehrbach, 2016). In Connecticut, a Title IX inquiry against the CIAC's transgender participation policy was opened in 2019 to investigate whether transgender female track athletes' inclusion is unfair to cisgender female track athletes based on their having a physiological advantage. This study expands upon previous research by addressing the lack of understanding around the extent to which inclusive transgender participation policies affect female transgender and cisgender high school track athletes. Chapter 2 provides an overview of the literature related to transgender athletes and their participation in high school sports.

Chapter 2: Literature Review

State high school athletic association transgender participation policies are widely debated as inclusive for transgender students or discriminatory against either transgender or cisgender students (Buzuvis, 2016a). The problem addressed in this study was the lack of knowledge and quantitative research on transgender female, cisgender female, and cisgender male high school track athletes' race time performances when considering inclusive high school transgender participation policies (Jones et al., 2017). The purpose of this quantitative descriptive case study was to examine the extent to which transgender female athletes perform in comparison to their cisgender male and female high school track athlete peers. High school track sprinting event results were examined to understand the extent to which inclusive transgender participation policies affect transgender and cisgender female athletes. A case study design was used to extend transgender theory and test whether inclusive high school transgender participation policies negatively affect cisgender female track athletes' performance opportunities as a result of transgender female athletes finishing in the top three places of races in which they compete, and always running times that meet the NCAA Division I qualifying standard for scholarships.

Though gender identity related to female and male sports participation have been researched thoroughly (Jones et al., 2017), there is little extant research on high school transgender athletes. Further, few current literature reviews exist related to high school sports policies and participation associated with the transgender population. Chapter 2 includes a review of the literature related to sports participation at the high school level by transgender athletes.

The literature included in this review consisted primarily of peer-reviewed scholarly articles published between 2016 and 2021. Germane seminal authors, sources, and articles were included. The key terms included in the literature search were *cisgender athletes*, *gender expression*, *gender identity*, *history of transgender*, *Title IX*, *transgender*, and *transgender athletes*. Boolean operators (i.e., not, and, or) were used to limit the search, link topics, and ignore unrelated topics. Searches using Northcentral University's online library involved the following databases: ERIC, EBSCOhost, Omni File, ProQuest, ProQuest Dissertations, Road Runner search, Sage, and Wilson. Books and the internet were also accessed to yield pertinent information. Google Scholar searches provided relevant seminal and historical sources.

Theoretical Framework

This section of the literature review is dedicated to those theories and theoretical frameworks that significantly informed and supported the emergent transgender theory, including (a) structuration theory, (b) queer theory, and (c) feminist theory. These supportive theories provide a contextual basis with which to gain an in-depth understanding of the historical background of transgender theory. A section follows that includes a review of the historical context related to transgender theory, a detailed description of transgender theory, and how it aligns with this study.

Structuration Theory

Structuration theory, an emergent sociological theory, is used to explain the nexus of agency and structure or structure duality (Coad & Kholeif, 2016). Structural theorists contend that individuals' behavior is formed by their socialization within a structure or conformance to societal expectations regarding social class or gender (Turner et al., 2019). Structures function at a range of levels, with the investigation scope focused on the appropriate level for the research

question under examination. At the highest structural level, society is perceived to consist of large socioeconomic stratifications (i.e., distinct social classes; Turner et al., 2019). The mid-range scale involves social networks and institutions (e.g., familial, religious structures) and the microscale involves how "community" (e.g., professional norms) limits human agency (Turner et al., 2019).

Structuralist theorists depict structural effects in diverse ways. Émile Durkheim (1913, 1914), seminal French social theorist, emphasized the positive influence of permanence and stability, whereas Karl Marx argued that structures protect the few at the expense of the needs of the many (Marx & Engels, 1967). Conversely, agency theorists suggest individuals have the capability to make their own choices and operate using their free will (i.e., agency); social structures are viewed by agency theorists as the result of human behaviors that are either discarded or sustained rather than immeasurable influences (Coad & Kholeif, 2016).

Giddens (1984) argued that individual autonomy and structure are dynamic and interactive, where structure influences a person's autonomy and human agency maintains and changes structures. Therefore, structuration provides an explanation of human behavior through the lens of the nexus of micro-macro level and agency–structure perspectives (Šubrt et al., 2020). Thus, understanding the influence of structuration theory on transgender theory helps to understand the role of heteronormativity and heteronormative practices within high school sports (Fredman et al., 2015; Lewis & Sembiante, 2019). This integral influence on transgender theory provides the framework for examining high school sports structures, systems, policies, rules, and regulations (Fredman et al., 2015; Lewis & Sembiante, 2019). High schools are traditionally heteronormative in structure (Fredman et al., 2015; Lewis & Sembiante, 2019). The influence of Giddens's (1984) saturation theory on transgender theory provides the framework to investigate

the rules, regulations, and roles that are maintained, enforced, and reproduced in the high school sports structure.

Queer Theory

Queer theory was developed in the 1990s arising from concepts derived from many fields of study as a way of contesting many of the preconceived perceptions of finite and defined identity categorizations in addition to the mores and norms that yield a binary of bad and good sexualities. Queer theorists argue there is no established "normal," there are merely evolving norms into which individuals do or do not fit (Jagose, 1996). De Lauretis (1991) indicated three main concepts make up queer theory: (a) heterosexuality is not an accurate benchmark for sexual identity formation: (b) gay and lesbian studies are not the same entities: and (c) there are many ways in which race influences sexual discrimination and bias. De Lauretis (1991) argued that queer theory provides a challenge to traditional views and assumptions about sexuality.

Core queer theorists included Judith Butler, Michael Foucault, Eve Kosofsky Sedgwick, and Gayle Rubin. In his seminal study of sexuality, Foucault (1980) focused on sexuality as a digressive production rather than a vital part of a person; this focus emerged from his conceptualization of power as a positive influence that was generative and productive. Foucault maintained that there is no clear definition of sexuality and focused on the role of sexuality within the context of knowledge and power.

Rubin's (2003) *Self Made Men* is one of the foundational queer theory texts and expanded Foucault's (1980) rejection of traditional biological definitions of sexuality through a proposal that sexual identities and related behaviors are organized hierarchically through sexual categorization classifications. Rubin argued some sexual expressions are perceived as better than

others, allowing people who exhibit sexual expressions outside these norms to be oppressed. Rubin proposed in her seminal work that gender and sexuality are not the same.

In her 1990 book, *Epistemology of the Closet*, Eve Kosofsky Sedgwick posited that there are two hetero–homo differences in the contemporary definition of "sex," including (a) homosexuality is dichotomously gendered (i.e., male or female): and (b) homosexuality is part of a minority subgroup. Sedgwick stressed that modern sexuality definitions are dependent on the gender of a person's romantic partner, assuming a person's gender and their romantic partner's gender are the primary aspect of "sexuality." Sedgwick's (1990) work on sexual variations that do not fit into the stereotypical binary conceptualizations of homosexuality and heterosexuality led other researchers to examine further the construct of gender–sex identities and how they are perceived and formed.

Judith Butler is the gender–sex theorist most often linked with the modern understanding of sex and gender, and her work drew from Foucault's concepts but emphasized gender. In her 1999 book *Gender Trouble*, Butler argued that like sexuality, gender is not related to a person's biology or body; rather, gender is a person's "reality" that is acted out. Further, Butler (1999) opposed the strict tenet that heterosexuality is the sole "proper" outcome of a binary conceptualization of gender (e.g., male, female). Additionally, Butler defined "gender performativity" as a resistance strategy and provided examples of those resistance strategies, including cross-dressing and drag, and described non-realist sexual descriptions of femme and butch identities that differ from traditional societal hetero-gender norms. Butler highlighted the rigidity of binary gender norms, which is why her work is an essential part of queer theory.

"Heteronormativity" is a critical component in queer theory and relates to the practices, structures, and institutions that provide "heterosexuality" as sexuality, coherent, and privileged

(Berlant & Warner, 1998). Heteronormativity is an established worldview that presents heterosexuality as the preferred sexual orientation and norm that is reinforced through societal institutions (e.g., employment, marriage, taxes, adoption rights; Berlant & Warner, 1998). In queer theory, heteronormativity is viewed as a practice of power and control applied through social norms and institutional practices experienced by the gay and straight populations (Berlant & Warner, 1998).

Feminist Theory

Feminist history, movements, and issues traditionally focused on challenging gender norms and roles, reproductive rights, marriage rights, women's voting rights, and land rights (Lewis & Sembiante, 2019). Early feminists Mary Wollstonecraft (1792), Sojourner Truth (1851), and Susan B. Anthony all advocated for women's rights and highlighted the discriminatory issues and injustices women face. However, it was not until the feminist movements of the 1970s that gender and sexuality (e.g., gender roles, gender oppression, sexuality, gay rights, LGBTQ rights) issues were addressed (Lewis & Sembiante, 2019).

Feminist theorist Nancy Cott (1987) referred to the feminist movement shift as "modern feminism" (p. 4) with a focus on diversity, identity, individualism, and sexuality. In the educational literature, feminist theory is often employed in conjunction with queer theory to depict teacher-student interactions within the educational setting. Traditionally, feminist theory provided an understanding of the unequal power structures and relations of males and females, whereas queer theory has been used to gain a deeper understanding of the power of language (S. A. Shelton, 2015; Woolley, 2012). Feminist theory lacks reliability as a stand-alone theory because of its constant shift in focus and understandings (J. Shelton, 2015). Like queer theory,

feminist theory provides a way to challenge and understand social expectations and the construction of gender norms and roles.

The feminist and queer theories are often employed to understand the discrimination, oppression, and unequal power relations faced by the LGB population in schools (Lewis & Sembiante, 2019). Yet, these two theories fail to address the unique issues high school transgender athletes face within the educational setting.

Transgender Theory

The current study was guided by transgender theory, which provided a theoretical framework to understand how the marginalization of transgender high school students' may be perpetuated by the heteronormative practices and policies of high school sports institutions. Transgender theory differs from queer theory in the following ways: (a) gender fluidity conceptualization: (b) significance of lived experiences: (c) significance of embodiment: and (d) intersectionality. Transgender theory provides a unique perspective of "gender" that differs from heteronormative perceptions and cannot be explicated using queer theory (Roen, 2001).

Transgender transcends queer theory in the areas of embodiment, self-construction, and fluidity of gender (Monro, 2000). Transgender theorists argue that transgender individuals' lived experiences and negotiation of their intersected gender identities can be empowering (Monro, 2000). Specifically, transgender theory provides a focus on the importance of how intersecting identities are physically embodied with a deep understanding of how those lived experiences influence the physical embodied components of a person's identity (Roen, 2001). In the current study, transgender theory helped to challenge heteronormative views embedded within high school sports that marginalize transgender high school athletes (Burdge, 2007; Nagoshi &

Brzuzy, 2010) and to understand the physical embodied experience of the transgender high school athlete (Roen, 2001).

Gender Fluidity. Like queer theory, transgender theory includes the concept of nonbinary gender. However, transgender theory includes the conceptualization of a fluid gender that exists on a spectrum. Individuals' inner meanings of gender evolve regardless of their assigned biological sex (Roen, 2001). The conceptualization of gender as fluid can provide a deeper understanding of gender (Lane, 2009). Broad (2002) argued that traditional categories of gender were transformed through the conception of a "fluid" gender that fits into both a male and female gender category. Broad suggested the idea of transgender, denoting both male and female identity, motivates the gender community to use "intersexuality" as the best way to depict their transgender lived experiences; that is, being transgender is the embodiment of an "intersexual" male and female identity (Broad, 2002).

Likewise, Tauchert (2002) identified a "shades of gray" or "fuzzy gender" conceptual approach to gender identification. The idea of fuzzy gender represents the mental and physical aspects of gender (Tauchert, 2002). Within the fuzzy gender conceptualization, the diversity and variants of gender are identified along with the physical embodiment of those lived experiences (Tauchert, 2002). According to Tauchert, fuzzy gender permits gender categorizations to be distinguished as always changing, never fixed, and independent of limiting categorizations. Roen (2001) advocated for an understanding of gender fluidity, transgender people's lived experiences, and the empowerment of transgender people who have been marginalized historically.

Neurological Gender Fluidity. The identities of transgender people have often been accompanied by mental health diagnoses such as gender identity disorder and gender dysphoria,

associated with mental health issues, and pathologized. Transgender theory provides a way to understand that a person's body development is complicated, and neurological diversity is a part of a category. Lane (2009) contended gender should be viewed as the intra-action of "intertwined biological and social processes" (p. 150). Thus, variance in gender, which includes nonbinary conceptions, is perceived as a "healthy part of human variation, not as pathology or disorder" (Lane, 2009, p. 150). Awareness of the brain's neurological diversity is consistent with the role of gender within society and provides a transformative view of people who are nonbinary (Lane, 2009).

Neuroscience research indicates gender is fluid and exists on a spectrum. Johansen-Berg and Behrens (2009) found the brain of a person who is transgender differs from those of males and females in a unique way. Specifically, there are brain networks associated with gender (Johansen-Berg & Behrens, 2009). The investigators used imaging to compare the brains of male, female, and transgender individuals and identified brain microstructures that were significantly different in transgender brains versus those of male and female control subjects (Johansen-Berg & Behrens, 2009). Findings indicated transgender individuals' brains do not look like female or male brains (Johansen-Berg & Behrens, 2009).

In their neuroscience study, Swaab and Garcia-Falgueras (2009) found a connection between brain networks and testosterone levels, which indicates hormones influence brain structure formation. The subcortical areas of the brain in female–male transgender participants resembled male brains. In contrast, the cortical regions of the right brain hemisphere in female–male transgender participants were thinner, similar to female brains (Swaab & Garcia-Falgueras, 2009). Findings indicated the brains of transgender persons, both female–male and male–female, are distinctive (Swaab & Garcia-Falgueras, 2009).

Rametti et al. (2011) conducted a similar study using magnetic resonance imaging (MRI) methods to scan female–male transgender participants (n = 18) and made a comparison with female (n = 19) and male (n = 24) hetero-controls. Like Swaab and Garcia-Falgueras's (2009) study, Rametti et al. found the white matter of female–male transgender participants was like the white matter of male hetero-controls and argued for an understanding of gender from a neurodiverse perspective.

Researchers have used twin studies to examine genetic traits, as identical twins share the same DNA and fraternal twins share half of their genetic background (Diamond & Hawk, 2004). Examining the differences between identical and fraternal twins can provide answers to the influence of genetics on gender identity (Diamond & Hawk, 2004). Numerous studies have shown transgender twins are more often identical twins than fraternal twins (Diamond & Hawk, 2004), indicating genetic background influences the identity formation of transgender individuals and gender fluidity. In a twin study meta-analysis, Heylens et al. (2012) found that though fraternal twin participants all identified with their assigned birth gender, 40% of the identical twin participants reported a gender identity other than their assigned birth gender. Both the fraternal and identical twins grew up in the same home with the same mother and father. The only identified difference between the fraternal and identical twins was the identical twins' 100% shared DNA (Heylens et al., 2012). In general, the twin studies provided support for the idea of gender fluidity and understanding fluidity as a part of gender identity.

Gender Embodiment. Traditional societal views of female or male binary attach specific male and female embodied traits and characteristics to lived experiences. Transgender theory provides a framework to understand the embodied lived experiences and attributes of a transgender person, whether male–female or female–male. For example, females are considered

to embody and express their gender in "feminine" ways, whereas males are perceived to embody and express their gender in "masculine" ways.

Transgender theorists support the idea that gender can be expressed, felt, and experienced in ways that are dissimilar to a person's inner sense of gender (Nagoshi & Brzuzy, 2010). Transgender theory provides a way to understand the embodied characteristics of gender, which can help explore the connections between identities relevant to being transgender. Transgender theory helps to expand the theoretical discussion about the significance of corporeality relative to transgender identity embodiment. In the current study, understanding the physical embodiment of transgender athletes was useful in the context of transgender persons' lived experiences in high school sports.

Intersectionality and Lived Experiences. Another vital component of transgender theory emerged from Monro's (2000) contention about the need to understand transgender persons' lived experiences. Raftery and Valiulis (2008) stressed that intersectionality is a crucial part of transgender theory, particularly when it concerns understanding transgender individuals' lived experiences. Transgender people are often viewed solely as "trans," which disconnects them from their spatial, geographical, material, intimate, and other social signifiers (White Hughto et al., 2015). These perceptions of transgender individuals are misrepresentational and serve to de-politicize and homogenize (White Hughto et al., 2015). Therefore, the de-privileging/privileging factors, including the ability to pay for surgery, accessibility of "trans" friendly places to socialize, and lack of support, that structure transgender individuals' lived experiences remain unexamined (White Hughto et al., 2015).

Intersectionality emerged from critical race theory and Black feminism and provided an explanation of how a person is positioned within social structures (e.g., race, ethnicity, gender,

sexual orientation, class, disability) helps them define their lived experiences (K. Sawyer et al., 2013). Intersectionality provides a framework to understand and respond to the intersections of social categories with other identities and how those intersections influence privilege and oppression experiences (K. Sawyer et al., 2013). An intersectional focus includes a rejection of the identification of one category (e.g., gender, race, ethnicity, disability) as the sole source of inequities (Schulz & Mullings, 2006). Multiple social categories merge and are interrelated to produce inequalities (Crenshaw, 1991; Schulz & Mullings, 2006).

The goal of using an intersectional lens is to understand that diversity stemming from social categories affects people in different ways (Crenshaw, 1991; McCall, 2005). This concept supports that the intersections of social categories include many types of oppression and inequities (Gopaldas, 2013). The adoption of an intersectional view could result in a reduction of differences across social contexts because it allows for an investigation of the concurrent interactions of social categories (e.g., gender, race, ethnicity, disability) along with the interactions of group and individual factors; a person can be affected by many social constructs (García & Ortiz, 2013). Within transgender theory, intersectionality provides an essential analytical lens for understanding transgender high school athletes because it aids in addressing the disconnect between transgender high school athletes' lived experiences and theory by joining the pieces and the whole of their inner self along with placing them in context (Torres et al., 2009).

The Transgender Experience: Transitioning

Little demographic data are available about transgender individuals in the United States (Lee et al., 2018). Most national and state population-based surveys (e.g., American Community Survey, Decennial Survey) do not include questions about a transgender person's identity,

leaving large gaps in the available information about the youth and adult transgender populations. However, many states have begun to collect data regarding individuals who are transgender (Lee et al., 2018). In a 2018 quantitative study, Lee et al. (2018) reported the estimated transgender population in the United States included 1.4 million adults (0.6%) and 150,000 adolescents (0.7%) between the ages of 13 and 17 years. Previous studies indicated youth identify as transgender as early as 4 years old (Grossman et al., 2006; Wilson & Kastanis, 2015). Youth between the ages of 15and 17 years represented the largest percentage (1%) of youth who identified as transgender (Lee et al., 2018).

Many individuals who are transgender have gender dysphoria, which means there is a significant difference between the gender they think they are and the gender society recognizes (Davy & Toze, 2018). According to the American Psychiatric Association (2013), these differences must be present for six months and meet two of the following criteria:

- Significant differences between gender assigned at birth and the person's chosen gender identity.
- Extreme desire to hide the appearance of the gender assigned at birth.
- Strong desire to exhibit sexual attributes of the opposite gender.
- Strong desire to change to chosen gender identity.
- Strong desire to have other people view them as the opposite gender.
- Positive that they have the same interactions, emotions, and responses of the opposite gender.
- Experiencing anxiety related to desire to change to the chosen gender identity that is affecting relationships, work, and other significant parts of their life.

