

Gender-affirming genital surgeries for transgender females that affect fertility include gonadectomy, penectomy, and creation of a neovagina (225, 226). Surgeons often invert the skin of the penis to form the wall of the vagina, and several literatures reviews have reported on outcomes (227). Sometimes there is inadequate tissue to form a full neovagina, so clinicians have revisited using intestine and found it to be successful (87, 228, 229). Some newer vaginoplasty techniques may involve autologous oral epithelial cells (230, 231).

The scrotum becomes the labia majora. Surgeons use reconstructive surgery to fashion the clitoris and its hood, preserving the neurovascular bundle at the tip of the penis as the neurosensory supply to the clitoris. Some surgeons are also creating a sensate pedicled-spot adding a G spot to the neovagina to increase sensation (232). Most recently, plastic surgeons have developed techniques to fashion labia minora. To further complete the feminization, uterine transplants have been proposed and even attempted (233).

Neovaginal prolapse, rectovaginal fistula, delayed healing, vaginal stenosis, and other complications do sometimes occur (234, 235). Clinicians should strongly remind the transgender person to use their dilators to maintain the depth and width of the vagina throughout the postoperative period. Genital sexual responsivity and other aspects of sexual function are usually preserved following genital gender-affirming surgery (236, 237).

Ancillary surgeries for more feminine or masculine appearance are not within the scope of this guideline. Voice therapy by a speech language pathologist is available to transform speech patterns to the affirmed gender (148). Spontaneous voice deepening occurs during testosterone treatment of transgender males (152, 238). No studies have compared the effectiveness of speech therapy, laryngeal surgery, or combined treatment.

Breast surgery is a good example of gender-confirming surgery that

the patient has completed at least 2 years of estrogen therapy, because the breasts continue to grow during that time (141, 155).

Another major procedure is the removal of facial and masculine-appearing body hair using either electrolysis or laser treatments. Other feminizing surgeries, such as that to feminize the face, are now becoming more popular (239–241).

In transgender males, clinicians usually delay gender-affirming genital surgeries until after a few years of androgen therapy. Those surgeries that affect fertility in this group include oophorectomy, vaginectomy, and complete hysterectomy. Surgeons can safely perform them vaginally with laparoscopy. These are sometimes done in conjunction with the creation of a neopenis. The cosmetic appearance of a neopenis is now very good, but the surgery is multistage and very expensive (242, 243). Radial forearm flap seems to be the most satisfactory procedure (228, 244). Other flaps also exist (245). Surgeons can make neopenile erections possible by reinnervation of the flap and subsequent contraction of the muscle, leading to stiffening of the neopenis (246, 247), but results are inconsistent (248). Surgeons can also stiffen the penis by imbedding some mechanical device (*e.g.*, a rod or some inflatable apparatus) (249, 250). Because of these limitations, the creation of a neopenis has often been less than satisfactory. Recently, penis transplants are being proposed (233).

In fact, most transgender males do not have any external genital surgery because of the lack of access, high cost, and significant potential complications. Some choose a metaoidioplasty that brings forward the clitoris, thereby allowing them to void in a standing position without wetting themselves (251, 252). Surgeons can create the scrotum from the labia majora with good cosmetic effect and can implant testicular prostheses (253).

The most important masculinizing surgery for the transgender male

present after significant breast development has occurred, they may also consider mastectomy 2 years after they begin androgen therapy and before age 18 years. Clinicians should individualize treatment based on the physical and mental health status of the individual. There are now newer approaches to mastectomy with better outcomes (254, 255). These often involve chest contouring (256). Mastectomy is often necessary for living comfortably in the new gender (256).

5.1. We recommend that a patient pursue genital gender-affirming surgery only after the MHP and the clinician responsible for endocrine transition therapy both agree that surgery is medically necessary and would benefit the patient's overall health and/or well-being. (1 | ⊕ ⊕ ○ ○)

5.2. We advise that clinicians approve genital gender-affirming surgery only after completion of at least 1 year of consistent and compliant hormone treatment, unless hormone therapy is not desired or medically contraindicated. (Ungraded Good Practice Statement)

5.3. We advise that the clinician responsible for endocrine treatment and the primary care provider ensure appropriate medical clearance of transgender individuals for genital gender-affirming surgery and collaborate with the surgeon regarding hormone use during and after surgery. (Ungraded Good Practice Statement)

5.4. We recommend that clinicians refer hormone-treated transgender individuals for genital surgery when: (1) the individual has had a satisfactory social role change, (2) the individual is satisfied about the hormonal effects, and (3) the individual desires definitive surgical changes. (1 | ⊕ ○ ○ ○)

5.5. We suggest that clinicians delay gender-affirming genital surgery involving gonadectomy and/or hysterectomy until the

5.6. We suggest that clinicians determine the timing of breast surgery for transgender males based upon the physical and mental health status of the individual. There is insufficient evidence to recommend a specific age requirement. (2 | ⊕○○○)

## Evidence

Owing to the lack of controlled studies, incomplete follow-up, and lack of valid assessment measures, evaluating various surgical approaches and techniques is difficult. However, one systematic review including a large numbers of studies reported satisfactory cosmetic and functional results for vaginoplasty/neovagina construction (257). For transgender males, the outcomes are less certain. However, the problems are now better understood (258). Several postoperative studies report significant long-term psychological and psychiatric pathology (259–261). One study showed satisfaction with breasts, genitals, and femininity increased significantly and showed the importance of surgical treatment as a key therapeutic option for transgender females (262). Another analysis demonstrated that, despite the young average age at death following surgery and the relatively larger number of individuals with somatic morbidity, the study does not allow for determination of causal relationships between, for example, specific types of hormonal or surgical treatment received and somatic morbidity and mortality (263). Reversal surgery in regretful male-to-female transsexuals after sexual reassignment surgery represents a complex, multistage procedure with satisfactory outcomes. Further insight into the characteristics of persons who regret their decision postoperatively would facilitate better future selection of applicants eligible for sexual reassignment surgery. We need more studies with appropriate controls that examine long-term quality of life, psychosocial outcomes, and psychiatric outcomes to determine the long-term benefits of surgical treatment.