The physical, social, and medical transitioning process for a person who is transgender is complicated and can take 4 years (Quinn et al., 2017; White Hughto et al., 2017). The components of transitioning can include (a) a mental health evaluation; (b) counseling; (c) a physical evaluation in preparation for genital or chest surgery; (d) hormone therapy; (e) living for a year in the gender identity of choice before any surgical procedures; and (f) identification change (Berkman, 2017; Herman et al., 2017). These steps have no specific order. Some transgender individuals may elect not to have gender-affirming surgery or not undergo hormonal therapy (White Hughto et al., 2017).

An extensive mental health evaluation is used to ensure an individual is ready for the required self-care, understands the expectations related to transitioning, and will have adequate support from friends or family during the postop period to attend doctor appointments, pick up medication, and help in case there are complications after surgery (Berkman, 2017; Herman et al., 2017; University of California, San Francisco [UCSF], 2020). For those younger than 18 years old, both gender nonbinary and transgender, further exploration of gender identity and surgical and medical interventions is necessary (Lee et al., 2018; UCSF, 2020).

Social transitioning for adults and youth includes presenting oneself in the identified gender for a year, which can consist of (a) hairstyle or wardrobe change; (b) use of a penile prosthesis, known as packing to represent a male genital form; (c) tucking the testes tightly into underwear to represent a female genital form; (d) binding or flattening the breasts to represent a male chest area; (e) wearing breast inserts to represent a female chest area; (f) coming out to friends, family, and spouse; and (g) changing all legal identification to indicate the chosen pronoun, name, and gender identity (Lee et al., 2018; UCSF, 2020). This process can take many years. Medical transitioning for adults and youth can involve (a) hormonal therapies; (b) facial

and body hair removal, which can include genital hair removal; (c) speech therapies to raise or lower voice tones; (d) preservation of fertility, including egg or sperm storage; and (e) chest and genital surgeries consistent with gender identity (Berkman, 2017; Quinn et al., 2017).

World Professional Association for Transgender Health Standards of Care

According to the World Professional Association for Transgender Health (WPATH, 2012), male and female youth under the age of 12 experience sex dysphoria at a ratio range of 6:1 to 3:1. However, research indicates that for children diagnosed when younger than age 12, sex dysphoria persists beyond the age of 18 for 6%–23%. For individuals diagnosed with sex dysphoria when they are older than age 12, sex dysphoria persists into adulthood at a male–female ratio of 1:1. These figures indicate children under the age of 12 present with "nonpersistent" sex dysphoria that has implications for treatment guidelines regarding at what age sex reassignment surgeries should be performed (WPATH, 2012). There is little research regarding the gender dysphoria persistence of children and youth, the age at which children can decide about their preferred sex, and the fluidity of that decision (WPATH, 2012). The appropriate age at which to begin hormone therapy for children with sex dysphoria remains unknown (WPATH, 2012).

The WPATH (2012) *Standards of Care* are the guidelines most often used for providing healthcare to transgender children and youth. The WPATH guidelines indicate that before dysphoria treatment of any kind, youth who have not reached the age of consent must give assent along with having their parent's permission. The age of consent is determined by state, federal, and county laws. Further, the guidelines recommend that youth live for one year in their chosen gender identity before undergoing any surgical interventions (WPATH, 2012).

American Association of Clinical Endocrinologists Guidelines

In 2017, the *Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guidelines* were published based on a collaboration of the American Association of Clinical Endocrinologists, WPATH, European Society of Endocrinology, American Society of Andrology, and American Society for Pediatric Endocrinology (Hembree et al., 2017). Under the Clinical Practice Guidelines (CPG), gender affirming hormone treatment and puberty-blocking treatments should be delayed for prepubertal children presenting with gender incongruence (GI) and gender dysphoria (GD; Hembree et al., 2017).

Two important factors to consider are the legal age of consent and whether the youth is post-puberty (Hembree et al., 2017). The CPG indicate youth who meet the *DSM–5* GI and GD diagnostic criteria should begin puberty-blocking treatment, including gonadotropin-releasing analogues, at the onset of puberty, typically by 16 years of age (American Psychiatric Association, 2013). If the adolescent has the mental capacity to provide informed consent, it is recommended they work with a multidisciplinary team to begin treatment (Hembree et al., 2017). There is minimal support in the literature for initiating hormone treatment before the age of 16 years (Hembree et al., 2017). The transitioning process involves monitoring youth over a period of 3 to 6 months.

Neither the NCAA nor the IOC require gender-affirming surgery for sports participation. However, according to the recommendations within the CPG, it is necessary that endocrine and mental health providers agree that gender-affirming surgery is medically required to improve the youth's overall mental health and well-being (Hembree et al., 2017). The recommended timeline for considering gender-affirming surgery is one year after hormone treatment initiation

(Hembree et al., 2017). The CPG provides an overview of all the criteria necessary to be eligible for gender-affirming surgery (Hembree et al., 2017).

Transgender Youth Barriers

In this section, the barriers and challenges transgender youth experience are reviewed. Transgender youth between age 14 and 22 experience many obstacles to accessing healthcare, including (a) few pediatricians provide gender-affirming services; (b) a lack of access to puberty blockers and estrogen and testosterone; (c) a lack of appropriate protocols; (d) inconsistent usage of the person's preferred name or pronoun; and (e) exclusion by insurance providers (Gridley et al., 2016). Transgender youth face rejection from parents, peers at school, and people in the community (Dowshen et al., 2018). Pediatricians report a lack of training to screen, diagnose, refer, and provide ongoing healthcare for transgender youth (Gridley et al., 2016). Parents report difficulty obtaining health insurance, finding gender-affirming specialists, and obtaining doctor appointments for their transgender children (Gridley et al., 2016). Parents spend an inordinate amount of time fighting insurance appeals for necessary medical services (Dowshen et al., 2018). Further, healthcare providers and their staff often lack the cultural competencies to work with the transgender youth population (Dowshen et al., 2018; Gridley et al., 2016).

Hostile School Climate

In a 2019 National School Climate Study, Kosciw et al. (2020) reported the effects of a hostile school climate on LGBTQ students' well-being and academic achievement and indicated most LGBTQ students did not feel safe at school because of their gender identity (59%), gender (37%), and gender expression (42%). Further, LGBTQ students missed school because of safety issues (32%) and avoided locker rooms (45%), bathrooms (45%), school events (78%), and extracurricular activities (72%; Kosciw et al., 2020). Nearly all LGBTQ students (99%)

experienced some type of "phobic" language at school, including 92% of LGBTQ students' gender expression being misrepresented by teachers and staff (67%) and LGBTQ students reported (92%) feeling distressed because of this discriminatory language (Kosciw et al., 2020).

Many LGBTQ students (87%) were harassed or assaulted based on personal attributes that included (a) race/ethnicity, (b) perceived disability, (c) gender expression, (d) sexual orientation, and (e) gender (Kosciw et al., 2020). Varying numbers of LGBTQ students reported being physically harassed (26%), verbally harassed (67%), and physically assaulted (11%) based on their gender expression (22%), sexual orientation (26%), and gender (22%; Kosciw, 2020). Over half the LGBTQ students (57%) related they did not report being assaulted or harassed because they doubted the school staff would effectively intervene, and of those who did report an incident, the majority (60%) indicated there was no response from school staff (Kosciw, 2020). According to Kosciw et al. (2020), LGBTQ students who experience harassment and assault because of their sexual orientation miss more school days than their peers (57% vs. 22%), are likely to have lower grade point averages, are unlikely to pursue postsecondary education, are disproportionately disciplined at school, have low self-esteem, are at risk of dropout, and have high levels of depression.

Gender and Sex in Sports: Participation, Policies, and Issues

The participation of transgender athletes, and especially transgender female athletes, has been a contentious issue for the past few years (Cauterucci, 2017; Gray et al., 2018). The issue of fairness has been at the forefront of the national debate on transgender female athletes' participation in high school sports (Khattab et al., 2020). There is little extant literature regarding transgender athletes' participation at the high school level and even less evidence-based information regarding the fairness of allowing transgender females to compete at lower grade

levels (Richardson & Chen, 2020). Transgender athletes report negative experiences related to the many barriers to participating in high school sports (Cunningham & Pickett, 2018; Flores et al., 2020; Genel, 2017).

The History of Transgender Athletes in International Organized Sports

To understand the experiences of transgender athletes in high school sports, it is essential to understand the context of gender or sex in organized sports. Historically, the idea is that allowing "males" to compete in female sports events would give them an "unfair" advantage (Heggie, 2010); thus, a dichotomous, biologically determined sex criterion for participation in competitive sports has proven to be problematic in execution (Richardson & Chen, 2020).

During the 1936 Berlin Olympics, Dora Ratjen, born with ambiguous genitalia and raised as a female, competed in the high jump and in 1938 set a high jump world record at the European Athletics Championships (Berg, 2009; Pieper, 2016). Following an arrest for "cross-dressing," Dora was labeled a "male" by German authorities, was stripped of her medals, and her name was removed from the record books (Berg, 2009; Pieper, 2016). Upon her death in 2008, Ratjen's ambiguous sex was confirmed, which seemed to support the idea that there was no intent to deceive sports authorities (Pieper, 2016). This case exemplified the type of "gender" and "sex" issues connected to a person's participation in competitive sports (Ingram & Thomas, 2019).

Also competing in the 1936 Berlin Olympics, Stanislawa Walasiewicz, the defending Olympic champion, ran in the same race as Helen Stephens, an American who won the race (Pieper, 2016). After the race, Walasiewicz alleged that Stephens was a male. After a medical examination was performed, Stephens was determined to be female. In 1980, Walasiewisz's autopsy showed she had ambiguous sexual attributes (Pieper, 2016). Because of WWII, the 1940

and 1948 Olympics were canceled, preventing additional head-to-head races and further inquiry from Walasiewicz (Heggie, 2010).

The Barr Body Testing Standard

As a result of questions that arose regarding gender during the 1936 Olympics, new policies were put into effect that required all female participants to submit documentation from a medical doctor verifying their gender assigned at birth and thus their eligibility (Heggie, 2010). However, as a result of discrepancies in the integrity of the medical documentation, participants in the 1966 European Athletics Championships in Budapest were required to submit to a physical inspection by a panel of medical doctors onsite at the competition (Buzuvis, 2016b; Pieper, 2016). In response to athletes' complaints, during the 1968 Olympics, the Barr body testing was used to determine an athlete's sex (Morgan, 2017). The Barr body testing method provides information about the presence of inactive X chromosomes and the absence of Y chromosomes.

During the 1968 Olympics, Erica Schinegger, an Austrian skier, was disqualified based on this testing methodology (Pieper, 2016). Prior to the implementation of the Barr body testing, Schinegger had been an accomplished female skier and as named Austria's 1966 athlete of the year. From the 1968 to 1984 Olympics, there were no reported failures of the Barr body testing (Pieper, 2016). Some athletes may have failed the Barr body testing during prescreening for other national and international competitions; however, this information is not available (Morgan, 2017). Female athletes with sexual development disorders may have been denied participation in international and national sports (Pieper, 2016). Martia Martinez-Patino, a Spanish hurdler, was barred from participation in the 1985 World Games for failing the Barr body testing; this ban continued for three years before her reinstatement in 1988 (Pieper, 2016).

The Evolution to Current International Gender Classification Regulations

The International Association of Athletics Federations (IAAF) discontinued sex-gender affirmation testing in 1988. The rationale for this change was that regulations regarding drug testing required athletes to provide a urine specimen in front of witnesses, and modern athletic wear was tight and revealing, making it nearly impossible for a male to present himself as a female (Heggie, 2010). Yet, in 1992, the IOC initiated Y chromosome testing, which resulted in eight female athletes failing the Y test, although they could compete in other competitions (Morgan, 2017). By 1999, both the IOC and the IAAF discontinued sex-gender affirmation testing (Pieper, 2016). During the 2000 Olympics, there was no sex-gender affirmation testing (Morgan, 2017).

In the 2009 Bern World Track and Field Championships, Castor Semenya was the winner of the 800-meter relay (Camporesi, 2016). At that time, there were no sex-gender verification guidelines in effect, although suspicion testing could be conducted whenever necessary. In response to Semenya's dominance in the field and masculine features, she was asked to undergo sex-gender verification testing, which she did and passed (Camporesi, 2016).

The IAAF took a stand on female athletes' eligibility in its *2011 IAAF Regulations Governing of Females With Hyperandrogenism to Compete in Women's Competition* (IAAF, 2011). Under the 2011 regulations, a female athlete was considered eligible for female sports competition if her androgen levels were below those of the normal male range. Additionally, she could compete if her androgen levels were within the normal range of male androgen levels of ≥10 nmol/l, and she had an androgen resistance that provided no benefits for competition (IAAF, 2011). Thus, to qualify for competitive sports, females' testosterone levels had to be less than 10 nmol/l (Heggie, 2010). The problem with this regulation is there is no evidence supporting the

hypothesis that a female gains an advantage if she has hyperandrogenism within the specified normal range. If a female athlete with hyperandrogenism wins or places, it is hard to determine whether she had a competitive edge (Camporesi, 2016; Heggie, 2010). For example, Dutee Chand, an Indian sprinter who has androgen sensitivity, was barred from competition based on the 2011 IAAF regulations about females' ineligibility due to hyperandrogenism (IAAF, 2011; Pitsiladis et al., 2016). Chand appealed the IAAF's rule in the Court of Arbitration for Sport (CAS), which resulted in the CAS suspending the IAAF regulation for insufficient data supporting unfair advantage (Pitsiladis et al., 2016; Rogol & Pieper, 2017). Chand was cleared to participate again (Pitsiladis et al., 2016; Rogol & Pieper, 2017).

In 2018, the IAAF addressed the sex-gender classification issue further with the release of the *Eligibility Regulation for the Female Classification* (*Athletes with Differences of Sex Development*). The regulation restricted "relevant athletes" from participation in "restricted events" (IAAF, 2018a). The upper range levels of testosterone for the "relevant athlete" were set at 5 nmol/l, which differed from the levels allowed by other international and national organized sports organizations (IAAF, 2018b). The IAAF (2018b) released the rationale and scientific data supporting the 2018 standards for sex-gender verification of female athletes in the *Explanatory Notes: IAAF Eligibility Regulations for the Female Classification* regulation on its website. The critical review of the related literature indicated female normal testosterone ranges fall between 0.12–1.79 nmol/l, though women with polycystic ovary syndrome may have testosterone levels of 4.8 nmol/l. Thus, the rationale was that only athletes who were "doped" with testosterone would have testosterone levels higher than 5 nmol/l, with the exclusion of those with ovarian and adrenal tumors (IAAF, 2018b). The literature review findings indicated a significant increase in testosterone increases muscle mass by 4.4%, increased muscle strength by 12% to 26%, and a

7.8% hemoglobin increase, which is why the 5 nmol/l testosterone level was chosen (IAAF, 2018b). Additionally, markers like lung capacity and height were considered as discriminators; however, the IAAF (2018b) indicated, "To the best of our knowledge, there is no other genetic or biological trait encountered in female athletes that confers such a huge performance advantage" (p. 4).

Despite efforts to standardize sex-gender verification processes, the question remains about what constitutes a fair or unfair genetic or biological sex advantage and how to define that advantage definitively. The role of sex in sports lacks a clear definition. Further, it is unclear when a person has an androgen sports advantage or merely increased androgen levels that are measurable. Within this context, the next section of this literature review provides an overview of transgender athletes and competitive sports, emphasizing the issue of fairness.

Olympic Policies on Sex Reassignment

In 2003, the IOC published policies regarding the sports participation of transgender athletes who had undergone gender-affirming or sex reassignment surgeries. Recommendations were that a 2-year period from the time of completion of all sex assignment surgeries should pass before a transgender athlete's eligibility clearance for competition (IOC, 2003). In 2015, the IOC updated the guidelines regarding transgender athletes' participation in competition, indicating gender-affirming surgeries were not mandated if hormone treatment had been completed for the recommended time for transitioning (IOC, 2015). This recommendation applied to male–female athletes, whereas female–male transgender athletes were permitted to compete without any restrictions (IOC, 2015). The male-female steps included (a) a transgender female must register as a female, and this registration cannot be changed for 4 years; and (b) transgender female testosterone levels must be below 10 nmol/l for a year before competition. The IOC (2015)

indicated athletes would be monitored for compliance and noncompliant athletes suspended for a year. The IOC guidelines were developed to provide a tool for sports organizations to determine female and male eligibility for sports competition and were not binding in many international, national, or sport jurisdictions (IOC, 2015).

Title IX Women's Sports

Title IX of the Education Amendments Act of 1972 (2018) has a central role in female sports in the United States. Title IX prohibits sex discrimination in any federally funded education activity or program. The main goal of Title IX is to ensure sex discrimination is not funded with federal dollars and to provide protection against sex discrimination. Thus, all sporting events financed by federal money are affected by the Title IX ruling; however, this decision does not apply to international, professional, or private sports events. Cisgender and transgender athletes can both experience sex discrimination. Youth participate in sports from a young age to the college setting. Title IX provides legal guidelines for equity for all athletes, including cisgender and transgender.

National Collegiate Athletic Association Guidelines

In 2011, the NCAA published guidelines regarding transgender athletes' competitive sports participation. The NCAA guidelines addressed three common concerns expressed regarding the participation of transgender athletes in sports: (a) transgender females are not "real" females; (b) transgender females have an unfair advantage related to their being born male; and (c) males may claim to be female to compete in sports (NCAA, 2011). Principles 2 and 3 of the NCAA guidelines address these issues. Principle 2 mandates that transgender athletes be provided equal access to sports participation, whereas Principle 3 emphasizes that the integrity of female sports should be maintained (NCAA, 2011). Further, transgender female

athletes are permitted to compete after one year of hormone treatment. Those transgender athletes who have not undergone hormone treatment can compete in the sport that matches their gender assigned birth (NCAA, 2011).

Policies Regarding School-Age Students

The subject of transgender female athletes' participation in sports at the middle school and high school levels is complicated. The regulations and laws concerning school-age transgender athletes differ by school district and state. In 2017, Mack Beggs, a transgender male, was the Texas girls wrestling champion (Lenzi, 2018). Beggs had undergone hormone treatment for 2 years and asked to participate in the boys wresting program, but the University Interscholastic League (UIL), the Texas governing body regulating interscholastic sports, denied Beggs's request (Lenzi, 2018). The applicable UIL policies required that athletes compete in sports based on the sex reported on their birth certificate or their gender assigned at birth, requiring Beggs to compete against female competitors (Lenzi, 2018). A female competitor filed a lawsuit arguing that hormone treatments gave Beggs an unfair advantage when competing against female competitors (Lenzi, 2018). The case was dismissed though it exemplifies the inconsistent applications related to strict sex binary definitions that happen within the context of fluid gender identity conceptualizations (Lenzi, 2018). In comparison, other states, such as Connecticut (Connecticut General Statute § 10-15c, 2017), allow transgender athletes to participate in sports based on their preferred gender identity or affirmed gender, though policies determining participation in interscholastic sports are based on inconsistent gender validation methods. In 2017, a Connecticut transgender female, won the100-meter and 200-meter events at the Connecticut State Track and Field Championship. Concerns were raised about the unfair advantage the transgender female's male physique gave her over her competitors because she

had not undergone hormone treatment. These two cases exemplify the range of issues that can evolve related to transgender high school athletes' participation in sports.