There is some concern that estrogen therapy may cause an increased risk for venous thrombosis during or following surgery (176). For this reason, the surgeon and the hormone-prescribing clinician should collaborate in making a decision about the use of hormones before and following surgery. One study suggests that preoperative factors (such as compliance) are less important for patient satisfaction than are the physical postoperative results (56). However, other studies and clinical experience dictate that individuals who do not follow medical instructions and do not work with their physicians toward a common goal do not achieve treatment goals (264) and experience higher rates of postoperative infections and other complications (265, 266). It is also important that the person requesting surgery feels comfortable with the anatomical changes that have occurred during hormone therapy. Dissatisfaction with social and physical outcomes during the hormone transition may be a contraindication to surgery (223).

An endocrinologist or experienced medical provider should monitor transgender individuals after surgery. Those who undergo gonadectomy will require hormone replacement therapy, surveillance, or both to prevent adverse effects of chronic hormone deficiency.

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## Abbreviations

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**BMD** bone mineral density

**DSD** disorder/difference of sex development

**DSM** Diagnostic and Statistical Manual of Mental Disorders

**GD** gender dysphoria

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## ICD

International Statistical Classification of Diseases and Related Health Problems

MHP mental health professional

VTE venous thromboembolism.

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## References

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1. Atkins D , Best D , Briss PA , Eccles M , Falck-Ytter Y , Flottorp S , Guyatt GH , Harbour RT , Haugh MC , Henry D , Hill S , Jaeschke R , Leng G , Liberati A , Magrini N , Mason J , Middleton P , Mrukowicz J , O'Connell D , Oxman AD , Phillips B , Schünemann HJ , Edejer T , Varonen H , Vist GE , Williams JW, Jr , Zaza S ; GRADE Working Group . Grading quality of evidence and strength of recommendations. *BMJ*. 2004;328(7454):1490.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
2. Swiglo BA , Murad MH , Schünemann HJ , Kunz R , Vigersky RA , Guyatt GH , Montori VM . A case for clarity, consistency, and helpfulness: state-of-the-art clinical practice guidelines in endocrinology using the grading of recommendations, assessment, development, and evaluation system. *J Clin Endocrinol Metab*. 2008;93(3):666–673.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
3. Bullough VL . Transsexualism in history. *Arch Sex Behav*. 1975;4(5):561–571.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

5. Meyerowitz J . *How Sex Changed: A History of Transsexuality in the United States*. Cambridge, MA: Harvard University Press; 2002.
6. Hirschfeld M. *Was muss das Volk vom Dritten Geschlecht wissen*. Verlag Max Spohr, Leipzig; 1901.
7. Fisk NM . Editorial: Gender dysphoria syndrome—the conceptualization that liberalizes indications for total gender reorientation and implies a broadly based multi-dimensional rehabilitative regimen. *West J Med*. 1974;120(5):386–391.  
[Google Scholar](#)   [PubMed](#)   [WorldCat](#)
8. Diamond L . Transgender experience and identity. In: Schwartz SJ, Luyckx K, Vignoles VL, eds. *Handbook of Identity Theory and Research*. New York, NY: Springer; 2011:629–647.
9. Queen C , Schimel L , eds. *PoMoSexuals: Challenging Assumptions About Gender and Sexuality*. San Francisco, CA: Cleis Press; 1997.
10. Case LK , Ramachandran VS . Alternating gender incongruity: a new neuropsychiatric syndrome providing insight into the dynamic plasticity of brain-sex. *Med Hypotheses*. 2012;78(5):626–631.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
11. Johnson TW , Wassersug RJ . Gender identity disorder outside the binary: when gender identity disorder-not otherwise specified is not good enough. *Arch Sex Behav*. 2010;39(3):597–598.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
12. Wibowo E , Wassersug R , Warkentin K , Walker L , Robinson J , Brotto L , Johnson T . Impact of androgen deprivation therapy on sexual function: a response. *Asian J Androl*. 2012;14(5):793–794.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
13. Pasquesoone V. 7 countries giving transgender people fundamental rights the U.S. still won't. 2014. Available at: <https://mic.com/articles/87149/7-countries-giving-transgender-people-fundamental-rights-the-u-s-still-won-t>.