Responding to the evolving sex-gender participation issues, the National Scholastic Athletics Foundation (NSAF, 2019), a nonprofit responsible for staging male and female track and field events, in preparation for the 2019 U.S. track and field championships, published a statement allowing transgender athletes who meet the eligibility requirements to participate in competitive sports events. Pre-pubescent transgender females can enter NSAF events using their affirmed gender identity (NSAF, 2019). Those transgender female athletes who have completed a year of hormone treatments can also compete based on their affirmed gender identities, and sex reassignment surgery is not required but satisfies the NSAF policy (NSAF, 2019).

The Transgender Law and Policy Institute (2020) developed guidelines for the creation of policies about transgender children's participation in sports that indicate:

> All young people should have the opportunity to play recreational sports and have their personal dignity respected. Transgender young people are no different. In fact, because transgender young people often must overcome significant stigma and challenges, it would be particularly harmful to exclude them from the significant physical, mental and social benefits that young people gain by playing recreational sports. The impact of such discrimination can be severe and can cause lifelong harm. In contrast, permitting transgender children and youth to participate in recreational sports in their affirmed gender can provide an enormous boost to their self-confidence and self-esteem and provide them with positive experiences that will help them in all other areas of their lives. (p. 1)

Currently, 16 states allow for the full inclusion of transgender athletes in high school sports, whereas 14 states have sex-gender verification policies requiring medical documentation or invasive physical examinations (Transathlete, 2020). Ten states do not have published guidelines or best practices regarding the participation of transgender students in sports, which leaves the development and implementation of policies to local school administrations (Transathlete, 2020). Additionally, 11 states have policies that include additional restrictions and limitations for transgender students wishing to participate in sports (Transathlete, 2020).

In a recent legal review article, Malagrino (2020) provided an overview of the issues related to fairness in transgender high school sports in the *Soule et al. v. Connecticut Association of Schools* federal court case, in which three parents argued that the CIAC violated Title IX of the Education Amendments of 1972, 20 U.S.C. §§ 1681–1688. Malagrino argued for a standardized national policy regarding the participation of transgender students and stated transgender athletes should be free to participate in high school competitions based on their affirmed gender identity. Further, Malagrino recommended that inclusive sports policies should (a) allow the participation of transgender athletes without any requirement to complete hormone treatment, (b) provide nongendered locker rooms and bathrooms, and (c) mandate gender diversity training for educators and coaches.

Transgender Athletes and Sports Literature

There is little research that provides an examination of transgender athletes, sports policies, and participation. There is less than 20 years of extant literature regarding transgender youth and high school sports participation in the United States (Jones et al., 2017). In 2017, Jones et al. conducted a seminal literature review of transgender people, sports policies, and sports participation. Eight of the 31 selected articles were peer-reviewed and included case

studies and research articles published in English from the years 2004–2015. There were a total of 147 participants in the eight peer-reviewed studies. Competitive advantage was not addressed in any of the studies. Jones et al. found most transgender athletes described negative experiences related to competing in sports or engaging in physical activity related to sports. Further, Jones et al. suggested there is a lack of supportive evidence for discriminatory sports policies that impose sex-gender restrictions and stated individuals who are transgender do not have a sports advantage.

Two seminal articles were not included in Jones et al.'s (2017) literature review. Jones et al. (2017) mentioned Harper's (2015) study with transgender athletes ($N = 8$) but did not include it in their systematic literature review. Harper (2015) examined transgender female running times employing a technique called "age" grading to compare transgender athletes before and after transitioning. Findings indicated no differences in transgender athletes' graded race times before and after transitioning. Limitations included small sample size and self-reported race times. This study's examination of graded race scores could be expanded to include a larger transgender population to answer some of the questions regarding transgender female athletes and competitive advantages related to race times (Harper, 2015). The current study is like Harper's, as it involved a comparison of race times for female transgender athletes versus cisgender male and cisgender female athletes, extending the literature regarding fairness and competitive edge. Much of the literature related to transgender athletes' participation in sports has contained a focus on the transition process and "unfairness," though little evidence is provided to back the unfairness standard (Jones et al., 2017).

Another significant article that Jones et al. (2017) did not review was Gooren and Bunck's (2004) quantitative comparative study with male transgender ($n = 17$) and female

transgender (n = 19) participants before and after transition across the following variables: (a) hemoglobin; (b) levels of testosterone; (c) muscle mass; and (d) insulin levels. Findings indicated female transgender participants retained higher levels of muscle mass than did male transgender participants. However, the transgender female athletes' muscle mass retention was within the range of cisgender female levels (Gooren & Bunck, 2004). Findings also indicated hand and foot size and height did not change after transitioning (Gooren & Bunck, 2004).

Hilton and Lundberg (2021) investigated the hypothesis that transgender females have no competitive advantage over their female peers. The authors argued that hormone treatment does not remove the competitive advantage that male athletes have over female athletes in sports competitions (Hilton & Lundberg, 2021). The authors reported longitudinal studies investigating the impact of hormone treatment on muscle strength and mass in transgender females show there is minimal change in muscle strength and mass, amounting to nearly 5%, after a year of hormone treatment. Therefore, Hilton and Lundberg contended the athletic advantage transgender females enjoyed as males is not significantly reduced. The authors recommended current transgender sports participation policies be updated given this information.

Using a different approach, Stavely and Keenan (2019) employed a sociological and psychological perspective to review the current literature about why many transgender athletes decline to participate in high school sports in the United States. Consistent with the transgender healthcare literature, Stavely and Keenan found mental health and self-esteem issues can influence transgender athletes' interest in participating in sports. Findings indicated the fear of being seen in public, lack of nongender locker rooms, and restrictive sports participation policies result in decreased transgender athlete participation in sports compared to their cisgender peers (Stavely & Keenan, 2019). Though many transgender athletes could be interested in participating

in sports, there is a low participation rate because of the many barriers (Stavely & Keenan, 2019).

The participation of transgender athletes in sports increases the need for athletic trainers, especially at national, international, and Olympic competitions, to receive professional development in working with transgender participants. In a mixed-method cross-sectional study with college athletic trainers (N = 5,537), Walen et al. (2020) investigated whether the athletic trainers were prepared to care for the needs of transgender athletes. Findings indicated 48% of the trainers felt prepared to work with transgender athletes; however, few (36%) felt competent to collaborate with an endocrinologist regarding the testosterone screening tests (Walen et al., 2020). Findings indicated participants (46%) felt comfortable using the correct terminology relevant to their transgender athletes (Walen et al., 2020). The athletic trainers thought they lacked competency regarding teaching transgender athletes about how hormone treatment affects their sport participation or mental health. A third of the athletic trainers reported a lack of education on transgender healthcare (Walen et al., 2020). Although 41% of the athletic trainers thought transgender female athletes had an unfair edge over their nontransgender female peers, only 7% of the athletic trainers thought transgender male athletes had an unfair edge over their nontransgender peers (Walen et al., 2020). Because trainers have an integral role in athletes' training and performance, they must receive the necessary training to provide adequate healthcare to transgender athletes (Walen et al., 2020).

The literature regarding the participation of transgender youth in high school sports is evolving as regulations, policies, and laws change to meet the needs of both transgender students and their peers. This field of study is relatively new, with most of the extant literature dating from Gooren and Bunck's 2004 study. The issue of fairness is the common thread intertwined

throughout most of the transgender sports literature. The next section includes an overview of legislation related to transgender athletes' participation in sports.

Legislation Regarding Transgender Athletes' Participation in Sports

In 2015, the OCR published an opinion letter providing an interpretation of the application of Title IX to people who are transgender. Title IX provides protections against sexual discrimination in educational settings and sponsored activities that are federally funded. These Title IX protections were extended to the queer and transgender population guaranteeing their right to an equal education (OCR, 2015). Specifically, the OCR opinion letter indicated that within Title IX, schools are permitted to have athletic teams that are segregated by sex. However, when athletes are treated differentially based on sex, transgender athletes must be treated according to their gender identity (OCR, 2015).

Challenges to Title IX policies regarding transgender student policies focus on the definition and application of the phrase "on the basis of sex." Yet, the federal government's interpretation of the Title IX phrase "on the basis of sex" has provided a range of responses by educational stakeholders at the local, state, and federal levels (Kosciw et al., 2020; Lenzi, 2018).

To clarify the protections afforded to transgender students under Title IX, in 2010, the U.S. Department of Education opined that the prohibition of transgender students from using bathrooms in alignment with their gender identity violated federal anti-discrimination laws. In 2016, the U.S. Department of Justice and the U.S. Department of Education published a Dear Colleague Letter outlining public schools' responsibilities under Title IX for transgender students. The guidelines included using the proper pronouns and names of transgender students aligned with their gender identity, providing nongender bathrooms, and ensuring access to sports activities (Morrison, 2016). The Dear Colleague Letter indicated:

> When a school provides sex-segregated activities and facilities, transgender students must be allowed to participate in such activities and access such facilities consistent with their gender identity . . . Departments treat a student's gender identity as the student's "sex" for purposes of Title IX and its implementing regulations. (p. 2)

However, in 2017, the 2016 Dear Colleague Letter was rescinded, and an updated Dear Colleague Letter deferred the decision-making regarding transgender students' access to nongender bathrooms and activities to educational stakeholders at the local and state levels (U.S. Department of Education, 2017).

Lacking guidance regarding transgender students and equal access under Title IX, in 2020, the U.S. Department of Education repealed the 2017 Dear Colleague Letter because the 2017 letter did not provide any changes or new information about Title IX's applicability to transgender students and nor did it reverse the 2015 and 2016 guidelines. Instead, an interpretive vacuum generated numerous legal issues and challenges related to these issues (Kosciw et al., 2020; Lenzi, 2018).

Legislation Addressing Transgender Rights

In the past two decades, international and national athletic and school administrators have attempted to provide equal protection against discrimination for all students in the school environment and school-related activities. The rapid changes in and politicization of policies and laws related to transgender students' participation in sports and access to locker rooms, restrooms, and showers make it difficult for local, state, and school and sports administrators to interpret and implement those policies. There were many significant court cases in the year 2020 related to transgender athletes' rights to participate in high school sports in the United States, including the following cases.

Relevant 2020 Legislation

On May 15, 2020, the Office of Civil Rights issued the Letter of Impending Enforcement Action related to a complaint that alleged the policies of six school districts and the CIAC permitting transgender athletes to participate according to their gender identity violated Title IX (Malagrino, 2020). On February 23, 2021, the OCR issued a letter withdrawing the May 15 letter of impending action. A lawsuit, *Soule et al. v. Connecticut Association of Schools*, was filed by three female athletes who argued that transgender females had an unfair advantage in track events that denied cisgender females the chance to finish higher in track events, become champions, garner college coaches' attention, and qualify for athletic scholarships, which they alleged violated Title IX's prohibition of sex discrimination in any federally funded program (Malagrino, 2020).

In the May 2020 and August 2020 OCR released opinions, the term "sex" as related to Title IX referred to biological gender and not to gender identity; therefore, the OCR concluded the policies of the six school districts and the CIAC regarding the rights of transgender individuals to participate in sports to be violations of Title IX (Papa, 2020). However, in February 2021, the OCR issued a letter withdrawing its May 2020 and August 2020 letters of impending action and the underlying findings and determinations in those letters. Also, on February 23, 2021, the U.S. Justice Department issued a letter stating the government had reconsidered the matter and notified the Court that it withdrew its previous Statement of Interest. The legal questions regarding the definition of "sex" and its applicability to Title IX will be determined ultimately by the courts. The *Soule et al. v. Connecticut Association of Schools* case is pending and will be reviewed by the Supreme Court in 2021 (Malagrino, 2020). The issue remains hotly debated, with many court cases winding their way through the legal system. The

following 2020 U.S. District Courts and U.S. Circuit Courts of Appeal rulings reflect the legal trends related to transgender athlete sports participation.

On June 15, 2020, the U.S. Supreme Court ruled in *Bostock v. Clayton County* that discrimination in the workplace against a person who is transgender or gay is a violation of Title VII of the Civil Rights Act of 1964 (Valenti, 2020). Though the Supreme Court addressed bias under Title VII against LGBTQ people in the workplace, there is much speculation around whether the definition of "sex" related to gender identity would extend to future cases related to Title IX discrimination pertaining to transgender students' rights to participate in sports and use nongender locker rooms, restrooms, and showers (Anderson, 2020; Dunn, 2020; Valenti, 2020).

G.G. v. Gloucester County School Board

An August 2020 U.S. Fourth Circuit Court of Appeals ruling favored the complainant, Gavin Grimm, who was not permitted to use the male bathrooms in 2014 at the Gloucester County High School in Virginia (Moorad, 2020). An earlier June 2016 Fourth Circuit Court ruling determined the word "sex" in the context of Title IX refers to gender identity and not to the sex assigned at birth. Further, restriction of a transgender student's use of the school bathroom was ruled a violation of Title IX and equal protection statutes (Malagrino, 2020). The Fourth Circuit Court ruling was based on the 2010 OCR Title IX guidelines, which clarified the rights of transgender students in school sports (Papa, 2020). An appeal of the *G.G. v. Gloucester County School Board* was scheduled for the U.S. Supreme Court docket in March of 2017; however, the revocation of the OCR Title IX guidelines resulted in the Supreme Court sending the *G.G. v. Gloucester County School Board* appeal back to the lower judicial system for a rehearing (Malagrino, 2020). Subsequently, the 2020 Fourth Circuit rehearing upheld the 2019 ruling regarding *G.G. v. Gloucester County School Board*, concluding that regardless of the

rescinding of the OCR Title IX guidelines, gender identity is the governing factor related to transgender athletes' rights to equal access and protection in schools and sports activities (Papa, 2020).

Adams v. St. Johns County School Board

In August 2020, the U.S. Eleventh Circuit Court of Appeals agreed with the district court decision that the prevention of Drew Adams, a transgender male, from using school bathrooms, shower rooms, and locker rooms in Nease High School in Florida was a violation of his Title IX and equal protection rights (Malagrino, 2020). The counterargument by the high school administrators was that the policy was developed to protect cisgender female students' privacy (Papa, 2020). The court indicated the school had not presented evidence supporting a correlation between transgender students' exclusion from using the restroom and protecting other students' privacy (Moorad, 2020).

Hecox et al. v. Little

In August 2020, the U.S. District Court passed an injunction related to *Hecox et al. v. Little* barring the State of Idaho from implementing Idaho HB500, which limited transgender females from participation on high school and college athletic teams, indicating the statute violated the equal protection rights guaranteed in the U.S. Constitution (Malagrino, 2020).

A lawsuit was filed by transgender Idaho college and school athletes in March 2020 after HB500 was enacted, and the temporary restraining order issued by the federal court will bar its implementation pending a full trial in the case (Malagrino, 2020). Though Idaho's statute was the first to be passed, more than 12 states have introduced similar statutes (Jones et al., 2017; Transathlete, 2020).

Summary

The problem addressed in this study was the lack of knowledge and quantitative research on transgender female, cisgender female, and cisgender male high school track athletes' race time performances when considering inclusive high school transgender participation policies (Jones et al., 2017). The focus of this quantitative descriptive case study was to examine the extent to which transgender female athletes perform in comparison to their cisgender male and female high school track athlete peers. High school track sprinting event results were examined to understand the extent to which inclusive transgender participation policies affect transgender and cisgender female athletes. A case study design was used to extend transgender theory and test whether inclusive high school transgender participation policies negatively affect cisgender female track athletes' performance opportunities and their ability to earn a collegiate scholarship based on performance times. Three theories that provide the contextual basis with which to understand the historical background of transgender theory were reviewed: (a) structuration theory; (b) feminist theory; and (c) queer theory. In this study, transgender theory was used to challenge the heteronormative views embedded within high school sports that marginalize transgender high school athletes and understand transgender high school athletes' physical embodied experience. Transgender theory provides a way to understand that a person's body development is complicated and neurological diversity is a part of a category. Despite efforts to standardize sex-gender verification processes, the question remains what constitutes a fair or unfair genetic or biological sex advantage and how to define that advantage definitively. The role of sex in sports lacks a clear definition. Further, it is unclear when a person has an androgen sports advantage or merely increased measurable androgen levels. The literature relevant to policies and transgender athletes' participation in high school sports was reviewed in this

chapter. One critical review indicated transgender females do not have an unfair advantage over their cisgender female peers. Many lawsuits are pending in the judicial system for and against transgender athletes' rights to participate in sports based on their gender identity. Transgender athlete policies, laws, and implementation are often politicized and change quickly. Chapter 3 is organized as follows: research methodology and design, population and sample, instrumentation, operational definitions of variables, study procedures, data analysis, assumptions, limitations, delimitations, ethical assurances, and summary.

Chapter 3: Research Method

The problem addressed within this study was the lack of understanding regarding female transgender and cisgender high school track athletes' performance. The purpose of this quantitative descriptive case study was to examine the extent to which transgender male-to-female athletes perform in comparison to their cisgender male and female high school track athlete peers. In this chapter, this study's methodology and design are described and the relationship to the problem, purpose, and research questions explained. A rationale is provided for the choice of methodology and why it was the most appropriate for this study. Additionally, the population, selected sample, and quantitative power analysis are identified. Ethical assurances for participants and data security are described. Data collection instruments and analysis methods are discussed, along with the identification of the outcome and predictor variables. This chapter includes step-by-step procedures used to conduct the study and identifies assumptions, limitations, and delimitations.

Research Methodology and Design

This quantitative descriptive case study involved an examination of the mean differences among the race times of male, female, and transgender high school track athletes using archival data from the 2017–2018, 2018–2019, and 2019–2020 Connecticut and National indoor 55-meter and 100-meter outdoor races. A descriptive design was selected as the best method to describe the status of high school track sprint performance time relative to gender identity. In this descriptive design, the grouped data were categorized based on athletes' gender identity rather than random group assignment. This design and methodology yielded quantitative data, which allowed for comparisons between the groups (House, 2018). The quantitative descriptive case

study method was chosen because no attempt was made to change participants' behavior or conditions (Hopkins, 2000).

Quantitative methodology was selected for this study as it provided an analytic approach toward identifying causal statements (Strang & Siler, 2017). The explication of sampling, data collection, and analytics provided in quantitative methodology was more applicable to the purpose of this study than implied methods of qualitative research (Strang & Siler, 2017). Qualitative researchers focus as much on the process that leads to the outcome as they do on the product of the outcome itself (House, 2018). In this study, the focus was strictly on the outcome of race time, not on the process that contributed to that product. A quantitative approach produced general objective results using reliable, replicable data and statistical analyses (House, 2018).

A quantitative descriptive design was selected over an experimental design because no intervention was administered to any subject group (House, 2018). Alternative quantitative descriptive methodology and designs were considered and determined to be inappropriate for this study. The focus of this study was solely on high school transgender female, cisgender male, and cisgender female track athletes. Therefore, the case series and cross-sectional designs were determined to be inappropriate as each performance time was measured only once (Hopkins, 2000). A cohort study was also considered; however, the variables of this study did not produce an outcome subject to a period of time (Hopkins, 2000). Finally, a case-control design was eliminated as none of the subjects were exposed to a previous condition that would allow them to be designated as either cases or controls (Hopkins, 2000).

Population

This study's population included all high school female (N = 4,500) and male (N = 5,000) athletes who participated in indoor track and all high school female (N = 6,500) and male (N = 7,500) athletes who participated in outdoor track. The total number of transgender female athletes is unknown because they race in the female indoor and outdoor track events and often do not reveal their gender identity publicly. Data generated from this target population are archived on the Athletic.net website, which is accessible to the public. The use of a high school athlete population addressed this study's problem and purpose by providing insight into the differences among female, male, and transgender high school athletes' race times.