14. American Psychiatric Association . *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed. Arlington, VA: American Psychiatric Association Publishing.
15. Drescher J , Cohen-Kettenis P , Winter S . Minding the body: situating gender identity diagnoses in the ICD-11. *Int Rev Psychiatry*. 2012;24(6):568–577.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
16. World Professional Association for Transgender Health. Standards of care for the health of transsexual, transgender, and gender nonconforming people. Available at: [http://www.wpath.org/site\\_page.cfm?pk\\_association\\_webpage\\_menu=1351&pk\\_association\\_webpage=3926](http://www.wpath.org/site_page.cfm?pk_association_webpage_menu=1351&pk_association_webpage=3926). Accessed 1 September 2017.
17. Kreukels BP , Haraldsen IR , De Cuypere G , Richter-Appelt H , Gijls L , Cohen-Kettenis PT . A European network for the investigation of gender incongruence: the ENIGI initiative. *Eur Psychiatry*. 2012;27(6):445–450.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
18. Dekker MJ , Wierckx K , Van Caenegem E , Klaver M , Kreukels BP , Elaut E , Fisher AD , van Trotsenburg MA , Schreiner T , den Heijer M , T’Sjoen G . A European network for the investigation of gender incongruence: endocrine part. *J Sex Med*. 2016;13(6):994–999.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
19. Ruble DN , Martin CL , Berenbaum SA . Gender development. In: Damon WL , Lerner RM , Eisenberg N, eds. *Handbook of Child Psychology: Social, Emotional, and Personality Development*. Vol. 3. 6th ed. New York, NY: Wiley; 2006;858–931.  
[Google Scholar](#)   [Crossref](#)   [Google Preview](#)   [WorldCat](#)  
[COPAC](#)
20. Steensma TD , Kreukels BP , de Vries AL , Cohen-Kettenis PT . Gender identity development in adolescence. *Horm Behav*. 2013;64(2):288–297.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
21. Rosenthal SM . Approach to the patient: transgender youth: endocrine considerations. *J Clin Endocrinol Metab*. 2014;99(12):4379–4389.

22. Saraswat A , Weinand JD , Safer JD . Evidence supporting the biologic nature of gender identity. *Endocr Pract.* 2015;21(2):199–204.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
23. Gooren L . The biology of human psychosexual differentiation. *Horm Behav.* 2006;50(4):589–601.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
24. Berenbaum SA , Meyer-Bahlburg HF . Gender development and sexuality in disorders of sex development. *Horm Metab Res.* 2015;47(5):361–366.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
25. Dessens AB , Slijper FME , Drop SLS . Gender dysphoria and gender change in chromosomal females with congenital adrenal hyperplasia. *Arch Sex Behav.* 2005;34(4):389–397.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
26. Meyer-Bahlburg HFL , Dolezal C , Baker SW , Ehrhardt AA , New MI . Gender development in women with congenital adrenal hyperplasia as a function of disorder severity. *Arch Sex Behav.* 2006;35(6):667–684.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
27. Frisé L , Nordenström A , Falhammar H , Filipsson H , Holmdahl G , Janson PO , Thorén M , Hagenfeldt K , Möller A , Nordenskjöld A . Gender role behavior, sexuality, and psychosocial adaptation in women with congenital adrenal hyperplasia due to CYP21A2 deficiency. *J Clin Endocrinol Metab.* 2009;94(9):3432–3439.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
28. Meyer-Bahlburg HFL , Dolezal C , Baker SW , Carlson AD , Obeid JS , New MI . Prenatal androgenization affects gender-related behavior but not gender identity in 5–12-year-old girls with congenital adrenal hyperplasia. *Arch Sex Behav.* 2004;33(2):97–104.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
29. Cohen-Kettenis PT . Gender change in 46,XY persons with 5 $\alpha$ -reductase-2 deficiency and 17 $\beta$ -hydroxysteroid dehydrogenase-3 deficiency. *Arch Sex*

30. Reiner WG , Gearhart JP . Discordant sexual identity in some genetic males with cloacal exstrophy assigned to female sex at birth. *N Engl J Med*. 2004;350(4):333–341.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
31. Meyer-Bahlburg HFL . Gender identity outcome in female-raised 46,XY persons with penile agenesis, cloacal exstrophy of the bladder, or penile ablation. *Arch Sex Behav*. 2005;34(4):423–438.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
32. Coolidge FL , Thede LL , Young SE . The heritability of gender identity disorder in a child and adolescent twin sample. *Behav Genet*. 2002;32(4):251–257.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
33. Heylens G , De Cuypere G , Zucker KJ , Schelfaut C , Elaut E , Vanden Bossche H , De Baere E , T’Sjoen G . Gender identity disorder in twins: a review of the case report literature. *J Sex Med*. 2012;9(3):751–757.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
34. Fernández R , Esteva I , Gómez-Gil E , Rumbo T , Almaraz MC , Roda E , Haro-Mora J-J , Guillamón A , Pásaro E . Association study of ER $\beta$ , AR, and CYP19A1 genes and MtF transsexualism. *J Sex Med*. 2014;11(12):2986–2994.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
35. Henningsson S , Westberg L , Nilsson S , Lundström B , Ekselius L , Bodlund O , Lindström E , Hellstrand M , Rosmond R , Eriksson E , Landén M . Sex steroid-related genes and male-to-female transsexualism. *Psychoneuroendocrinology*. 2005;30(7):657–664.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
36. Hare L , Bernard P , Sánchez FJ , Baird PN , Vilain E , Kennedy T , Harley VR . Androgen receptor repeat length polymorphism associated with male-to-female transsexualism. *Biol Psychiatry*. 2009;65(1):93–96.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
37. Lombardo F , Toselli L , Grassetti D , Paoli D , Masciandaro P , Valentini F , Lenzi A , Gandini L . Hormone and genetic study in male to female transsexual