Sample

The sample included publicly accessible archival data for the 50 top male and female athlete race times from the indoor 55-meter and outdoor 100-meter race events. Archived race times were examined for the 2017–2018, 2018–2019, and 2019–2020 school years. There were four samples, including the Connecticut 55-meter (n = 304), National 55-meter (n = 313), Connecticut 100-meter (n = 217), and National 100-meter (n = 315), obtained from the Athletic.net website. Table 1 provides an overview of the cisgender female, cisgender male, and transgender female athlete samples by race event .

Table 1

Gender Sample Size

	Connecticut 55	National 55	Connecticut 100	National 100	Total
Females	146	156	105	153	560
Males	153	154	108	162	577
Transgender	5	3	4	0	12
Total	304	313	217	315	1149

The 55-meter and 100-meter data were analyzed separately because the race times are not equivalent measures. The averages for the shorter race are significantly lower than the averages for the longer race. The results would not be valid if they were analyzed together. The low numbers of transgender athletes participating in these races were representative of the transgender athlete population. Two transgender female athletes' gender identities were known because of the public Title IX challenge by three parents to Connecticut's interscholastic athletic transgender participation policy. Therefore, these athletes could perform in the race based on their gender identity rather than their gender assigned at birth. There were no transgender males who raced during these indoor and outdoor race events according to their gender identity. Archival data that included race times for these athletes were used in data collection and analysis.

A nonpurposive sample of Connecticut high school female, male, and transgender female track athletes was used for this study to yield a homogenous sample ($N = 1{,}149$) reflecting the population characteristics of cisgender female, cisgender male, and transgender female athletes. Data for gender, grade level, and race time from the target population are archived on the Athletic.net public website. Randomization was not possible because the top 50 slots were predetermined by race time. Data were accessed after Institutional Review Board (IRB) approval was obtained. Participant identities, though publicly available, were de-identified in this study to protect individuals' privacy and to ensure there were minimal risks to participants.

G*Power software was used to conduct an a priori power analysis to estimate this study's sample size. The G*Power analysis indicated that given three groups, an alpha significance of .05, and an effect size of 50, a sample size of 102 would yield a power of .95. The power assumes an F test was used with a significance level of 0.05. The effect size *F* would be a large

one. Therefore, the samples from the Connecticut 55-meter (n = 304), National 55-meter (n = 313), Connecticut 100-meter (n = 217), and National 100-meter (n = 315) were sufficient to address this study's research questions and problem (Faul et al., 2009). The final obtained sample size was 1,149 race times.

Instrumentation

All data used in this study were previously collected and publicly accessible via the Athletic.net database. The race times for all participants were recorded at indoor or outdoor track events that were sanctioned by state high school interscholastic athletic associations. Participants' race times were recorded using fully automatic timing (FAT), which is the highest standard for measuring running performance. The FAT digitally measures race results with minimum accuracy of 0.01 seconds. Participants' FAT times were measured with an automatically activated start time and an electronically captured finish to remove human error or delay. FAT is required by the National Federation of High Schools (NFHS) and the NCAA as the only acceptable method of running time measurement to validate championship and record performance times. All 50 high school interscholastic athletic associations use FAT systems in their state championship meets. All NCAA Division I track programs are required to use FAT systems in competition. Permission to use an FAT system was not required as the data had been previously collected and were publicly accessible. All data used in this study were gathered from public records published on Athletic.net, a statistics web service to which high schools, clubs, and college teams upload FAT performance results.

Operational Definitions of Variables

This study included two variable types, including (a) race times (outcome variable); (b) gender (predictor variable); and (c) gender identity (predictor variable). The outcome variable of

this study was race time. Gender was a predictor variable categorized by the participants' gender, including cisgender male, cisgender female, and transgender female. The following section provides each variable's operational definition.

Outcome Variable: Race Time

Race times were outcome variables for Research Questions 1 and 2. Race time scores were measured on an interval scale, as race time is measured in seconds by an FAT system. Precision in terms of race time measurements is recorded in units of seconds to the 1/100th of a second. The data were accessed via the Athletic.net website after IRB approval was obtained.

Predictor Variable: Cisgender Male

Cisgender male was a predictor grouping variable. This independent grouping variable helped address Research Questions 1 and 2. Cisgender male gender participants were categorized as those who were assigned the gender male at birth and had participated in a qualifying event as a male.

Predictor Variable: Cisgender Female

Cisgender female gender was a predictor grouping variable. This independent grouping variable helped address Research Questions 1 and 2. Cisgender female gender participants were categorized as those who were assigned the gender female at birth and had participated in a qualifying event as a female.

Predictor Variable: Transgender Female

Transgender female was a predictor grouping variable. This predictor grouping variable helped answer Research Questions 1 and 2. Transgender female participants were categorized as those who self-identified as female, although their assigned gender assigned at birth was male, and had participated in a qualifying event as a female.

Study Procedures

All data collected for this study came from publicly accessible data published on the Athletic.net website. Student names and grade levels were not revealed in the sample gender and gender identity groups, although they were publicly available. Only performance times for each sample gender group participant were used for data analysis.

Data Collection, Processing, and Analysis

This quantitative descriptive case study was nonexperimental in nature. Three distinct research phases of data collection, data processing, and data analysis are described in the next three sections.

Data Collection

This study's targeted population consisted of all high school female (N = 4,500) and male (N = 5,000) athletes who participated in indoor track and all high school female (N = 6,500) and male (N = 7,500) athletes who participated in outdoor track. Data generated from this target population are archived on the Athletic.net website, which is accessible to the public. The complete data set for this study was the targeted population. A nonrandomized nonpurposive sample of the 50 top male and female athletes' race times from the indoor 55-meter and outdoor 100-meter race events was used. Those archived race times were examined for the 2017–2018, 2018–2019, and 2019–2020 school years. There were four samples, including the Connecticut 55-meter (n = 304), National 55-meter (n = 313), Connecticut 100-meter (n = 217), and National 100-meter (n = 315), obtained from the Athletic.net website. The 55-meter and 100-meter data were analyzed separately because the race times are not equivalent measures. According to the conducted G*Power analysis, all samples needed to achieve an effect size of .40 (Faul et al., 2009).

After IRB approval, data were downloaded from the Athletic.net website to an encrypted hard drive. The data sets of 1,149 race times for the indoor 55-meter race and the 100-meter race were de-identified to protect athletes' privacy and ensure minimal risks. The IRB research and ethical protocols were followed. Data analysis was designed to extend the transgender theory to transgender high school athletes' participation in competitive sports, given that transgender theory indicates inclusive sports policies could have a positive impact on transgender athletes. Theoretical understanding could be improved by the knowledge of whether there is a significant difference between the race times of transgender and cisgender athletes.

Data Processing

1. A total of 1,149 race times for the 55-meter indoor and 100-meter outdoor races were downloaded from the Athletic.net website to a secure encrypted hard drive. The data sets included race times for male, female, and transgender athletes.
2. The data were immediately de-identified.
3. Data were then uploaded into SPSS version 27.
4. Descriptive statistics were calculated for the indoor and outdoor race times by gender (male, female) and gender identity (transgender), including the means and standard deviations.
5. A one-way ANOVA was performed to test the research hypotheses.
6. A boxplot was used to check the descriptive statistics for outliers.
7. Normality assumptions were evaluated by inspection of kurtosis and skewness values for normality.
8. Homogeneity assumptions were tested using Levene's test.
9. Appropriate post hoc tests were conducted to test any failed statistical assumptions.

10. Pairwise comparisons were conducted to determine the differences across the three groups.

Data Analysis

The data analysis steps used in this study are outlined in this section.

1. Descriptive statistics outcomes were presented in the results section and in Appendix A.
2. The results of the homogeneity of variance and normality assumptions related to a one-way ANOVA were reported in the results section and analyzed in the evaluation of the findings section. The necessary post hoc tests, rationale, and results were conducted and reported.
3. The research hypotheses were analyzed using the one-way ANOVA and reported in the results section and analyzed in the evaluation section.
4. Differences between the three groups were analyzed using pairwise comparisons (*t*-tests), and results reported.

Assumptions

It was assumed that the original race times were properly recorded using an FAT system and all data were accurately reported for each participant. The data included race, time, and gender. Additionally, it was assumed that the matter of gender classification was settled prior to the original submission of data and that each participant's race time was recorded from a race in which all runners were of the same gender. Further, it was assumed that each participant's gender classification accurately reflected the gender by which they lived their life. It was assumed that all submitted participant race times reflected their best performance in that event at the time of submission. Finally, it was assumed that race conditions, including track surface and

wind conditions, were relatively equal for all participants and did not significantly enhance any individual performance.

Limitations

A limitation of the study design was the nonrandom grouping of participants. Gender groups were predetermined based on each participant's self-identification. Another study limitation was the potential training variance for each participant. Training and coaching of each participant prior to achieving the archived race time were not considered. A third study limitation was the small sample size of two publicly identified transgender female participants. Top performance times were used to reduce the impact of nonrandomization, training variance, and small sample size. Top performance times minimized variability by using elite race times from each gender group.

Delimitations

A delimitation of this study was the self-identification of gender. No hormone treatment or other transition therapy was required for participants identifying as transgender females. The small sample size of 12 publicly identified transgender female race times was another delimitation. Limiting the sample ensured equal data sets could be collected from each gender group, considering the limited number of self-identified female transgender Connecticut high school track athletes in relation to the number of cisgender male and cisgender female Connecticut high school track athletes.

Ethical Assurances

Prior to data collection, approval to conduct this study was received from Northcentral University's IRB. Basic ethical principles, as defined in the *Belmont Report* to respect all persons, beneficence, and justice were followed (Anabo et al., 2019). Publicly available archival

data sets were used to collect data for this study. All data used in this study were publicly identified by each individual participant, including gender, grade level, and race time. In consideration of respect for persons, there was no expectation of privacy because the information had been made public (Anabo et al., 2019). However, to maximize anonymity, participant names and grade levels were not reported. Additionally, names and grade levels were omitted from participants placed in the male, female, and transgender female predictor variable groups. After the publicly recorded race times were retrieved from Athletic.net, all study archival data sets were stored on a password-protected flash drive and will be destroyed after 3 years. Providing anonymity and secure data storage ensured beneficence by minimizing risk to participants while maximizing the benefit of study outcomes (Anabo et al., 2019). Inclusion methods for all defined predictor variable groups met the *Belmont Report* standard of justice by distributing risk fairly among all groups while recognizing the risk of excluding transgender athletes (Anabo et al., 2019).

The role of the researcher in this study included data collection, analysis, and reporting findings. Transgender athletic participation policy debates are prevalent in the United States. Though individual biases about inclusive transgender policies exist, this study is necessary to measure the impact of such policies. A quantitative case study design that used archival data sets recorded by FAT systems, and analysis by SPSS software, prevented any researcher bias from influencing the quantitative analysis and findings.

Summary

A quantitative descriptive case study method was used to describe the status of Connecticut high school sprint performance time relative to gender identity. Nonrandomized Connecticut cisgender male, cisgender female, and transgender female participant race times

were collected from archived data sets. ANOVA and independent *t*-tests were performed to examine the status of race time relative to gender identity. All race times were previously recorded using FAT systems, which digitally measured performance to 1/100th of a second. Data analysis was performed using SPSS software (version 27). Chapter 4 provides an overview of the results and an evaluation of the findings.

Chapter 4: Findings

The influence of sex and gender identity on high school track athletes' race times is at the heart of state and national debates (Kosciw et al., 2020; Moorad, 2020; Philips, 2017). The problem addressed in this study was the lack of knowledge and quantitative research on transgender female, cisgender female, and cisgender male high school track athletes' race time performances when considering inclusive high school transgender participation policies (Hilton & Lundberg, 2021; Khattab et al., 2020). The purpose of this quantitative descriptive case study was to examine the extent to which transgender male-to-female athletes perform in comparison to their cisgender male and female high school track athlete peers. This study's findings are presented in this chapter as follows: reliability and validity of the data, results, findings for each research question, evaluation of findings, and a summary.

Reliability and Validity of the Data

Calculations for effect size and *p*-value were performed. The reported alpha significance of .05 indicates the chance of making an error in rejecting the null hypothesis is less than 5%; however, this calculation provides no information about the strength of the reported results (McLeod, 2019). Thus, a significant *p*-value can show nothing about the strength of the relationship between the outcome and predictor variables. The effect size provides information on the strength of the association between these two variables. Reporting the effect size and the *p*-value is a more evidence-based approach (McLeod, 2019).

An a priori power analysis indicated that given three groups, an alpha significance of .05 and an effect size of 50, with a sample size of 102, would yield a power of .95. The effect size would be a large one. The obtained sample sizes for this study for high school female, male, and transgender athletes' top 50 race times that were ranked and recorded were as follows: (a)

Connecticut 55-meter (n = 304), (b) National 55-meter (n = 313), (b) Connecticut 100-meter (n = 217), and National 100-meter (n = 315). All race times were recorded by a FAT timing system that captures race times that are accurate to 1/100th of a second. The obtained omega squared results for the four outcome variables were (a) Connecticut 55-meter race times (ω^2 = .94), National 55-meter race times (ω^2 = .95), Connecticut 100-meter race times (ω^2 = .79), and National 100-meter race times (ω^2 = .93), indicating 94%, 95%, 79%, and 93%, respectively, of the total variation in athletes' average scores on the measure of race times, were attributable to the differences between the female, male, and transgender female groups. This large effect size was sufficient to address this study's research questions and problem (Faul et al., 2009).

A one-way ANOVA was performed for each of the four race time categories (i.e., Connecticut 55-meter, National 55-meter, Connecticut 100-meter, National 100-meter) to determine differences in the mean race times for female, male, and transgender female athletes. Descriptive statistical analyses were performed for each of the four race time categories. A box plot was used to examine the four data sets for outliers. Outliers were found in some of the data sets. Outliers in the data set were kept and further examined for normality assumptions through an exploration of the skewness and kurtosis of four data sets. Homogeneity assumptions were evaluated using Levene's test. Because of the unequal variances in two of the data sets, Welch's ANOVA, which is robust to unequal variances, was used for each of the four race time categories. Multiple comparisons were made across the three predictor variable groupings of (a) female, (b) male, and (c) transgender female. Results of these evaluations are provided in the next section.

Results

The 1,149 participants in this study's nonpurposive archival sample were high school female, male, and transgender athletes whose top race times were ranked and recorded for the Connecticut 55-meter (n = 304), National 55-meter (n = 313), Connecticut 100-meter (n = 217), and National-100 meter (n = 315) on the Athletic.net website. The sample included publicly accessible archival data of the 50 top male and female athlete race times from the indoor 55-meter and outdoor 100-meter race events. Although the identities of participants are published on the website, they were de-identified for the purposes of this study. The archived race times were examined by gender for the 2017–2018, 2018–2019, and 2019–2020 school years. The gender demographics for the 1,149 participants are presented in Table 1. The predictor variables for this study were cisgender females, cisgender males, and transgender females.

There were few 100-meter outdoor race times for the 2019–2020 school year due to the COVID-19 pandemic. The 55-meter and 100-meter data were analyzed separately because the race times are not equivalent measures. The low numbers of transgender athletes participating in these races are representative of the transgender athlete population. The gender identity of transgender female athletes is known in this situation because Connecticut has a policy in place that includes transgender female athletes in high school sports activities. Therefore, these athletes were able to perform in the race specific to their gender identity rather than their gender assigned at birth. There were no known transgender males who raced during these indoor and outdoor race events according to their gender identity.

Pre-Analysis

The Athletic.net website yielded publicly accessible data for the Connecticut 55-meter (n = 304) and 100-meter (n = 217) and the National 55-meter (n = 313) and 100-meter (n = 315)

races for the 2017–2018, 2018–2019, and 2019–2020 school years that were downloaded by gender (i.e., female, male, transgender female), rank, and grade level for the top 50 race times. The complete data set is defined as one that has corresponding race time scores for each of the 2017–2018, 2018–2019, and 2019–2020 Connecticut and National top 50 ranked race times. The data were de-identified for the purposes of this study. The data included 1,149 race times that were downloaded into SPSS version 27 and stored on an external encrypted, password-protected drive. Data were cleaned and visually inspected using SPSS version 27, resulting in 1,149 complete data sets.

Descriptive Statistics. Data were presented as mean ± standard deviation as shown in Appendix A. High school students' race times for the Connecticut 55-meter ranged from fastest to slowest as follows: cisgender male (n = 153, 6.65 ± .086), to transgender female (n = 5, 7.08 ± .151), to cisgender female (n = 146, 7.52 ± .124). High school students' race times for the National 55-meter ranged from fastest to slowest as follows: cisgender male (n = 154, 6.34 ± .054), to transgender female (n = 3, 6.97 ± .078), to cisgender female (n = 157, 7.05 ± .088). High school students' race times for the Connecticut-100 meter ranged from fastest to slowest as follows: cisgender male (n = 109, 11.20 ± .036), to transgender female (n = 4, 11.92 ± .171), to cisgender female (n = 105, 12.72 ± .037). Finally, high school students' race times for the National 100-meter ranged from fastest to slowest as follows: cisgender male (n = 161, 10.41 ± .010) to cisgender female (n = 153, 11.64 ± .017). There were no transgender female athletes recorded for the National 100-meter race. Results revealed male athletes' race times were faster than those of transgender female and cisgender female athletes in all four races. Results showed transgender female athletes' race times were faster than those of cisgender female athletes for the Connecticut 55-meter, National 55-meter, and Connecticut 100-meter. Cisgender female athletes

had the slowest race times for all four races. Descriptive statistics are presented in Table 2 for all the outcome variables, which included National 55, Connecticut 55, National 100, and Connecticut 100. The descriptive statistics for the gender categories are presented for each of the predictor variable categories in Table 3.

Table 2

Descriptive Statistics for Outcome Variables

	N	*M*	*SE*	*SD*
National 55	313	7.08	.28	.44
Connecticut 55	304	7.17	.27	.34
National 100	315	11.94	.32	.84
Connecticut 100	217	11.01	.27	.64

Note. National 55 and Connecticut 55 is the indoor 55-meter race, and National 100 and Connecticut 100 is the outdoor 100-meter race.

Table 3

Descriptive Statistics for Connecticut and National Race Time by Gender

		N	*M*	*SE*	*SD*
Connecticut 55	Female	146	7.52	.124	.037
	Male	153	6.65	.086	.036
	Transgender	5	7.08	.151	.171
National 55	Female	156	7.05	.088	.007
	Male	154	6.34	.054	.004
	Transgender	3	6.97	.078	.055
Connecticut 100	Female	105	12.72	.037	.383
	Male	108	11.20	.036	.377
	Transgender	4	11.92	.171	.343
National 100	Female	153	11.64	.017	.205
	Male	162	10.41	.010	.128
	Transgender	0	0	0	0

Note. National 55 and Connecticut 55 is the indoor 55-meter race, and National 100 and Connecticut 100 is the outdoor 100-meter race.

Outcome Variables Skewness and Kurtosis. Boxplots for the Connecticut 55, National 55, Connecticut 100, and National 100 were inspected, and outliers were found for the (a) Connecticut 55 for the male and transgender female categories, (b) National 55 for the cisgender female and male categories, (c) Connecticut 100 for the cisgender female and transgender female categories, and (d) National 100 for the cisgender female and male categories. Data set outliers were kept and further examined for normality assumptions through an exploration of the skewness and kurtosis of the outcome variables. All skewness and kurtosis values for the four outcome variables, National 55 (n = 313), Connecticut 55 (n = 304), National 100 (n = 315), and Connecticut 100 (n = 217), were between -2 and +2, which is within the range necessary to show an approximate normal distribution (Privitera, 2018). Therefore, all outcome variables met the normality assumptions for a one-way ANOVA. Table 4 provides the skewness and kurtosis statistics for the four outcome variables.

Table 4

Skewness and Kurtosis for Outcome Variables

	N	Skewness		Kurtosis	
			SE		SE
National 55	313	.089	.140	-1.783	.279
Connecticut 55	304	.020	.138	-1.852	.275
National 100	315	.238	.154	-1.228	.327
Connecticut 100	217	.135	.137*	-1.732	.274

Note. National 55 and Connecticut 55 is the indoor 55-meter race, and National 100 and Connecticut 100 is the outdoor 100-meter race.

One-Way ANOVA. Four separate one-way ANOVAs were used to determine whether there was a significant effect of race times for the Connecticut 55-meter, National 55-meter,

Connecticut 100-meter, and National 100-meter race times on gender (e.g., cisgender female, male, transgender female). All of the data for the Connecticut 55-meter, National 55-meter, Connecticut 100-meter, and National 100-meter race times met the normality assumptions for one-way ANOVA. The Levene's test of homogeneity of variances assumptions were met for the National 55 (p = .00) and the National 100 (p = .00) and were not met for the Connecticut 55 (p = .035) or Connecticut 100 (p = .582). Therefore, Welch's ANOVA, which is robust for unequal variances, was used for each of the four outcome variables. An alpha level of .05 was set for subsequent analyses.

Welch's ANOVA. The Welch's ANOVA of high school student-athletes' average score on gender (e.g., cisgender female, male, transgender female) revealed a statisticically significant main effect Welch's for each of the separate Welch ANOVAs, including Connecticut 55-meter [$F(2,301) = 2438.37$, $p < .000$], National 55-meter [$F(2,310) = 3210.34$, $p < .000$], Connecticut 100-meter [$F(2,215) = 426.71$, $p < .000$], and National 100-meter [$F(2,313) = 4125.03$, $p < .000$], indicating not all the cisgender female, male, and transgender female athletes' mean scores on the measure of the Connecticut 55-meter, National 100-meter, Connecticut 100-meter, and National 100-meter race times were the same.

Omega Squared. The estimated omega squared results are presented for each of the four outcome variables in this section. The estimated omega squared ($\omega^2 = .94$) indicated approximately 94% of the total variation in average scores for the Connecticut 55-meter race times was attributable to the differences between the cisgender female, male, and transgender female groups. The estimated omega squared ($\omega^2 = .95$) indicated approximately 95% of the total variation in average scores for the National 55-meter race times was attributable to the differences between the cisgender female, male, and transgender female groups. The estimated

omega squared ($\omega^2 = .79$) indicated approximately 79% of the total variation in average scores for the Connecticut 100-meter race times was attributable to the differences between the cisgender female, male, and transgender female groups. The estimated omega squared ($\omega^2 = .93$) indicated approximately 93% of the total variation in average scores for the National 100-meter race times was attributable to the differences between the cisgender female, male, and transgender female groups.

Findings indicated there were significant differences in the race times of the cisgender female, male, and transgender female groups for the Connecticut 55-meter, National 55-meter, Connecticut 100-meter, and National 100-meter race times. However, it was necessary to conduct a Games-Howell post hoc procedure to determine which of the three gender groups differed significantly and to adequately address the two research questions and related hypotheses. The results are presented in the respective research question and hypotheses sections.

Research Question 1/Hypothesis

To what extent do Connecticut's high school transgender female athletes significantly outperform their cisgender female peers?

$H1_0$. Connecticut high school transgender female track athletes do not run significantly faster than their cisgender female peers.

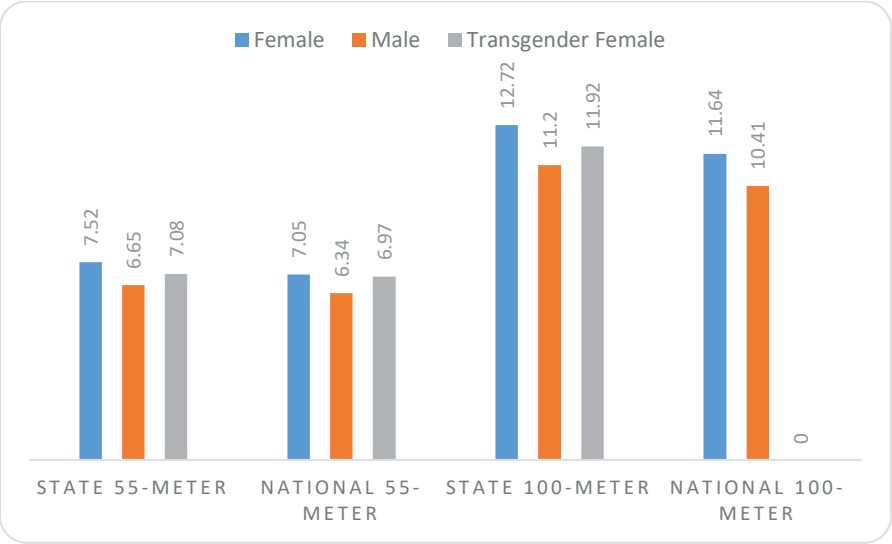
$H1_a$. Connecticut high school transgender female track athletes run significantly faster than their cisgender female peers.

Post hoc multiple comparisons using the Games-Howell test were performed to determine which pairs of gender groups differed significantly. Figure 1 provides an overview of

all of the mean race times by gender for the Connecticut 55-meter, National 55-meter, Connecticut 100-meter, and National 100-meter.

Figure 1

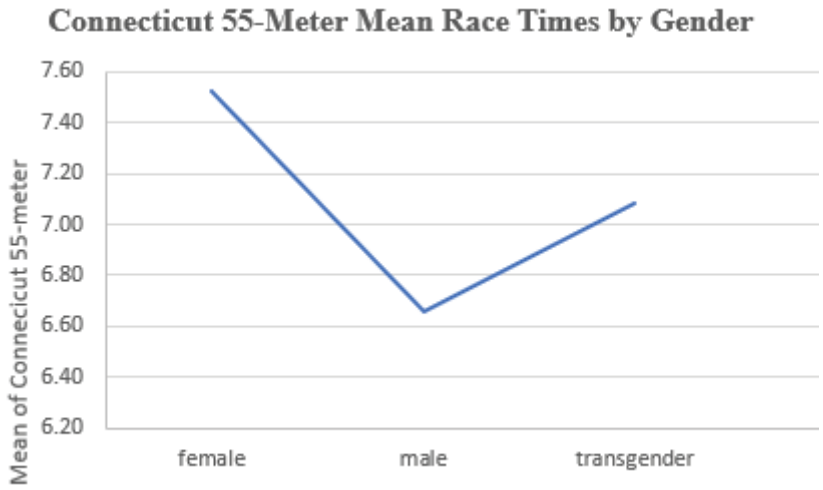
Gender Mean Race Times for Connecticut and National 55-Meter and 100-Meter



Connecticut 55-Meter Race Times. Multiple comparison results for the Connecticut 55-meter indicated the race times for transgender females (7.08, 95% CI [6.929,7.231]) were significantly faster than those of cisgender females (7.52, 95% CI [7.96, 7.644]). Results for the Connecticut 55-meter indicated the race times for males (6.65, 95% CI [6.564,6.736]) were significantly faster than those of cisgender females (7.52 ± .124, 95% CI [7.96, 7.644]). The transgender female group's means were significantly different ($p < .05$) than the cisgender female group's means for the Connecticut 55-meter. Thus, the null hypothesis was rejected. Figure 2 provides a representation of the trend in female, male, and transgender female athletes' mean scores for the Connecticut 55-meter.

Figure 2

Mean Scores for the Connecticut 55-Meter by Gender



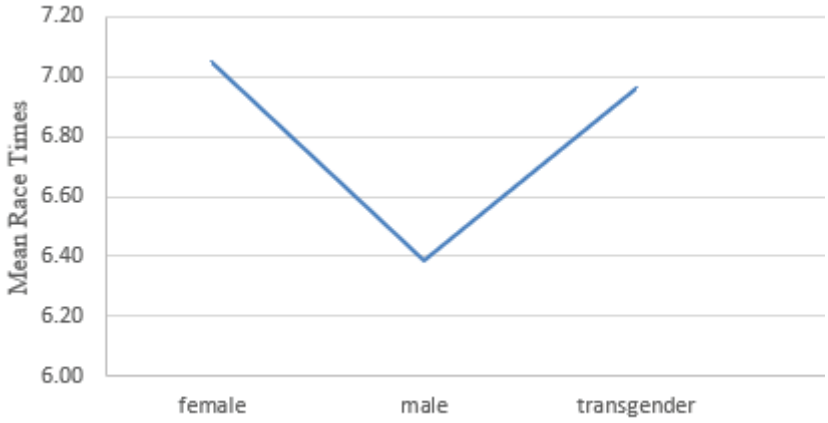
Connecticut 55-Meter Rankings. Transgender female athletes' rankings were examined to further address the degree of differences between transgender female race times and cisgender female race times for the Connecticut 55-meter. A review of the rankings for transgender female and cisgender female athletes for the Connecticut 55-meter revealed the following frequency of race ranks for transgender females: there were two first-place rankings, one second-place ranking, one third-place ranking, and one fifth-place ranking. The top 50 race times for the 2017–2018, 2018–2019, and 2019–2020 Connecticut 55-meter races were included.

National 55-Meter Race Times. Multiple comparison results for the National 55-meter indicated the race times for transgender females (6.97, 95% CI [6.892, 7.048]) were significantly faster than those of cisgender females (7.05, 95% CI [7.139, 7.644]). Results for the National 55-meter indicated the race times for males (6.34, 95% CI [6.394, 6.286]) were significantly faster than those of cisgender females (7.52, 95% CI [7.396, 7.644]). The transgender female group's means were significantly different ($p < .05$) than the cisgender female group's means for the National 55-meter. Thus, the null hypothesis was rejected. Figure 3 provides a representation of

the trend in cisgender female, male, and transgender female athletes' mean scores for the National 55-meter.

Figure 3

National 55-Meter Race Times by Gender



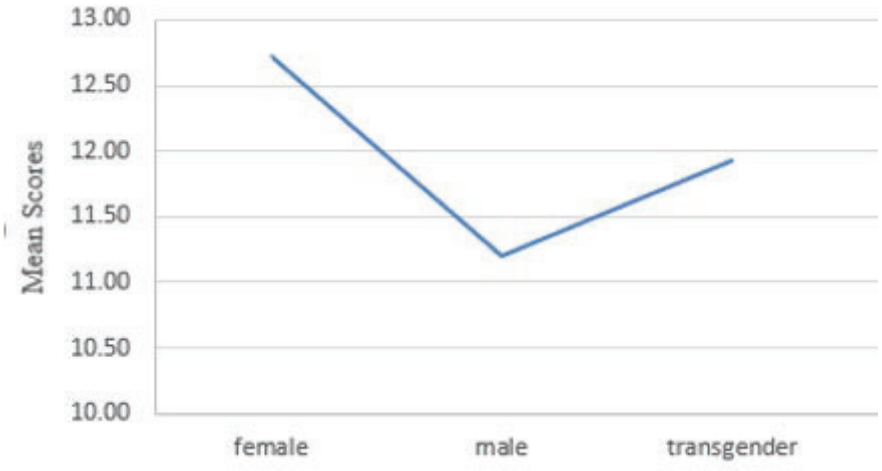
National 55-Meter Rankings. Transgender female athletes' rankings were examined to further address the degree of differences between transgender female race times and cisgender female times for the National 55-meter. A review of the rankings for transgender female and cisgender female rankings for the National 55-meter revealed the following frequency of race rankings for transgender females: there was one seventh-place ranking, one 11th-place ranking, and one 20th-place ranking. The top 50 race times for the 2017–2018, 2018–2019, and 2019–2020 National 55-meter races were included.

Connecticut 100-Meter Race Times. Multiple comparison results for the Connecticut 100-meter indicated the race times for transgender females (11.92, 95% CI [11.749, 12.091]) were significantly faster than those of cisgender females (12.72, 95% CI [12.683, 12.757]). Results for the Connecticut 55-meter indicated the race times for males (11.20, 95% CI [11.164, 11.236]) were significantly faster than those of cisgender females (12.72, 95% CI [12.683, 12.757]). The transgender female group's means were significantly different ($p < .05$) than the

cisgender female group's means for the Connecticut 100-meter. Thus, the null hypothesis was rejected. Figure 4 provides a representation of the trend in cisgender female, male, and transgender female athletes' mean scores for the Connecticut 100-meter.

Figure 4

Connecticut 100-Meter Mean Race Times by Gender



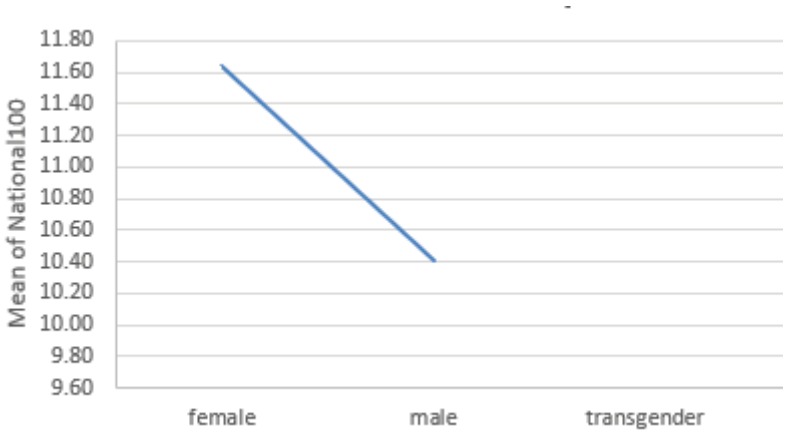
Connecticut 100-Meter Rankings. Transgender female athletes' rankings were examined to further address the degree of differences between transgender female race times and cisgender female race times for the Connecticut 100-meter. A review of the rankings for transgender female and cisgender female athletes for the Connecticut 100-meter revealed the following frequency of race rankings for transgender females: there were two first-place rankings, one third-place ranking, and one fifth-place ranking. The top 50 race times for the 2017–2018, 2018–2019, and 2019–2020 Connecticut 100-meter races were included.

National 100-Meter Race Times. National 100-meter race times ranged from fastest to slowest as follows: male (n = 161, 10.41 ± .010) to cisgender female (n = 153, 11.64± .017). There were no transgender athletes recorded for the National 100-meter race. Male student-athletes' race times were faster than those of transgender female and cisgender female student-

athletes in all four races. Transgender females' race times were faster in the three races in which they participated. Cisgender females had the slowest race times in all four races. Figure 5 provides a representation of the trend in cisgender female, male, and transgender female student-athlete mean scores for the National 100-meter.

Figure 5

National 100-Meter Mean Race Times by Gender



Note. There were no transgender female race times posted in the top 50 for the National 100.

Research Question 2/Hypothesis

To what extent do Connecticut's high school transgender female athletes significantly outperform their cisgender male peers?

$H2_0$. Connecticut high school transgender female track athletes do not run significantly faster than their cisgender male peers.

$H2_a$. Connecticut high school transgender female track athletes run significantly faster than their cisgender male peers.

Connecticut 55-Meter Race Times. Multiple comparison results for the Connecticut 55-meter indicated the race times for transgender females (7.08, 95% CI [6.929, 7.231]) were not

significantly faster ($p > .05$) than those of male student-athletes (6.65, 95% CI [6.564, 6.736]). Thus, the evidence was not sufficient to reject the null hypothesis.

National 55-Meter Race Times. Multiple comparison results for the National 55-meter indicated the race times for transgender females (6.97, 95% CI [6.892, 7.048]) were not significantly faster ($p > .05$) than those of males (6.34, 95% CI [6.394, 6.286]). The transgender female group's means were not significantly different ($p > .05$) than the male group's means for the National 55-meter race times. Thus, the evidence was not sufficient to reject the null hypothesis.

Connecticut 100-Meter Race Times. Multiple comparison results for the Connecticut 100-meter indicated the race times for transgender females (11.92, 95% CI [11.749, 12.091]) were not significantly faster ($p > .05$) than those of males (11.20, 95% CI [11.164, 11.236]). The transgender female group's means were not significantly different ($p > .05$) than the male group's means for the Connecticut 100-meter race times. Thus, the evidence was not sufficient to reject the null hypothesis.

National 100-Meter Race Times. There were no results for transgender athletes for the National 100-meter because of the lack of transgender athletes in this race. This race was included in the multiple comparisons because it is representative of the races at the national level and provided an appropriate comparison. Results did indicate the male (10.41, 95% CI [10.40, 10.42]) group's means were significantly different than the cisgender female (11.64, 95% CI [11.623, 11.657]) group's means. Because there were no transgender athletes recorded for the National 100-meter race, Research Question 2 and related hypotheses were not addressed for this question. Transgender female rankings were not available for the National 100-meter race times.

NCAA Division I and Division II Women's Track and Field Scholarship Criteria and the Connecticut 100-Meter Race Times. The top 50 ranked Connecticut 100-meter race times for transgender female athletes were compared with the NCAA Division I and II women's track and field scholarship recruitment low and high race times. The NCAA Division I women's track and field recruitment requirements for an athlete running the 100-meter race include a low race time of 11.49 and a high race time of 11.84. The NCAA Division II women's track and field recruitment requirements for an athlete running the 100-meter race include a low race time of 11.97 and a high race time of 12.90. The transgender female athlete race times for the Connecticut 100-meter from low to high were 11.64, 11.72, 12.20, and 12.22. Two of the transgender athletes' times, or 50% of the transgender sample for the Connecticut 100-meter, would qualify to be considered for NCAA Division I women's track and field scholarships. All transgender female athletes' times, or 100% of the transgender female sample for the Connecticut 100-meter, would qualify to be considered for NCAA Division II scholarships. The NCAA Division I and II women's track and field recruiting standards have criteria for 60-meter race times, but not the 55-meter race times used in this study. Therefore, a comparison could not be made. The National 100-meter race did not have any transgender female race times. Thus, a scholarship criteria comparison of race times was not conducted for the National 100-meter.

Evaluation of the Findings

The goal of this study was to explore the lack of understanding regarding female transgender and cisgender high school track athletes' performances (Hilton & Lundberg, 2021; Khattab et al., 2020). The specific focus of this quantitative descriptive case design study was to examine the extent to which transgender female athletes perform in comparison to their cisgender male and cisgender female high school track athlete peers. The theoretical framework

chosen for this study was transgender theory. The findings of this study help to challenge heteronormative views embedded with high school sports that marginalize transgender high school athletes (Burdge, 2007; Nagoshi & Brzuzy, 2010) and understand the physical embodied experiences of transgender female high school athletes (Roen, 2001). High school track sprinting event results were examined to understand the extent to which inclusive transgender participation policies affect transgender and cisgender female athletes. Further, transgender female rankings in the 55-meter and 100-meter races were examined. Finally, a comparison was made of the NCAA Division I and II women's 100-meter track and field scholarship race time requirements and the Connecticut 100-meter race times of the transgender female participants.