38. Ujike H , Otani K , Nakatsuka M , Ishii K , Sasaki A , Oishi T , Sato T , Okahisa Y , Matsumoto Y , Namba Y , Kimata Y , Kuroda S . Association study of gender identity disorder and sex hormone-related genes. *Prog Neuropsychopharmacol Biol Psychiatry*. 2009;33(7):1241–1244.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
39. Kreukels BP , Guillamon A . Neuroimaging studies in people with gender incongruence. *Int Rev Psychiatry*. 2016;28(1):120–128.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
40. Steensma TD , Biemond R , de Boer F , Cohen-Kettenis PT . Desisting and persisting gender dysphoria after childhood: a qualitative follow-up study. *Clin Child Psychol Psychiatry*. 2011;16(4):499–516.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
41. Wallien MSC , Cohen-Kettenis PT . Psychosexual outcome of gender-dysphoric children. *J Am Acad Child Adolesc Psychiatry*. 2008;47(12):1413–1423.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
42. Steensma TD , McGuire JK , Kreukels BPC , Beekman AJ , Cohen-Kettenis PT . Factors associated with desistence and persistence of childhood gender dysphoria: a quantitative follow-up study. *J Am Acad Child Adolesc Psychiatry*. 2013;52(6):582–590.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
43. Cohen-Kettenis PT , Owen A , Kaijser VG , Bradley SJ , Zucker KJ . Demographic characteristics, social competence, and behavior problems in children with gender identity disorder: a cross-national, cross-clinic comparative analysis. *J Abnorm Child Psychol*. 2003;31(1):41–53.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
44. Dhejne C , Van Vlerken R , Heylens G , Arcelus J . Mental health and gender dysphoria: a review of the literature. *Int Rev Psychiatry*. 2016;28(1):44–57.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
45. Pasterski V , Gilligan L , Curtis R . Traits of autism spectrum disorders in adults with gender dysphoria. *Arch Sex Behav*. 2014;43(2):387–393.

46. Spack NP , Edwards-Leeper L , Feldman HA , Leibowitz S , Mandel F , Diamond DA , Vance SR . Children and adolescents with gender identity disorder referred to a pediatric medical center. *Pediatrics*. 2012;129(3):418–425.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
47. Terada S , Matsumoto Y , Sato T , Okabe N , Kishimoto Y , Uchitomi Y . Factors predicting psychiatric co-morbidity in gender-dysphoric adults. *Psychiatry Res*. 2012;200(2-3):469–474.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
48. VanderLaan DP , Leef JH , Wood H , Hughes SK , Zucker KJ . Autism spectrum disorder risk factors and autistic traits in gender dysphoric children. *J Autism Dev Disord*. 2015;45(6):1742–1750.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
49. de Vries ALC , Doreleijers TAH , Steensma TD , Cohen-Kettenis PT . Psychiatric comorbidity in gender dysphoric adolescents. *J Child Psychol Psychiatry*. 2011;52(11):1195–1202.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
50. de Vries ALC , Noens ILJ , Cohen-Kettenis PT , van Berckelaer-Onnes IA , Doreleijers TA . Autism spectrum disorders in gender dysphoric children and adolescents. *J Autism Dev Disord*. 2010;40(8):930–936.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
51. Wallien MSC , Swaab H , Cohen-Kettenis PT . Psychiatric comorbidity among children with gender identity disorder. *J Am Acad Child Adolesc Psychiatry*. 2007;46(10):1307–1314.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
52. Kuiper AJ , Cohen-Kettenis PT . Gender role reversal among postoperative transsexuals. Available at: <https://www.atria.nl/eazines/web/IJT/97-03/numbers/symposion/ijtc0502.htm>. Accessed 26 August 2016.
53. Landén M , Wålinder J , Lambert G , Lundström B . Factors predictive of regret in sex reassignment. *Acta Psychiatr Scand*. 1998;97(4):284–289.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)

54. Olsson S-E , Möller A . Regret after sex reassignment surgery in a male-to-female transsexual: a long-term follow-up. *Arch Sex Behav*. 2006;35(4):501–506.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
55. Pfäfflin F , Junge A , eds. *Geschlechtsumwandlung: Abhandlungen zur Transsexualität*. Stuttgart, Germany: Schattauer; 1992.  
[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)
56. Lawrence AA . Factors associated with satisfaction or regret following male-to-female sex reassignment surgery. *Arch Sex Behav*. 2003;32(4):299–315.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
57. Cohen-Kettenis PT , Pfäfflin F . *Transgenderism and Intersexuality in Childhood and Adolescence: Making Choices*. Thousand Oaks, CA: SAGE Publications; 2003.  
[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)
58. Di Ceglie D, Freedman D, McPherson S, Richardson P. Children and adolescents referred to a specialist gender identity development service: clinical features and demographic characteristics. Available at: [https://www.researchgate.net/publication/276061306\\_Children\\_and\\_Adolescents\\_Referred\\_to\\_a\\_Specialist\\_Gender\\_Identity\\_Development\\_Service\\_Clinical\\_Features\\_and\\_Demographic\\_Characteristics](https://www.researchgate.net/publication/276061306_Children_and_Adolescents_Referred_to_a_Specialist_Gender_Identity_Development_Service_Clinical_Features_and_Demographic_Characteristics). Accessed 20 July 2017.
59. Gijs L , Brewaeyes A . Surgical treatment of gender dysphoria in adults and adolescents: recent developments, effectiveness, and challenges. *Annu Rev Sex Res*. 2007;18:178–224.  
[Google Scholar](#) [WorldCat](#)
60. Cohen-Kettenis PT , van Goozen SHM . Sex reassignment of adolescent transsexuals: a follow-up study. *J Am Acad Child Adolesc Psychiatry*. 1997;36(2):263–271.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
61. Smith YLS , van Goozen SHM , Cohen-Kettenis PT . Adolescents with gender identity disorder who were accepted or rejected for sex reassignment surgery.