The hypothesis for Research Question 1 was that Connecticut high school transgender female track athletes would not run significantly faster than their cisgender female peers. Findings indicated transgender female athletes' race times were significantly faster than those of cisgender females based on the top 50 Connecticut 55- and 100-meter and National 55- and 100-meter race times. The participation of transgender athletes and especially transgender female athletes has been a contentious issue for the past 2 decades (Gray et al., 2018). The issue of fairness regarding transgender female athletes' participation has been at the forefront of state and national debates on transgender female participation in high school sport (Khattab et al., 2020). However, there is little extant literature regarding transgender female athletes' participation in high school sports and even less evidence-based information about the impact of allowing transgender females to compete in high school female sport events (Richardson & Chen, 2020).

The hypothesis for Research Question 2 was that Connecticut high school transgender female track athletes would not run significantly faster than their cisgender male peers. Findings indicated Connecticut high school transgender female track athletes did not run significantly

faster than their cisgender male peers based on the top 50 Connecticut 55- and 100-meter and National 55- and 100-meter race times. Male athletes' race times were significantly faster than those of transgender females. Overall, cisgender male athletes ran significantly faster than transgender female athletes, who ran significantly faster than cisgender female athletes. These findings support prior research that found a connection between brain networks and testosterone level and indicated that the brains of transgender persons, both female-male and male-female are distinctive (Swaab & Barcie-Falgueras, 2009). These findings also challenge prior research that suggests transgender female athletes' performances can be associated with cisgender male performances. The problem is that the role of sex in sports remains unclear. Though it is known that males typically run significantly faster than cisgender females, the question remains about what constitutes a fair or unfair genetic or biological sex advantage and how to define that advantage definitively. Prior research regarding transgender female athletes was framed in a dichotomous cisgender female and cisgender male context, providing an examination of the physiological differences between cisgender males and cisgender females and using those results to make conclusions about the transgender female athlete population (Pieper, 2016; Rogol & Pieper, 2017).

For example, in a recent study, Higerd (2021) analyzed the track and field performances of one million cisgender male and cisgender female high school athletes across eight track and field events recorded on Athletic.net to determine whether there was a biological advantage for transgender female athletes versus cisgender female athletes. A Monte Carlo simulation was conducted to provide an estimation of the number of transgender female athletes within the cisgender female population. Higerd purposely eliminated the influence of transitioning and hormone suppression on transgender female performances by basing findings on the probability

that a percentage of cisgender female athletes across the nation would be transgender females. Findings indicated cisgender males performed significantly better in all eight track and field events than cisgender females. Therefore, Higerd projected that transgender athletes would dominate the top rankings in high school girls track and field events. Higerd's findings were based upon a dichotomous gender framework and a probability statistical analysis designed to project transgender female performances based on cisgender male performances. Yet, Higerd admitted transgender females do not dominate high school girls track and field events.

Rankings

There are no extant studies that considered actual transgender female athletes' performance, race ranking, and NCAA Division I and II women's track and field scholarship eligibility based on actual race times. In this study, transgender athletes' actual race times and race rankings were reported. The actual rankings across 1,149 race times were as follows: (a) Connecticut 55-meter—two first-place, one second-place, one third-place, and one fifth-place; (b) Connecticut 100-meter—two first-place, one third-place, and one fifth-place; and (c) National 55-meter—one seventh-place, one 11th-place, and one 20th-place. Findings indicated transgender female athletes do not always finish first in the Connecticut 55-meter, Connecticut 100-meter, and National 55-meter races.

Findings diverge from the commonly held belief about transgender female athlete participation in cisgender female high school sports that transgender female athletes have an unfair advantage over their cisgender female peers in women's track and field events, thus denying cisgender females the chance to finish higher in track events and to qualify for athletic scholarships (Malagrino, 2020). The main assumption is that high school transgender female athletes inherently rank in the top three places in a high school female track and field event

(Jones et al., 2017; Malagrino, 2020). The term "unfair advantage" remains undefined with a lack of clear evidence supportive of the main argument (Jones et al., 2017; Malagrino, 2020).

Transgender Female Athlete Race Times and NCAA Division I and II Scholarship Eligibility

The NCAA Division I and II has scholarship recruitment criteria for 60-meter race times, but not the 55-meter race times used in this study (Next College Student Athlete [NCSA], 2021). Therefore, a comparison could not be made. Findings based on a comparison of the NCAA Division I and II scholarship recruitment race time criteria revealed two transgender female athletes' race times, or 50% of the transgender female sample in the Connecticut 100-meter, would meet the recruitment criteria to be considered for NCAA Division I scholarships (NCSA, 2021). All of the transgender female athletes' race times, or 100% of the transgender female sample in the Connecticut 100-meter, would qualify to be considered for NCAA Division II scholarships (NCSA, 2021). There are many factors other than race times that influence eligibility for NCAA Division I and II scholarships. High school cisgender and transgender athletes also have access to needs- and academic-based grants and scholarships (NCSA, 2021). Findings were mixed regarding transgender female athletes' eligibility for NCAA Division I and II scholarships. Transgender females may not qualify for Division I school NCAA scholarships, though it is highly likely they would qualify for Division II school NCAA scholarships.

Higerd (2021) concluded there is no transgender female athletic dominance in high school female sports and suggested estimations of transgender female athletes could be overstated. Herrick and Duncan (2018) and Jones et al. (2017) suggested other factors (e.g., emotional, physiological, physical, sociological) may affect transgender athletes' performances in specific races. The main findings of the current study showed that though transgender females perform significantly better than cisgender females, they do not automatically finish in first place

in a track and field event or qualify for an NCAA Division I or II scholarship. There are other unknown factors that affect the actual performance of a transgender female participating in high school female sports (Herrick & Duncan, 2018; Higerd, 2021; Jones et al., 2017; Malagrino, 2020).

Summary

The purpose of this quantitative descriptive case design study was to examine the extent to which transgender male-to-female athletes perform in comparison to their cisgender male and female high school track athlete peers. High school track sprinting event results were examined to understand the extent to which inclusive transgender participation policies affect transgender and cisgender female athletes. Further, transgender female rankings in the 55-meter and 100-meter races were examined. Finally, a comparison was made of the NCAA Division I and II women's track and field scholarship race time requirements for the National 100-meter and the Connecticut 100-meter race times of the transgender female participants.

Findings indicated transgender female athletes' race times were significantly faster than those of cisgender female athletes based on the top 50 Connecticut 55- and 100-meter and National 55-meter race times. The issue of fairness regarding transgender female athletes' participation has been at the forefront of state and national debates on transgender female participation in high school sport. However, there is little extant literature regarding transgender female athlete participation in high school sports and even less evidence-based information about the fairness of allowing transgender females to compete in high school female sport events. Findings indicated Connecticut high school transgender female track athletes did not run significantly faster than their cisgender male peers based on the top 50 Connecticut 55- and 100-meter and National 55- and 100-meter race times. Overall, cisgender male athletes ran

significantly faster than transgender female athletes, who ran significantly faster than cisgender female athletes. The problem is that the role of sex in sports remains unclear.

Though it is known that males typically run significantly faster than cisgender females, the question remains about what constitutes a fair or unfair genetic or biological sex advantage and how to define that advantage definitively. Findings diverge from the commonly held belief about transgender athlete participation in cisgender high school sports that transgender female athletes have an unfair advantage over their cisgender female peers to finish higher in high school girls track and field events and to qualify for NCAA Division I and II athletic scholarships. The main assumption is that high school transgender female athletes inherently rank in the top three places in a high school female track and field event. The term "unfair advantage" remains undefined with a lack of clear evidence supportive of the main argument. Findings indicated transgender female athletes do not always finish in the first three places in the Connecticut 55-meter, Connecticut 100-meter, and National 55-meter races.

Findings based on a comparison of the NCAA Division I and II women's track and field scholarship recruitment race time criteria revealed two transgender female athletes' race times, or 50% of the transgender female sample in the Connecticut 100-meter, would meet the recruitment criteria to be considered for NCAA Division I scholarships. All of the transgender female athletes' race times, or 100% of the transgender female sample in the Connecticut 100-meter, would qualify to be considered for NCAA Division II scholarships. There are many factors other than race times that influence eligibility for NCAA Division I and II women's track and field scholarships. High school cisgender and transgender athletes also have access to needs- and academic-based grants and scholarships (NCSA, 2021). Findings were mixed regarding transgender female athletes' eligibility for NCAA Division I and II scholarships. Transgender

females may not qualify for Division I school NCAA scholarships, though it is highly likely they would qualify for Division II school NCAA scholarships. There are other unknown factors that affect the actual performance of a transgender female participating in high school female sports. Prior research regarding transgender female athletes was framed in a dichotomous cisgender female and cisgender male context that provided an examination of the physiological differences between cisgender males and cisgender females and projected transgender female participation based on those conclusions. The main findings of this study were that although transgender females performed significantly better than cisgender females, they did not automatically finish in first place in a sporting event or qualify for an NCAA Division I or II scholarship. There are other unknown factors that affect the actual performance of a transgender female participating in high school female sports (Herrick & Duncan, 2018; Higerd, 2021; Jones et al., 2017; Malagrino, 2020). The question remains why, despite researcher projections of transgender female domination in high school female sports, transgender females do not currently dominate high school girls track and field events. Chapter 5 includes this study's implications, recommendations, and conclusions.

Chapter 5: Implications, Recommendations, and Conclusions

Transgender athlete participation policies implemented by state high school interscholastic athletic governing bodies have become the focus of Title IX compliance inquiries (Mahoney et al., 2015). In particular, the CIAC's transgender participation policy, which allows transgender high school athletes to participate based on their gender identity, is being challenged on the basis that it discriminates against cisgender female track athletes (Hilton & Lundberg, 2021). The problem addressed within this study was the lack of understanding regarding female transgender and cisgender high school track athletes' performances (Hilton & Lundberg, 2021; Khattab et al., 2020). The purpose of this quantitative descriptive case design study was to examine the extent to which transgender female athletes perform in comparison to their cisgender male and cisgender female high school track athlete peers. High school track sprinting event results were examined to understand the extent to which inclusive transgender participation policies affect transgender and cisgender female athletes. A case study design was used to extend transgender theory and test the hypothesis that inclusive high school transgender participation policies negatively affect cisgender female track athletes' performance opportunities and their ability to earn a collegiate scholarship based on performance times. Three theories, including (a) structuration theory; (b) feminist theory; and (c) queer theory, provided the contextual basis to understand transgender female high school athletes' participation in cisgender high school female sports. A Welch's ANOVA and post hoc testing were performed for each of the four race time categories (i.e., Connecticut 55-meter, National 55-meter, Connecticut 100-meter, National 100-meter) to determine the differences in the mean race times for cisgender female, cisgender male, and transgender female athletes. Findings indicated transgender female athletes ran significantly faster than their cisgender female peers and significantly slower than their cisgender

male peers. Further, 50% of transgender female athletes' race times for the Connecticut 100-meter met the NCAA Division I scholarship recruitment race time requirements and 100% of transgender female athletes' race times met the NCAA Division II scholarship recruitment race time requirements. However, transgender female athletes did not always rank in the top three places in their track and field events.

This study was limited to the top 50 race times of the cisgender female, transgender female, and cisgender male athlete population who participated in the Connecticut 55- and 100-meter and the National 55- and 100-meter races. The focus of this study on high school sports limits the ability to generalize results to other populations, including collegiate athlete populations. This study was limited to cisgender female, cisgender male, and transgender female 2017–2018, 2018–2019, and 2019–2020 Connecticut 55- and 100-meter and National 55- and 100-meter race times. It is possible some of the cisgender female or cisgender male high school athletes were actually transgender athletes who identified as their birth gender for the purpose of participating in the races, thus skewing the results of the study. This chapter includes the implications, recommendations, and conclusions of this study.

Implications

This study is unique in that it provided evidence about transgender female participation in cisgender female high school sports based on the actual performance of self-identified transgender females. Harper's (2015) study was the only extant study that used actual race times to draw conclusions about high school transgender female athletes. The current study extended the literature on transgender female athletes' eligibility for NCAA Division I and II women's track and field scholarships based on their race times. Additionally, the examination of transgender female athletes' race rankings in the current study provided a unique way to address

perceptions about how transgender female student-athletes place in cisgender female high school sports events.

Gender Identity and High School Sports Participation

The literature included many scholarly and stakeholder opinions about the definitions of "gender," "gender identity," and "transgender female" (Hilton & Lundberg, 2021; Jones et al., 2017; Walen et al., 2020). The ongoing debate among researchers, athletes, coaches, athletic association leadership, and advocacy groups is centered around the equity and fairness of allowing transgender female athletes to participate in high school female athlete sports (Herman et al., 2017; IAAF, 2018a, 2018b; IOC, 2015; Lenzi, 2018). At the heart of the debate is the definition of gender and sex.

High School Transgender Athlete Participation Policies

State high school associations have implemented varying policies regarding the participation of transgender female athletes in female high school sports. Numerous lawsuits are pending in federal and state judicial systems for and against transgender athletes' rights to participate in sports based on their gender identity. Transgender athlete policies, laws, and implementation are often politicized and change quickly. Stakeholders can use the results of the current study to make informed decisions about transgender female athlete participation policies and laws based on the information provided about the actual performances of transgender female athletes.

Research Question 1/Hypothesis

To what extent do Connecticut's high school transgender female athletes significantly outperform their cisgender female peers? The null hypothesis was rejected, as Connecticut high school transgender female track athletes ran significantly faster than their cisgender female

peers. The current study's findings are based on historical race times of high school track athletes. Therefore, the impact of external influences such as training routines and coaching is unknown. As such, the reason why transgender female track athletes run significantly faster than their cisgender female peers and whether transgender female track athletes have an unfair advantage because of the current study findings remains unknown. The issue of fairness regarding transgender female athletes' participation has been at the forefront of state and national debates on transgender female participation in high school sport (Khattab et al., 2020). However, there is little extant literature regarding transgender female athlete participation in high school sports and even less evidence-based information about the fairness of allowing transgender females to compete in high school female sport events (Richardson & Chen, 2020). Hilton and Lundberg (2021) argued that the biological advantage male athletes have over their cisgender female peers does not diminish through testosterone suppression, which has implications for policies and guidelines regarding transgender female athletes. However, Jones et al. (2017) disagreed with this conclusion and, based on a critical meta-analysis, reported transgender females do not have an unfair advantage. Findings in the Jones et al. study were based on actual transgender female athlete race times.

Research Question 2/Hypothesis

To what extent do Connecticut's high school transgender female athletes significantly outperform their cisgender male peers? The evidence was not sufficient to reject the null hypothesis. Connecticut high school transgender female track athletes did not run significantly faster than their cisgender male peers. In this study, cisgender male athletes ran significantly faster than transgender female athletes. There is little research regarding the differences in male athlete and transgender female athlete performances based on race times. Although it is known

that males typically run significantly faster than cisgender females, the question remains about what constitutes a fair or unfair genetic or biological sex advantage and how to define that advantage definitively. In this study, a significant difference between cisgender male track performance times and transgender female track performance times establishes a new understanding of how performance times should be considered when developing participation policies. Prior studies about transgender female athletes were framed in a dichotomous cisgender female and cisgender male context and provided an examination of the physiological differences between cisgender males and cisgender females and used those results to make conclusions about the transgender female athlete population (Pieper, 2016; Rogol & Pieper, 2017). The current study has implications for those researchers and policymakers seeking to find the answers to research questions about transgender female athletes' performance. The result of cisgender male high school track athletes running significantly faster than their transgender female peers challenges the concept that cisgender male times can be used as an accurate data point to predict transgender female track performance in comparison to their cisgender female track peers.

Higerd (2021) found no transgender female athletic dominance in high school female sports, suggesting estimations of transgender female athletes could be overstated. Accordingly, the main findings of the current study showed that though transgender females performed significantly better than cisgender females, they did not automatically finish in first place in a sporting event or qualify for an NCAA Division I or II women's track and field scholarship. There are other unknown factors that affect the actual performance of a transgender female participating in high school female sports (Herrick & Duncan, 2018; Higerd, 2021; Jones et al., 2017; Malagrino, 2020).

Recommendations for Practice

One recommendation for practice includes providing professional development for athletic administrators, staff, coaches, and athletes to increase their understanding of transgender female athletes' needs. The number of transgender female race times in this study was representative of transgender female participation in high school sports. In consideration of high school transgender participation policies, assumptions may be made by cisgender decision-makers who do not fully understand the social, emotional, physical, and psychological needs of transgender athletes. Understanding all aspects of transgender athlete participation is necessary to develop informed and supportive participation policies. Walen et al. (2020) recommended providing professional development for athletic trainers regarding the specific needs of transgender female athletes in terms of their emotional, physical, psychological, and social health. Findings from the literature review showed transgender athlete participants benefit when athletic trainers, especially at national, international, and Olympic competitions, are knowledgeable about their needs (Walen et al., 2020). In a mixed-method cross-sectional study with college athlete trainers (N = 5,537), Walen et al. reported 48% of the athletic trainers felt prepared to work with transgender athletes; however, few (36%) felt competent to collaborate with an endocrinologist regarding the testosterone screening tests.

Another recommendation for practice is to streamline transgender participation policies across state and federal governing bodies. The basis for restrictive transgender participation policies is that biological males are physiologically faster and stronger than biological females, meaning biological males have an athletic advantage over biological females. The findings in this study showed cisgender males ran significantly faster than transgender females, even though both groups were born biological males. Transgender participation policies are often formed and

reformed on political policy and legislated law rather than transgender athlete performance, needs, and purpose of the activities in which athletes are engaged. In education, this transcends the athletic arena as transgender policy also affects the instructional setting. Findings from the literature review indicated the rapid changes and politicization of policies and laws related to transgender students' participation in sports and access to locker rooms, restrooms, and showers make it difficult for local, state, school, and sports administrators to interpret and implement those policies. The role and definition of sex in sports is unclear and the applicable guidelines are inconstant and lack clarity. If agencies across states and organizations work together to streamline policies and procedures, implementation could be less volatile and more consistent (Kosciw et al., 2020; Lenzi, 2018).

Findings from the literature review showed there is a lack of standardized policies regarding high school transgender athletes (Malagrino, 2020). A standardized national policy should be established by the National Federation of State High School Associations regarding the participation of transgender students based on the current U.S. Department of Justice and U.S. Department of Education guidance outlining public schools' responsibilities under Title IX for transgender students. The guidelines include using the proper pronouns and names of transgender students aligned with their gender identity, providing nongender bathrooms, and ensuring access to sports activities (Morrison, 2016). Specifically, clear guidance is needed regarding the development and implementation of inclusive sports policies (Malagrino, 2020), and protections must be afforded to transgender students under Title IX.

Implementing standardized national policies could encourage more transgender athlete participation at the high school level (Stavely & Keenan, 2019). The number of transgender female athlete race times in this study was representative of current transgender female

participation in high school sports. The literature review findings indicated the fear of being seen in public, lack of nongender locker rooms, and restrictive sport participation policies result in decreased transgender athlete participation in sports compared to their cisgender peers (Stavely & Keenan, 2019). Though many transgender athletes could be interested in participating in sports, there is a low participation rate because of the many barriers (Stavely & Keenan, 2019). The lack of transgender athlete participation in sports was posed by Higerd (2021) as a possible reason for the lack of transgender female athlete domination in high school sports.

Recommendations for Future Research

Findings support that the influences of other variables on transgender athletes' performances are unknown. Therefore, the first recommendation for research is for the National Federation of State High School Associations to conduct mixed-method research with high school transgender athletes based on actual track and field event performances. Qualitative research could provide the detailed information necessary to understand the experiences of transgender youth and help identify strategies to improve their participation in sports activities. Actual performance data could extend the literature regarding transgender sports.

Findings showed transgender female athletes do not always place in the top three and do not always meet the qualifying standard for NCAA Division I scholarships, yet the perception exists that the opposite is true. The lack of understanding transgender athletes' needs and performances in relation to their cisgender peers is disconcerting and confusing for all high school sports stakeholders, including athletes, coaches, educators, parents, and the community. Thus, another recommendation for future research is for the National Federation of State High School Associations to conduct qualitative and quantitative research to provide a clearer definition of the role of sex or gender within high school sports. Specifically, there is a need to

conduct qualitative studies about the discrepancies in the use of the terms “gender” and “gender identity” in high school sports policies and guidelines with a focus on the identification of improvement strategies.

Findings from the literature review showed pediatricians feel they lack the specialized skills to work with transgender athletes (Gridley et al., 2016). Further, healthcare providers and their staff often lack the cultural competencies to work with the transgender youth population (Dowshen et al., 2018; Gridley et al., 2016). Consequently, it is recommended that medical providers conduct research about the specific trainings pediatricians and doctors need to screen, refer, and provide ongoing healthcare to transgender athletes.

Findings indicated transgender females did not always rank in the top three positions in the Connecticut 100-meter race. Further, not all transgender athletes would qualify to be recruited for Division I scholarships for the 100-meter race. Thus, another recommendation for future research is for the National Federation of State High School Associations and the NCAA to examine the impact of inclusive transgender participation policies on providing fair opportunities for both transgender and cisgender participants. There is a need to determine how or whether any unfair advantage potentially affects cisgender female athlete peers. Though the findings showed transgender females ran significantly faster than their cisgender female peers, it is still unclear whether those findings support the existence of a definitive “unfair advantage” as transgender females did not always place in the top three positions. Further examination of high school transgender female athletes’ rankings in track and field events and their eligibility for Division I and II scholarships is needed to understand whether they have an unfair advantage over their cisgender female athlete peers. Specifically, there is a need to examine the differences, if any, between cisgender and transgender athletes’ performances across all track and field

events. National and international athletic governing agencies should compare actual transgender female performances across all track and field events with the eligibility requirements for Division I and Division II scholarship recruitment criteria. Understanding more clearly whether an unfair advantage for transgender females exists and to what extent across all track and field events will help inform policymakers about transgender female sports participation.

Conclusions

The problem addressed within this study was the lack of understanding regarding female transgender and cisgender high school track athletes' performances. Prior research identifying physiological differences between cisgender male and cisgender female athletes was limited in scope to elite athletes and is directed at whether such differences result in an inequitable cultural and athletic environment. The goal of this study was to explore the lack of understanding regarding female transgender and cisgender high school track athletes' performances. The specific focus of this quantitative descriptive case design study was to examine the extent to which transgender female athletes perform in comparison to their cisgender male and female high school track athlete peers. High school track sprinting event results were examined to understand the extent to which inclusive transgender participation policies affect transgender and cisgender female athletes. Further, transgender female rankings in the 55-meter and 100-meter races were examined. Finally, a comparison was made of the NCAA Division I and II women's track and field 100-meter scholarship race time requirements and the Connecticut 100-meter race times of the transgender female participants.

Findings indicated transgender female athletes' race times were significantly faster than those of cisgender female athletes based on the top 50 Connecticut 55- and 100-meter and National 55-meter race times. Additionally, findings showed Connecticut high school

transgender female track athletes did not run significantly faster than their cisgender male peers. The issue of fairness regarding transgender female athletes' participation has been at the forefront of state and national debates on transgender female participation in high school sport. However, there is little extant literature regarding transgender female athletes' participation in high school sports and even less evidence-based information about the fairness of allowing transgender females to compete in high school female sport events. Overall, cisgender male athletes ran significantly faster than transgender female athletes, who ran significantly faster than cisgender female athletes. The problem is that the role of sex in sports remains unclear.

Though it is known that males typically run significantly faster than cisgender females, findings diverged from the commonly held belief about transgender athlete participation in cisgender high school sports that transgender female athletes have an unfair advantage over their cisgender female peers to finish higher in high school girls track events and to qualify for NCAA Division I and II athletic scholarships. Findings showed transgender female athletes did not always finish in the first three places in the Connecticut 100-meter, Connecticut 55-meter, and National 55-meter races. Findings based on a comparison of the NCAA Division I and II women's track and field scholarship recruitment race time criteria revealed mixed results regarding transgender female athletes' eligibility for NCAA Division I and II scholarships.

The main findings of this study support that though transgender females perform significantly better than cisgender females, they do not always finish in the first three places in a sporting event or qualify for an NCAA Division I or II scholarship. There are other unknown factors that affect the actual performance of a transgender female participating in high school female sports (Herrick & Duncan, 2018; Higerd, 2021; Jones et al., 2017; Malagrino, 2020). The question remains why, despite prior researcher projections of transgender female domination in

high school female sports, transgender females do not currently dominate high school girls track and field events.

References

Acklin, K. L. (2017, April). “Hurdling” gender identity discrimination: The implications of Connecticut participation policies on transgender youth athletes’ ability to thrive. *Boston College Journal of Law & Social Justice*, *37*, 107–143. http://lawdigitalcommons.bc.edu/jlsj/vol37/iss1/4

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

American Psychological Association & National Association of School Psychologists. (2015). *Resolution on gender and sexual orientation diversity in children and adolescents in schools*. http://www.apa.org/about/policy/orientation-diversity.aspx

Anabo, I. F., Elexpuru-Albizuri, I., & Villardón-Gallego, L. (2019). *Revisiting the* Belmont Report’s *ethical principles in internet-mediated research: Perspectives from disciplinary associations in the social sciences*. Springer. https://doi.org/1010.1007/s10676-018-9495-z

Anderson, G. (2020). Far-reaching consequences. *Inside Higher Education*. https://www.insidehighered.com/news/2020/06/16/landmark-supreme-courtruling-could-redefine-title-ix

Athlete Ally. (2018). *Athletic Equality Index: A comprehensive ranking and review of LGBTQ inclusion practices and policies in the NCAA Power 5 conferences*. https://www.athleteally.org/wp-content/uploads/2017/09/Athletic-Equality-Index-9_11.pdf

Atteberry-Ash, B., & Woodford, M. R. (2018). Support for policy protecting LGBT student athletes among heterosexual students participating in club and intercollegiate sports.

Sexuality Research & Social Policy: A Journal of the NSRC, *15*(2), 151–162. https://doi.org/10.1007/s13178-017-0283-z

Barnard, B. (2017). Guiding the 98%: Counseling non-scholarship athletes. *Journal of College Admission*, *236*, 24–27. https://www.nacacnet.org/globalassets/documents/publications/journal/236/jca236.pdf

Battle, S., & Wheeler, T. E. (2017). *Dear colleague letter*. U.S. Department of Education, U.S. Department of Justice. https://www2.ed.gov/about/offices/list/ocr/letters/colleague-201702-title-ix.pdf

Berg, S. (2009). *1936 Berlin Olympics: How Dora the man competed in the woman's high jump*. SPIEGEL. https://www.spiegel.de/international/germany/1936-berlin-olympics-how-dora-the-man-competed-in-the-woman-s-high-jump-a-649104.html

Berkman, A. M. (2017). *Medical aspects of transitioning - A guide for transgender youth*. Family Medicine Clerkship Student Projects. https://scholarworks.uvm.edu/fmclerk/308

Berlant, L., & Warner, M. (1998). Sex in public. *Critical Inquiry*, *24*(2), 547–566. www.jstor.org/stable/1344178

Bornstein, K. (2016). *Gender outlaw: On men, women, and the rest of us*. Vintage Books.

Broad, K. L. (2002). GLB + T?: Gender/sexuality movements and transgender collective identity (de)constructions. *International Journal of Sexuality and Gender Studies*, *7*, 241–264. https://doi.org/10.1023/A:1020371328314

Burdge, B. (2007). Bending gender, ending gender: Theoretical foundations for social work practice with the transgender community. *Social Work*, *52*(3), 243–250. https://doi.org/10.1093/sw/52.3.243

Butler, J. (1999). *Gender trouble: Feminism and the subversion of identity*. Routledge.

Buzuvis, E. (2013). “On the basis of sex”: Using Title IX to protect transgender students from discrimination in education. *Wisconsin Journal of Law, Gender & Society*, *28*(3), 219–243. http://digitalcommons.law.wne.edu/facschol

Buzuvis, E. (2016a). As who they really are: Expanding opportunities for transgender athletes to participate in youth and scholastic sports. *Law & Inequality*, *34*, 341. http://digitalcommons.law.wne.edu/facschol

Buzuvis, E. (2016b). Hormone check: Critique of Olympic rules on sex and gender. *Wisconsin Journal of Law, Gender & Society*, *31*, 29–48. http://digitalcommons.law.wne.edu/facschol

Camporesi, S. (2016). Ethics of regulating competition for women with hyperandrogenism. *Clinical Sports Medicine*, *35*, 293–301. https://doi.org/10.1016/j.csm.2015.10.003

Capranica, L., Piacentini, M. F., Halson, S., Myburgh, K. H., Ogasawara, E., & Millard-Stafford, M. (2013). The gender gap in sport performance: Equity influences equality. *International Journal of Sports Physiology & Performance*, *8*(1), 99–103. https://doi.org/10.1123/ijspp.8.1.99

Cauterucci, C. (2017). The trans boy who won the Texas girls’ wrestling title exposes the illogic of anti-trans policy. *Slate Group*. http://www.slate.com/blogs/xx_factor/2017/02/27/the_texas_trans_boy_forced_to_wrestle_girls_exposes_the_illogic_of_anti.html

Centers for Disease Control and Prevention. (2019). *Transgender people*. www.cdc.gov/hiv/group/gender/transgender/index.html

Chaudhry, V. V. (2019). Centering the "evil twin": Rethinking transgender in queer theory. *GLQ: A Journal of Lesbian and Gay Studies*, *25*(1), 45–50. https://doi.org/10.1215/10642684-7275278

Coad, A., & Kholeif, A. (2016). Strong structuration theory in accounting research. *Accounting, Auditing & Accountability Journal*, *29*(7), 1138–1144. https://doi.org/10.1108/AAAJ-07-2016-2625

Connecticut General Statute, § 10-15c (2017).

Connecticut State Department of Education. (2017). *Guidance on civil rights protections and supports for transgender students: Frequently asked questions*. https://portal.ct.gov/-/media/SDE/Title-IX/transgender_guidance_faq.pdf?la=en

Cott, N. (1987). *The grounding of modern feminism*. Yale University Press. http://www.jstor.org/stable/j.ctt32bvgt

Crenshaw, K. W. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, *43*(6), 1241–1299. https://doi.org/10.2307/1229039

Cunningham, G. B., & Pickett, A. C. (2018). Trans prejudice in sport: Differences from LGB prejudice, the influence of gender, and changes over time. *Sex Roles: A Journal of Research*, *78*(3-4), 220–227. https://doi.org/10.1007/s11199-017-0791-6

Davy, Z., & Toze, M. (2018). What is gender dysphoria? A critical systematic narrative review. *Transgender Health*, *3*(1), 159–169. https://doi.org/10.1089/trgh.2018.0014

de Lauretis, T. (1991). Queer theory: Lesbian and gay sexualities. An introduction. *Differences*, *3*(2), iii–xviii.

Demissie, Z., Rasberry, C. N., Steiner, R. J., Brener, N., & McManus, T. (2018). Trends in secondary schools' practices to support lesbian, gay, bisexual, transgender, and questioning students, 2008-2014. *American Journal of Public Health*, *108*(4), 557–564. https://doi.org/10.2105/AJPH.2017.304296

Diamond, M., & Hawk, S. T. (2004, July). *Concordance for gender identity among monozygotic and dizygotic twin pairs*. Paper presented at the American Association of Psychology conference, Honolulu, Hawaii.

Doull, M., Watson, R. J., Smith, A., Homma, Y., & Saewyc, E. (2018). Are we leveling the playing field? Trends and disparities in sports participation among sexual minority youth in Canada. *Journal of Sport and Health Science*, *7*(2), 218–226. https://doi.org/10.1016/j.jshs.2016.10.006

Dowshen, N., Grunschow, S., Taylor, S., Med, S., & Hawkins, L. (2018). Barriers to care for gender non-conforming youth: Perspectives of experienced care providers, transgender youth and their parents. *Journal of Adolescent Health*, *62*(2), 42. https://doi.org/10.1016/j.jadohealth.2017.11.083

Dunn, J. (2020). Funeral homes and female athletes. *Education Next*, *20*(2). https://www.educationnext.org/funeral-homes-female-athletes-future-girls-sports-may-hinge-mortuary-case/

Durkheim, E. (1913). Le probléme religieux et la dualité de la nature humaine [The religious problem and the duality of human nature]. *Bulletin de la Société Francaise de la Philosophie [Bulletin of the French Society of Philosophy]*, *XIII*, 63–113.

Durkheim, E. (1914). La dualisme de la nature humaine et ses conditions sociales [The dualism of human nature and its social conditions]. *Scientia*, *XV*, 206–222.

Education Amendments Act of 1972, 20 U.S.C. §§1681–1688 (2018).

Evans, E. (2018). "Wittig and Davis, Woolf and Solanas (...) simmer within me": Reading feminist archives in the queer writing of Paul B. Preciado. *Paragraph*, *41*(3), 285–300. https://doi.org/10.3366/para.2018.0272

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Flores, A. R., Haider-Markel, D., Lewis, D. C., Miller, P. R., Tadlock, B. L., & Taylor, J. K. (2020). Public attitudes about transgender participation in sports: The roles of gender, gender identity conformity, and sports fandom. *Sex Roles*, *83*(5-6), 382–398. https://doi.org/10.1007/s11199-019-01114-z

Foucault, M. (1980). *The history of sexuality: An introduction* (Vol. 1). Vintage.

Fredman, A. J., Schultz, N. J., & Hoffman, M. F. (2015). "You're moving a frickin' big ship": The challenges of addressing LGBTQ topics in public schools. *Education and Urban Society*, *47*(1), 56–85. https://doi.org/10.1177/0013124513496457

García, S. B., & Ortiz, A. A. (2013). Intersectionality as a framework for transformative research in special education. *Multiple Voices for Ethnically Diverse Exceptional Learners*, *13*(2), 32–47.

Gay and transgender rights: Overview of civil rights law and court precedent. (2019). *Supreme Court Debates*, *22*(8), 6–8.

Genel, M. (2017). Transgender athletes: How can they be accommodated? *Current Sports Medicine Reports*, *16*(1), 12–13. https://doi.org/10.1249/JSR.0000000000000321

Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. University of California.

Gleaves, J., & Lehrbach, T. (2016). Beyond fairness: The ethics of inclusion for transgender and intersex athletes. *Journal of the Philosophy of Sport*, *43*(2), 311–326. https://doi.org/10.1080/00948705.2016.1157485

Gooren, L. J., & Bunck, M. C. (2004). Transsexuals and competitive sports. *European Journal of Endocrinology*, *151*(4), 425–429. https://doi.org/10.1530/eje.0.1510425

Gopaldas, A. (2013). Intersectionality 101. *Journal of Public Policy & Marketing*, *32*, 90–94. https://doi.org/10.1509/jppm.12.044

Gray, A., Crandall, R. E., & Tongsri, J. (2018). Transgender student-athletes and their inclusion in intercollegiate athletics. *New Directions for Student Services*, *2018*(163), 43–53. https://doi.org/10.1002/ss.20269

Gridley, S., Crouch, J., Evans, Y., Evans, Y., Eng, W., Antoon, E., Lyapustina, M., Schimmel-Bristow, A., Woodward, J., Dundon, K., Schaff, R., McCarty, A., Ahrens, K., & Breland, D. (2016). Youth and caregiver perspectives on barriers to gender-affirming health care for transgender youth. *Journal of Adolescent Health*, *59*(3), 254–261. https://doi.org/10.1016/j.jadohealth.2016.03.017

Grossman, A. H., D'Augelli, A. R., & Salter, N. P. (2006). Male-to-female transgender youth: Gender expression milestones, gender atypicality, victimization, and parents' responses. *Journal of GLBT Family Studies*, *2*(1), 71–92. https://doi.org/10.1300/J461v02n01_04

Hargie, O. D. W., Mitchell, D. H., & Somerville, I. J. A. (2017). 'People have a knack of making you feel excluded if they catch on to your difference': Transgender experiences of

exclusion in sport. *International Review for the Sociology of Sport*, *52*(2), 223–239. https://semanticscholar.org/c630/6d6dfdf7191f4b727fb58a91a713a9b70b04.pdf

Harper, J. (2015). Race times for transgender athletes. *Journal of Sporting Cultures Identities*, *6*, 1–9.

Heggie, V. (2010). Testing sex and gender in sports; Reinventing, reimaging and reconstructing histories. *Endeavour*, *34*(4), 157–163. https://doi.org/10.1016/j.endeavour.2010.09.005

Hembree, W. C., Cohen-Kettenis, P., Gooren, L., Hannema, S., Meyer, W., Murad, M., Rosenthal, S., Safer, J., Tangpricha, V., & T'Sjoen, G. (2017). Endocrine treatment of gender-dysphoric/gender-incongruent persons: An Endocrine Society clinical practice guideline. *The Journal of Clinical Endocrinology & Metabolism*, *102*(11), 3869–3903. https://doi.org/10.1210/jc.2017-01658

Herman, J. L., Flores, A. R., Taylor, N. T., Brown, N. G., Bianca, D. M., & Conron, K. J. (2017). *Age of individuals who identify as transgender in the United States*. The Williams Institute, UCLA School of Law. https://williamsinstitute.law.ucla.edu/wp-content/uploads/Age-Trans-Individuals-Jan-2017.pdf

Herrick, S. S., & Duncan, L. R. (2018). A systematic scoping review of engagement in physical activity among LGBTQ+ adults. *Journal of Physical Activity and Health*, *15*(3), 226–232. https://doi.org/10.1123/jpah.2017-0292

Heylens, G., De Cuypere, G., Zucker, K. J., Schelfaut, C., Elaut, E., Vanden Bossche, H., De Vaere, E., & T'Sjoen, G. (2012). Gender identity disorder in twins: A review of the case report literature. *Journal of Sexual Medicine*, *9*(3), 751–757. https://doi.org/10.1111/j.1743-6109.2011.02567.x

Higerd, G. A. (2021). *Assessing the potential transgender impact on girl champions in American high school track and field* (Publication No. 28313943) [Doctoral dissertation, United States Sports Academy]. ProQuest Dissertations & Theses Global.