62. Smith YLS , Van Goozen SHM , Kuiper AJ , Cohen-Kettenis PT . Sex reassignment: outcomes and predictors of treatment for adolescent and adult transsexuals. *Psychol Med*. 2005;35(1):89–99.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

63. de Vries ALC , McGuire JK , Steensma TD , Wagenaar ECF , Doreleijers TAH , Cohen-Kettenis PT . Young adult psychological outcome after puberty suppression and gender reassignment. *Pediatrics*. 2014;134(4):696–704.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

64. Cole CM , O’Boyle M , Emory LE , Meyer WJ III . Comorbidity of gender dysphoria and other major psychiatric diagnoses. *Arch Sex Behav*. 1997;26(1):13–26.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

65. Cohen-Kettenis PT , Schagen SEE , Steensma TD , de Vries ALC , Delemarre-van de Waal HA . Puberty suppression in a gender-dysphoric adolescent: a 22-year follow-up. *Arch Sex Behav*. 2011;40(4):843–847.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

66. First MB . Desire for amputation of a limb: paraphilia, psychosis, or a new type of identity disorder. *Psychol Med*. 2005;35(6):919–928.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

67. Wierckx K , Van Caenegem E , Pennings G , Elaut E , Dedeker D , Van de Peer F , Weyers S , De Sutter P , T’Sjoen G . Reproductive wish in transsexual men. *Hum Reprod*. 2012;27(2):483–487.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

68. Wierckx K , Stuyver I , Weyers S , Hamada A , Agarwal A , De Sutter P , T’Sjoen G . Sperm freezing in transsexual women. *Arch Sex Behav*. 2012;41(5):1069–1071.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

69. Bertelloni S , Baroncelli GI , Ferdeghini M , Menchini-Fabris F , Saggese G . Final height, gonadal function and bone mineral density of adolescent males with central precocious puberty after therapy with gonadotropin-releasing

70. Büchter D , Behre HM , Kliesch S , Nieschlag E . Pulsatile GnRH or human chorionic gonadotropin/human menopausal gonadotropin as effective treatment for men with hypogonadotropic hypogonadism: a review of 42 cases. *Eur J Endocrinol*. 1998;139(3):298–303.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
71. Liu PY , Turner L , Rushford D , McDonald J , Baker HW , Conway AJ , Handelsman DJ . Efficacy and safety of recombinant human follicle stimulating hormone (Gonal-F) with urinary human chorionic gonadotrophin for induction of spermatogenesis and fertility in gonadotrophin-deficient men. *Hum Reprod*. 1999;14(6):1540–1545.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
72. Pasquino AM , Pucarelli I , Accardo F , Demiraj V , Segni M , Di Nardo R . Long-term observation of 87 girls with idiopathic central precocious puberty treated with gonadotropin-releasing hormone analogs: impact on adult height, body mass index, bone mineral content, and reproductive function. *J Clin Endocrinol Metab*. 2008;93(1):190–195.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
73. Magiakou MA , Manousaki D , Papadaki M , Hadjidakis D , Levidou G , Vakaki M , Papaefstathiou A , Lalioti N , Kanaka-Gantenbein C , Piaditis G , Chrousos GP , Dacou-Voutetakis C . The efficacy and safety of gonadotropin-releasing hormone analog treatment in childhood and adolescence: a single center, long-term follow-up study. *J Clin Endocrinol Metab*. 2010;95(1):109–117.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
74. Baba T , Endo T , Honnma H , Kitajima Y , Hayashi T , Ikeda H , Masumori N , Kamiya H , Moriwaka O , Saito T . Association between polycystic ovary syndrome and female-to-male transsexuality. *Hum Reprod*. 2007;22(4):1011–1016.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
75. Spinder T , Spijkstra JJ , van den Tweel JG , Burger CW , van Kessel H , Hompes PGA , Gooren LJG . The effects of long term testosterone administration on pulsatile luteinizing hormone secretion and on ovarian histology in eugonadal female to male transsexual subjects. *J Clin Endocrinol Metab*. 1989;69(1):151–157.



76. Baba T , Endo T , Ikeda K , Shimizu A , Honnma H , Ikeda H , Masumori N , Ohmura T , Kiya T , Fujimoto T , Koizumi M , Saito T . Distinctive features of female-to-male transsexualism and prevalence of gender identity disorder in Japan. *J Sex Med.* 2011;8(6):1686–1693.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
77. Vujovic S , Popovic S , Sbutega-Milosevic G , Djordjevic M , Gooren L . Transsexualism in Serbia: a twenty-year follow-up study. *J Sex Med.* 2009;6(4):1018–1023.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
78. Ikeda K , Baba T , Noguchi H , Nagasawa K , Endo T , Kiya T , Saito T . Excessive androgen exposure in female-to-male transsexual persons of reproductive age induces hyperplasia of the ovarian cortex and stroma but not polycystic ovary morphology. *Hum Reprod.* 2013;28(2):453–461.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
79. Trebay G . He’s pregnant. You’re speechless. *New York Times.* 22 June 2008.
80. Light AD , Obedin-Maliver J , Sevelius JM , Kerns JL . Transgender men who experienced pregnancy after female-to-male gender transitioning. *Obstet Gynecol.* 2014;124(6):1120–1127.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
81. De Sutter P . Donor inseminations in partners of female-to-male transsexuals: should the question be asked? *Reprod Biomed Online.* 2003;6(3):382, author reply 282–283.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
82. De Roo C , Tilleman K , T’Sjoen G , De Sutter P . Fertility options in transgender people. *Int Rev Psychiatry.* 2016;28(1):112–119.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
83. Wennink JMB , Delemarre-van de Waal HA , Schoemaker R , Schoemaker H , Schoemaker J . Luteinizing hormone and follicle stimulating hormone secretion patterns in boys throughout puberty measured using highly sensitive immunoradiometric assays. *Clin Endocrinol (Oxf).* 1989;31(5):551–

84. Cohen-Kettenis PT , Delemarre-van de Waal HA , Gooren LJG . The treatment of adolescent transsexuals: changing insights. *J Sex Med.* 2008;5(8):1892–1897.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

85. Delemarre-van de Waal HA , Cohen-Kettenis PT . Clinical management of gender identity disorder in adolescents: a protocol on psychological and paediatric endocrinology aspects. *Eur J Endocrinol.* 2006;155:S131–S137.

[Google Scholar](#) [Crossref](#) [WorldCat](#)

86. de Vries ALC , Steensma TD , Doreleijers TAH , Cohen-Kettenis PT . Puberty suppression in adolescents with gender identity disorder: a prospective follow-up study. *J Sex Med.* 2011;8(8):2276–2283.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

87. Bouman MB , van Zeijl MCT , Buncamper ME , Meijerink WJHJ , van Bodegraven AA , Mullender MG . Intestinal vaginoplasty revisited: a review of surgical techniques, complications, and sexual function. *J Sex Med.* 2014;11(7):1835–1847.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

88. Carel JC , Eugster EA , Rogol A , Ghizzoni L , Palmert MR , Antoniazzi F , Berenbaum S , Bourguignon JP , Chrousos GP , Coste J , Deal S , de Vries L , Foster C , Heger S , Holland J , Jahnukainen K , Juul A , Kaplowitz P , Lahlou N , Lee MM , Lee P , Merke DP , Neely EK , Oostdijk W , Phillip M , Rosenfield RL , Shulman D , Styne D , Tauber M , Wit JM ; ESPE-LWPES GnRH Analogs Consensus Conference Group . Consensus statement on the use of gonadotropin-releasing hormone analogs in children. *Pediatrics.* 2009;123(4):e752–e762.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

89. Roth CL , Brendel L , Rückert C , Hartmann K . Antagonistic and agonistic GnRH analogue treatment of precocious puberty: tracking gonadotropin concentrations in urine. *Horm Res.* 2005;63(5):257–262.

[Google Scholar](#) [PubMed](#) [WorldCat](#)

90. Roth C . Therapeutic potential of GnRH antagonists in the treatment of

91. Tuvemo T . Treatment of central precocious puberty. *Expert Opin Investig Drugs*. 2006;15(5):495–505.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
92. Schagen SE , Cohen-Kettenis PT , Delemarre-van de Waal HA , Hannema SE . Efficacy and safety of gonadotropin-releasing hormone agonist treatment to suppress puberty in gender dysphoric adolescents. *J Sex Med*. 2016;13(7):1125–1132.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
93. Manasco PK , Pescovitz OH , Feuillan PP , Hench KD , Barnes KM , Jones J , Hill SC , Loriaux DL , Cutler GB, Jr . Resumption of puberty after long term luteinizing hormone-releasing hormone agonist treatment of central precocious puberty. *J Clin Endocrinol Metab*. 1988;67(2):368–372.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
94. Klink D , Caris M , Heijboer A , van Trotsenburg M , Rotteveel J . Bone mass in young adulthood following gonadotropin-releasing hormone analog treatment and cross-sex hormone treatment in adolescents with gender dysphoria. *J Clin Endocrinol Metab*. 2015;100(2):E270–E275.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
95. Finkelstein JS , Klibanski A , Neer RM . A longitudinal evaluation of bone mineral density in adult men with histories of delayed puberty. *J Clin Endocrinol Metab*. 1996;81(3):1152–1155.  
[Google Scholar](#)   [PubMed](#)   [WorldCat](#)
96. Bertelloni S , Baroncelli GI , Ferdeghini M , Perri G , Saggese G . Normal volumetric bone mineral density and bone turnover in young men with histories of constitutional delay of puberty. *J Clin Endocrinol Metab*. 1998;83(12):4280–4283.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
97. Darelid A , Ohlsson C , Nilsson M , Kindblom JM , Mellström D , Lorentzon M . Catch up in bone acquisition in young adult men with late normal puberty. *J Bone Miner Res*. 2012;27(10):2198–2207.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)