Hilton, E. N., & Lundberg, T. R. (2021). Transgender women in the female category of sport: Perspectives on testosterone suppression and performance advantage. *Sports Medicine*, *51*, 199–214. https://doi.org/10.1007/s40279-020-01389-3

Hollings, S. C., Hopkins, W. G., & Hume, P. A. (2014). Age at peak performance of successful track & field athletes. *International Journal of Sports Science & Coaching*, *9*(4), 651–661. https://doi.org/10.1260/1747-9541.9.4.651

Hopkins, W. G. (2000). *Quantitative research design*. https://www.sportsci.org/jour/0001/wghdesign.html

House, J. (2018). Authentic vs elicited data and qualitative vs quantitative research methods in pragmatics: Overcoming two non-fruitful dichotomies. *System*, *75*, 4–12. https://doi.org/10.1016/j.system.2018.03.014

Ingram, B., & Thomas, C. (2019). A review of current policy and commentary of the challenges of policy creation. *Current Sports Medicine Reports*, *18*(6), 239–247. https://doi.org/10.1249/JSR.0000000000000605

International Association of Athletics Federations. (2011). *IAAF regulations governing eligibility of females with hyperandrogenism to compete in women's competition*. https://www.sportsintegrityinitiative.com/wp-content/uploads/2016/02/IAAF-Regulations-Governing-Eligibility-of-Females-with-Hyperandrogenism-to-Compete-in-Women's-Competition-In-force-as-from-1st-May-2011-6.pdf

International Association of Athletics Federations. (2018a). *Eligibility regulations for the female classification (athletes with differences of sex development)*. https://www.iaaf.org/download/download?filename=0c7ef23c-10e1-4025-bd0c-e9f3b8f9b158.pdf&urlslug=IAAF%20Eligibility%20Regulations%20for%20the%20Female%20Classification%20%5BAthletes%20with%20Differences%20of%20Sex%20Development%5D%20in%20force%20as%20from%201st%20November%202018

International Association of Athletics Federations. (2018b). *Eligibility regulations for the female classification (athletes with differences of sex development): Explanatory notes/Q&A*. https://www.iaaf.org/download/download?filename=c402eb5b-5e40-4075-8970-d66fccb10d41.pdf&urlslug=Explanatory%20Notes%3A%20IAAF%20Eligibility%20Regulations%20for%20the%20Female%20Classification

International Olympic Committee. (2003). *Statement of the Stockholm consensus on sex reassignment in sports*. https://stillmed.olympic.org/Documents/Reports/EN/en_report_905.pdf

International Olympic Committee. (2015). *IOC consensus meeting on sex reassignment and hyperandrogenism*. https://stillmed.olympic.org/Documents/Commissions_PDFfiles/Medical_commission/2015-11_ioc_consensus_meeting_on_sex_reassignment_and_hyperandrogenism-en.pdf

Jagose, A. (1996). *Queer theory: An introduction*. Routledge.

Johansen-Berg, H., & Behrens, T. E. (Eds.). (2009). *Diffusion MRI*. Elsevier.

Jones, B. A., Arcelus, J., Bouman, W. P., & Haycraft, E. (2017). Sport and transgender people: A systematic review of the literature relating to sport participation and competitive sport policies. *Sports Medicine*, *47*(4), 701–716. https://doi.org/10.1007/s40279-016-0621-y

Khattab, A., Marshall, I., & Radovick, S. (2020). Controversies surrounding female athletes with differences in sexual development. *Journal of Clinical Investigation*, *130*(6), 2738–2740. https://doi.org/10.1172/JCI138479

Kosciw, J. G., Clark, C. M., Truong, N. L., & Zongrone, A. D. (2020). *The 2019 National School Climate Survey: The experiences of lesbian, gay, bisexual, transgender, and queer youth in our nation's schools*. GLSEN. https://www.glsen.org/sites/default/files/2020-11/NSCS19-111820.pdf

Krebbekx, W. (2021). Watching six-packs, chilling together, spreading rumours: Enacting heteronormativity through secondary school friendships and teaching practices. *Gender & Education*, *33*(1), 17–32. https://doi.org/10.1080/09540253.2018.1538496

Lagos, D. (2018). Looking at population health beyond "male" and "female": Implications of transgender identity and gender nonconformity for population health. *Demography*, *55*(6), 2097–2117. https://doi.org/10.1007/s13524-018-0714-3

Lampe, T. M., Reisner, S. L., Schrimshaw, E. W., Radix, A., Mallick, R., Harry-Hernandez, S., Dubin, S., Khan, A., & Duncan, D. T. (2020). Navigating stigma in neighborhoods and public spaces among transgender and nonbinary adults in New York City. *Stigma and Health*, *5*(4), 477–487. https://doi.org/10.1037/sah0000219

Lane, R. (2009). Trans as bodily becoming: Rethinking the biological as diversity, not dichotomy. *Hypatia*, *24*, 136–157. https://www.jstor.org/stable/20618168

Lee, H., Park, J., Choi, B., Yi, H., & Kim, S. S. (2018). Experiences of and barriers to transition-related healthcare among Korean transgender adults: Focus on gender identity disorder diagnosis, hormone therapy, and sex reassignment surgery. *Epidemiology and Health*, *40*, e2018005. https://doi.org/10.4178/epih.e2018005

Lenzi, M. J. (2018). The trans athlete dilemma: A constitutional analysis of high school transgender student-athlete policies. *American University Law Review*, *67*(3), 842–891. http://digitalcommons.wcl.american.edu/aulr/vol67/iss3/4

Lewis, R. K., & Sembiante, S. F. (2019). Research and practice in transition: Improving support and advocacy of transgender middle school students. *Middle Grades Review*, *5*(1), 1–13. https://scholarworks.uvm.edu/cgi/viewcontent.cgi?article=1127&context=mgreview

Lhamon, C. E., & Gupta, V. (2016). *Dear colleague letter on transgender students*. U.S. Department of Education and U.S. Department of Justice. https://www2.ed.gov/about/offices/list/ocr/letters/colleague-201605-title-ix-transgender.pdf

Mahoney, T. Q., Dodds, M. A., & Polasek, K. M. (2015). Progress for transgender athletes: Analysis of the School Success and Opportunity Act. *The Journal of Physical Education, Recreation & Dance*, *86*(6), 45–47. https://doi.org/10.1080/07303084.2015.1054202

Malagrino, M. (2020). May they play: *Soule v. Connecticut Association of Schools, Inc.*, Title IX, and a policy of inclusion for high school transgender athletes without prerequiring hormone therapy or puberty blockers. *Marquette Sports Law Review*, *131*(1), 3. https://scholarship.law.marquette.edu/sportslaw/vol31/iss1/3

Malloy, D. P. (2017). *Executive Order No. 56*. https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Others/Governor-Dannel-P-Malloy--Executive-Order-No-56.pdf

Marx, K., & Engels, F. (1967). *Capital: A critique of political economy*. International Publishers.

Mavhandu-Mudzusi, A. (2014). Experiences of lesbian, gay, bisexual, transgender and intersex students regarding sports participation in a South African rural based university. *African*

Journal for Physical, Health Education, Recreation & Dance, *20*(2), 710–720. https://doi.org/10.1080/10130950.2016.1187904

McBride, R.-S., & Neary, A. (2021). Trans and gender diverse youth resisting cisnormativity in school. *Gender & Education*. https://doi.org/10.1080/09540253.2021.1884201

McCall, L. (2005). The complexity of intersectionality. *Signs: Journal of Women in Culture & Society*, *30*(3), 1771–1800. https://doi.org/10.1086/426800

McLeod, S. A. (2019). *What does effect size tell you?* Simply Psychology. https://www.simplypsychology.org/effect-size.html

Mills, A. J., Durepos, G., & Wiebe, E. (2010). *Encyclopedia of case study research* (Vol. 2). SAGE. https://doi.org/10.4135/9781412957397

Monro, S. (2000). Theorizing transgender diversity: Towards a social model of health. *Sexual and Relationship Therapy*, *15*(1), 33–45. https://doi.org/10.1080/14681990050001547

Moorad, J. (2020). Transgender athletes and Title IX: An uncertain future. *Sports Journal*, *139*(27). https://digitalcommons.law.villanova.edu/cgi/viewcontent.cgi?article=1388&context=mslj

Morgan, E. T. (2017). *Erik Schinegger: Forgotten world champion*. International Skiing History Association. https://www.skiinghistory.org/news/erik-schinegger-forgotten-world-champion

Morrison, D. (2016, July). *Dear colleague letter*. https://www.loc.gov/item/cosmos000071/

Nagoshi, J. L., & Brzuzy, S. (2010). Transgender theory: Embodying research and practice. *Affilia*, *25*(4), 431–443. https://doi.org/10.1177/0886109910384068

National Collegiate Athletic Association. (2011). *Inclusion of transgender student-athletes*. https://www.ncaa.org/sites/default/files/Transgender_Handbook_2011_Final.pdf

National Scholastic Athletics Foundation. (2019). *USTAF policies*. https://www.nationalscholastic.org/

Next College Student Athlete. (2021). *Women's college track and field scholarship standards*. https://www.ncsasports.org/womens-track-and-field/scholarship-standards

Oakleaf, L., & Richmond, L. P. (2017). Dreaming about access: The experiences of transgender individuals in public recreation. *Journal of Park & Recreation Administration*, *35*(2), 108–119. https://doi.org/10.18666/JPRA-2017-V35-I2-7363

Papa, T. (2020). *Handbook on promoting social justice in education*. Springer. https://doi.org/10.1007/978-3-030-14625-2_127

Pardo, S. T. (2011). Queering transgender: Towards a sociology of transgender. *Journal of Sex Research*, *48*(4), 409–410. https://doi.org/10.1080/00224499.2010.487769

Philips, R. R. (2017). The battle over bathrooms: Schools, courts, and transgender rights. *Theory in Action*, *10*(4), 100–117. https://doi.org/10.3798/tia.1937-0237.1729

Pieper, L. P. (2016). *Sex testing: Gender policing in women's sports*. University of Illinois Press.

Pitsiladis, Y., Harper, J., & Betancurt, J. (2016). Beyond fairness: The biology of inclusion for transgender and intersex athletes. *Current Sports Medicine Review*, *15*, 386–388. https://doi.org/10.1249/jsr.0000000000000314

Privitera, G. J. (2018). *Statistics for the behavioral sciences* (3rd ed.). Sage.

Quinn, V. P., Nash, R., Hunkeler, E., Contreras, R., Cromwell, L., Becerra-Culqui, T. A., Getahun, D., Giammattei, S., Lash, T. L., Millman, A., Robinson, B., Roblin, D., Silverberg, M. J., Slovis, J., Tangpricha, V., Tolsma, D., Valentine, C., Ward, K., Winter, S., & Goodman, M. (2017). Cohort profile: Study of transition, outcomes and gender

(STRONG) to assess health status of transgender people. *BMJ Open*, *7*(12), e018121. https://doi.org/10.1136/bmjopen-2017-018121

Raftery, D., & Valiulis, M. (2008). Gender balance/gender bias: Issues in education. *Gender and Education*, *20*(4), 303–307. https://doi.org/10.1080/09540250802190131

Rametti, G., Carrillo, B., Gómez-Gil, E., Junque, C., Segovia, S., Gomez, Á., & Guillamon, A. (2011). White matter microstructure in female to male transsexuals before cross-sex hormonal treatment. A diffusion tensor imaging study. *Journal of Psychiatric Research*, *45*(2), 199–204. https://doi.org/10.1016/j.jpsychires.2010.05.006

Richardson, A., & Chen, M. A. (2020). Comment on sport and transgender people: A systematic review of the literature relating to sport participation and competitive sport policies. *Sports Medicine*, *50*, 1857–1859. https://doi.org/10.1007/s40279-020-01323-7

Roen, K. (2001). Transgender theory and embodiment: The risk of racial marginalization. *Journal of Gender Studies*, *10*(3), 253–263. https://doi.org/10.1080/09589230120086467

Rogol, A., & Pieper, L. (2017). Genes, gender, hormones, and doping in sport: A convoluted tale. *Frontiers in Endocrinology*, *8*, 251. https://doi.org/10.3389/fendo.2017.00251

Rubin, H. (2003). *Self made men. Identity and embodiment among transsexual men*. Vanderbilt University Press.

Sawyer, K., Salter, N., & Thoroughgood, C. (2013). Studying individual identities is good, but examining intersectionality is better. *Industrial and Organizational Psychology*, *6*(1), 80–84. https://doi.org/10.1111/iops.12012

Sawyer, T. L. (2015). Interscholastic sport governance. *Journal of Facility Planning, Design & Management*, *3*(2), 118–133. https://doi.org/10.18666/JFPDM-2015-V3-I2-6866

Schulz, A. J., & Mullings, L. (2006). *Gender, race, class, and health: Intersectional approaches*. Jossey-Bass.

Sedgwick, E. K. (1990). *Epistemology of the closet*. University of California.

Shelton, S. A. (2015). The sociocultural factors that influence a novice teacher's LGBT activism. *Teaching Education*, *26*(1), 113–130. https://doi.org/10.1080/10476210.2014.959485

Shelton, J. (2015). Transgender youth homelessness: Understanding programmatic barriers through the lens of cisgenderism. *Children and Youth Services*, *59*, 10–18. https://doi.org/10.1016/j.childyouth.2015.10.006

Skinner-Thompson, S., & Turner, I. M. (2013). Title IX's protections for transgender student athletes. *Wisconsin Journal of Law, Gender & Society*, *28*(3), 271–300. https://hosted.law.wisc.edu/wordpress/wjlgs/files/2014/07/Skinner-Thompson-and-Turner-Article.pdf

Stavely, J., & Keenan, L. (2019). Assessing the lack of transgender participation in sports. *Ramifications*, *1*(1), 5. https://digitalcommons.wcupa.edu/ramifications/vol1/iss1/5

Strang, D., & Siler, K. (2017). From 'just the facts' to 'more theory and methods, please': The evolution of the research article in Administrative Science Quarterly, 1956–2008. *Social Studies of Science*, *47*(4), 528–555. https://doi.org/10.1177/0306312717694512

Stryker, S., Currah, P., & Moore, L. J. (2008). Introduction: Trans-, trans, or transgender? *Women's Studies Quarterly*, *36*(3/4), 11–22. http://www.jstor.org/stable/27649781

Šubrt, J., Kumsa, A., & Ruzzeddu, M. (2020). *Explaining social processes*. Springer.

Swaab, D., & Garcia-Falgueras, A. (2009). Sexual differentiation of the human brain in relation to gender identity and sexual orientation. *Functional Neurology*, *24*(1), 17–28.

Tauchert, A. (2002). Fuzzy gender: Between female embodiment and intersex. *Journal of Gender Studies*, *11*(1), 29–38. https://doi.org/10.1080/09589230120115149

Torres, V., Jones, S. R., & Renn, K. A. (2009). Identity development theories in student affairs: Origins, current status, and new approaches. *Journal of College Student Development*, *50*(6), 577–596. https://doi.org/10.1353/csd.0.0102

Transathlete. (2020). *K-12 policies*. https://www.transathlete.com/k-12

Transgender Law and Policy Institute. (2020). *Guidelines for creating policies for transgender children in recreational sports*. http://trans-gnc-resources.com/mdocs-posts/guidelines-for-creating-policies-for-transgender-children-in-recreational-sports/

Truth, S. (1851). *Ain't I a woman?* Scholastic.

Turner, J. R., Morris, M., & Imonitie, A. (2019). A theoretical literature review on adaptive structuration theory as its relevance to human resource development. *Advances in Developing Human Resources*, *21*(3), 289–302. https://doi.org/10.1177/1523422319851275

United Nations Office of the High Commissioner for Human Rights. (2017). *Fact sheet: Intersex*. https://www.unfe.org/wp-content/uploads/2017/05/UNFE-Intersex.pdf

University of California, San Francisco. (2020). *Transition roadmap*. https://transcare.ucsf.edu/transition-roadmap

U.S. Department of Education. (2016). *U.S. Departments of Education and Justice release joint guidance to help schools ensure the civil rights of transgender students*. https://www.ed.gov/news/press-releases/us-departments-education-and-justice-release-joint-guidance-help-schools-ensure-civil-rights-transgender-students

U.S. Department of Education. (2017). *U.S. Secretary of Education Betsy DeVos issues statement on new Title IX guidance*. https://www.ed.gov/news/press-releases/us-secretary-education-betsy-devos-issues-statement-new-title-ix-guidance

U.S. Department of Education, Office for Civil Rights. (2015). *Opinion letter on transgender student restroom access to facilities*. https://www2.ed.gov/about/offices/list/ocr/letters/20150107-title-ix-prince-letter.pdf

Valenti, A. (2020). LGBT employment rights in an evolving legal landscape: The impact of the Supreme Court's decision in *Bostock v. Clayton County, Georgia*. *Employer Responsibilities and Rights*. https://doi.org/10.1007/s10672-020-09359-7

Walen, D., Nye, E., Rogers, S., Crossway, A., Winkelmann, Z., Walker, S., & Eberman, L. (2020). Athletic trainers' competence, education, and perceptions regarding transgender student-athlete patient care. *Journal of Athletic Training*, *55*(11), 1142–1152. https://doi.org/10.4095/1062-6050-147-19

West-Sell, S., Van Ness, J. M., & Ciccolella, M. E. (2019). Law, policy, and physiology as determinants of fairness for transgender athletes. *Professionalization of Exercise Physiology*, *22*(2), 1–10. https://www.asep.org/index.php/download_file/view/1231/178/

White Hughto, J. M., Reisner, S. L., & Pachankis, J. E. (2015). Transgender stigma and health: A critical review of stigma determinants, mechanisms, and interventions. *Social Science & Medicine*, *147*, 222–231. https://doi.org/10.1016/j.socscimed.2015.11.010

White Hughto, J. M., Rose, A. J., Pachankis, J. E., & Reisner, S. L. (2017). Barriers to gender transition-related healthcare: Identifying underserved transgender adults in Massachusetts. *Transgender Health*, *2*(1), 107–118. https://doi.org/10.1089/trgh.2017.0014

Wilson, B. D. M., & Kastanis, A. (2015). Sexual and gender minority disproportionality and disparities in child welfare: A population-based study. *Children and Youth Services Review*, *58*, 11–17. https://doi.org/10.1016/j.childyouth.2015.08.016

Wollstonecraft, M. (1792). *A vindication of the rights of woman: With strictures on political and moral subjects*. J. Johnson.

Woolley, S. W. (2012). The silence itself is enough of a statement: The day of silence and LGBTQ awareness raising. *Anthropology & Education Quarterly*, *43*(3), 271–288. https://www.jstor.org/stable/23249760

The World Professional Association for Transgender Health. (2012). *Standards of care for the health of transsexual, transgender, and gender nonconforming people*. https://www.wpath.org/media/cms/Documents/SOC%20v7/SOC%20V7_English.pdf

Appendix A

Descriptive Statistics for Connecticut and National Race Times by Year

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
State55	1	100	7.0942	.43168	.04317	7.0085	7.1799	6.50	7.69
	2	101	7.0785	.44021	.04380	6.9916	7.1654	6.47	7.68
	3	103	7.0642	.45910	.04524	6.9744	7.1539	6.40	7.65
	Total	304	7.0788	.44266	.02539	7.0289	7.1288	6.40	7.69
National55	1	101	6.7386	.33624	.03346	6.6722	6.8050	6.25	7.15
	2	105	6.6891	.32062	.03129	6.6271	6.7512	6.17	7.09
	3	107	6.7456	.35828	.03464	6.6769	6.8143	6.22	7.17
	Total	313	6.7244	.33875	.01915	6.6867	6.7621	6.17	7.17
State100	1	101	11.8709	.80683	.08028	11.7116	12.0302	10.78	12.97
	2	100	11.8537	.77730	.07773	11.6995	12.0079	10.77	12.93
	3	18	12.8294	.91581	.21586	12.3740	13.2849	11.40	14.13
	Total	219	11.9418	.84223	.05691	11.8297	12.0540	10.77	14.13
National100	1	106	10.9196	.61009	.05926	10.8021	11.0371	10.00	11.68
	2	102	10.9099	.59528	.05894	10.7930	11.0268	9.98	11.62
	3	107	11.1859	.67127	.06489	11.0572	11.3145	10.29	11.97
	Total	315	11.0069	.63805	.03595	10.9362	11.0777	9.98	11.97

Note. Year 1 = 2018, Year 2 = 2019, Year 3 = 2020.