98. Mittan D , Lee S , Miller E , Perez RC , Basler JW , Bruder JM . Bone loss following hypogonadism in men with prostate cancer treated with GnRH analogs. *J Clin Endocrinol Metab.* 2002;87(8):3656–3661.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
99. Saggese G , Bertelloni S , Baroncelli GI , Battini R , Franchi G . Reduction of bone density: an effect of gonadotropin releasing hormone analogue treatment in central precocious puberty. *Eur J Pediatr.* 1993;152(9):717–720.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
100. Neely EK , Bachrach LK , Hintz RL , Habiby RL , Slemenda CW , Feezle L , Pescovitz OH . Bone mineral density during treatment of central precocious puberty. *J Pediatr.* 1995;127(5):819–822.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
101. Bertelloni S , Baroncelli GI , Sorrentino MC , Perri G , Saggese G . Effect of central precocious puberty and gonadotropin-releasing hormone analogue treatment on peak bone mass and final height in females. *Eur J Pediatr.* 1998;157(5):363–367.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
102. Thornton P , Silverman LA , Geffner ME , Neely EK , Gould E , Danoff TM . Review of outcomes after cessation of gonadotropin-releasing hormone agonist treatment of girls with precocious puberty. *Pediatr Endocrinol Rev.* 2014;11(3):306–317.  
[Google Scholar](#)   [PubMed](#)   [WorldCat](#)
103. Lem AJ , van der Kaay DC , Hokken-Koelega AC . Bone mineral density and body composition in short children born SGA during growth hormone and gonadotropin releasing hormone analog treatment. *J Clin Endocrinol Metab.* 2013;98(1):77–86.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
104. Antoniazzi F , Zamboni G , Bertoldo F , Lauriola S , Mengarda F , Pietrobelli A , Tatò L . Bone mass at final height in precocious puberty after gonadotropin-releasing hormone agonist with and without calcium supplementation. *J Clin Endocrinol Metab.* 2003;88(3):1096–1101.

105. Calcaterra V , Mannarino S , Corana G , Codazzi AC , Mazzola A , Brambilla P , Larizza D . Hypertension during therapy with triptorelin in a girl with precocious puberty. *Indian J Pediatr.* 2013;80(10):884–885.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
106. Siomou E , Kosmeri C , Pavlou M , Vlahos AP , Argyropoulou MI , Siamopoulou A . Arterial hypertension during treatment with triptorelin in a child with Williams-Beuren syndrome. *Pediatr Nephrol.* 2014;29(9):1633–1636.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
107. Staphorsius AS , Kreukels BPC , Cohen-Kettenis PT , Veltman DJ , Burke SM , Schagen SEE , Wouters FM , Delemarre-van de Waal HA , Bakker J . Puberty suppression and executive functioning: an fMRI-study in adolescents with gender dysphoria. *Psychoneuroendocrinology.* 2015;56:190–199.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
108. Hough D , Bellingham M , Haraldsen IR , McLaughlin M , Rennie M , Robinson JE , Solbakk AK , Evans NP . Spatial memory is impaired by peripubertal GnRH agonist treatment and testosterone replacement in sheep. *Psychoneuroendocrinology.* 2017;75:173–182.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
109. Collipp PJ , Kaplan SA , Boyle DC , Plachte F , Kogut MD . Constitutional Isosexual Precocious Puberty. *Am J Dis Child.* 1964;108:399–405.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
110. Hahn HB, Jr , Hayles AB , Albert A . Medroxyprogesterone and constitutional precocious puberty. *Mayo Clin Proc.* 1964;39:182–190.  
[Google Scholar](#) [PubMed](#) [WorldCat](#)
111. Kaplan SA , Ling SM , Irani NG . Idiopathic isosexual precocity. *Am J Dis Child.* 1968;116(6):591–598.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
112. Schoen EJ . Treatment of idiopathic precocious puberty in boys. *J Clin Endocrinol Metab.* 1966;26(4):363–370.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

113. Gooren L . Hormone treatment of the adult transsexual patient. *Horm Res.* 2005;64(Suppl 2):31–36.  
[Google Scholar](#)   [PubMed](#)   [WorldCat](#)
114. Moore E , Wisniewski A , Dobs A . Endocrine treatment of transsexual people: a review of treatment regimens, outcomes, and adverse effects. *J Clin Endocrinol Metab.* 2003;88(8):3467–3473.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
115. Krueger RB , Hembree W , Hill M . Prescription of medroxyprogesterone acetate to a patient with pedophilia, resulting in Cushing’s syndrome and adrenal insufficiency. *Sex Abuse.* 2006;18(2):227–228.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
116. Lynch MM , Khandheria MM , Meyer WJ . Retrospective study of the management of childhood and adolescent gender identity disorder using medroxyprogesterone acetate. *Int J Transgenderism.* 2015;16:201–208.  
[Google Scholar](#)   [Crossref](#)   [WorldCat](#)
117. Tack LJW , Craen M , Dhondt K , Vanden Bossche H , Laridaen J , Cools M . Consecutive lynestrenol and cross-sex hormone treatment in biological female adolescents with gender dysphoria: a retrospective analysis. *Biol Sex Differ.* 2016;7:14.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
118. Hembree WC , Cohen-Kettenis P , Delemarre-van de Waal HA , Gooren LJ , Meyer WJ 3rd , Spack NP , Tangpricha V , Montori VM ; Endocrine Society . Endocrine treatment of transsexual persons: an Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab.* 2009;94(9):3132–3154.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
119. Mann L , Harmoni R , Power C . Adolescent decision-making: the development of competence. *J Adolesc.* 1989;12(3):265–278.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
120. Stultiëns L , Goffin T , Borry P , Dierickx K , Nys H . Minors and informed consent: a comparative approach. *Eur J Health Law.* 2007;14(1):21–46.

121. Arshagouni P. "But I'm an adult now ... sort of". Adolescent consent in health care decision-making and the adolescent brain. Available at: <http://digitalcommons.law.umaryland.edu/cgi/viewcontent.cgi?article=1124&context=jhclp>. Accessed 25 June 2017.
122. NHS. Prescribing of cross-sex hormones as part of the gender identity development service for children and adolescents. Available at: <https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2016/08/clinical-com-pol-16046p.pdf>. Accessed 14 June 2017.
123. Ankarberg-Lindgren C , Kriström B , Norjavaara E . Physiological estrogen replacement therapy for puberty induction in girls: a clinical observational study. *Horm Res Paediatr*. 2014;81(4):239–244.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
124. Olson J , Schrage SM , Clark LF , Dunlap SL , Belzer M . Subcutaneous testosterone: an effective delivery mechanism for masculinizing young transgender men. *LGBT Health*. 2014;1(3):165–167.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
125. Spratt DI , Stewart I , Savage C , Craig W , Spack NP , Chandler DW , Spratt LV , Eimicke T , Olshan JS . Subcutaneous injection of testosterone is an effective and preferred alternative to intramuscular injection: demonstration in female-to-male transgender patients. *J Clin Endocrinol Metab*. 2017. doi:10.1210/jc.2017-00359
126. Eisenegger C , von Eckardstein A , Fehr E , von Eckardstein S . Pharmacokinetics of testosterone and estradiol gel preparations in healthy young men. *Psychoneuroendocrinology*. 2013;38(2):171–178.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
127. de Ronde W , ten Kulve J , Woerdeman J , Kaufman J-M , de Jong FH . Effects of oestradiol on gonadotrophin levels in normal and castrated men. *Clin Endocrinol (Oxf)*. 2009;71(6):874–879.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)

129. Heylens G , Verroken C , De Cock S , T'Sjoen G , De Cuypere G . Effects of different steps in gender reassignment therapy on psychopathology: a prospective study of persons with a gender identity disorder. *J Sex Med.* 2014;11(1):119–126.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
130. Costa R , Colizzi M . The effect of cross-sex hormonal treatment on gender dysphoria individuals' mental health: a systematic review. *Neuropsychiatr Dis Treat.* 2016;12:1953–1966.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
131. Gooren LJJ , Giltay EJ . Review of studies of androgen treatment of female-to-male transsexuals: effects and risks of administration of androgens to females. *J Sex Med.* 2008;5(4):765–776.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
132. Levy A , Crown A , Reid R . Endocrine intervention for transsexuals. *Clin Endocrinol (Oxf).* 2003;59(4):409–418.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
133. Tangpricha V , Ducharme SH , Barber TW , Chipkin SR . Endocrinologic treatment of gender identity disorders. *Endocr Pract.* 2003;9(1):12–21.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
134. Meriggiola MC , Gava G . Endocrine care of transpeople part I. A review of cross-sex hormonal treatments, outcomes and adverse effects in transmen. *Clin Endocrinol (Oxf).* 2015;83(5):597–606.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
135. Bhasin S , Cunningham GR , Hayes FJ , Matsumoto AM , Snyder PJ , Swerdloff RS , Montori VM . Testosterone therapy in adult men with androgen deficiency syndromes: an endocrine society clinical practice guideline. *J Clin Endocrinol Metab.* 2006;91(6):1995–2010.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
136. Pelusi C , Costantino A , Martelli V , Lambertini M , Bazzocchi A , Ponti F , Battista G , Venturoli S , Meriggiola MC . Effects of three different testosterone



137. Anderson GL , Limacher M , Assaf AR , Bassford T , Beresford SA , Black H , Bonds D , Brunner R , Brzyski R , Caan B , Chlebowski R , Curb D , Gass M , Hays J , Heiss G , Hendrix S , Howard BV , Hsia J , Hubbell A , Jackson R , Johnson KC , Judd H , Kotchen JM , Kuller L , LaCroix AZ , Lane D , Langer RD , Lasser N , Lewis CE , Manson J , Margolis K , Ockene J , O'Sullivan MJ , Phillips L , Prentice RL , Ritenbaugh C , Robbins J , Rossouw JE , Sarto G , Stefanick ML , Van Horn L , Wactawski-Wende J , Wallace R , Wassertheil-Smoller S ; Women's Health Initiative Steering Committee . Effects of conjugated equine estrogen in postmenopausal women with hysterectomy: the Women's Health Initiative randomized controlled trial. *JAMA*. 2004;291(14):1701-1712.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

138. Dickersin K , Munro MG , Clark M , Langenberg P , Scherer R , Frick K , Zhu Q , Hallock L , Nichols J , Yalcinkaya TM ; Surgical Treatments Outcomes Project for Dysfunctional Uterine Bleeding (STOP-DUB) Research Group . Hysterectomy compared with endometrial ablation for dysfunctional uterine bleeding: a randomized controlled trial. *Obstet Gynecol*. 2007;110(6):1279-1289.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

139. Gooren LJ , Giltay EJ , Bunck MC . Long-term treatment of transsexuals with cross-sex hormones: extensive personal experience. *J Clin Endocrinol Metab*. 2008;93(1):19-25.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

140. Prior JC , Vigna YM , Watson D . Spironolactone with physiological female steroids for presurgical therapy of male-to-female transsexualism. *Arch Sex Behav*. 1989;18(1):49-57.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

141. Dittrich R , Binder H , Cupisti S , Hoffmann I , Beckmann MW , Mueller A . Endocrine treatment of male-to-female transsexuals using gonadotropin-releasing hormone agonist. *Exp Clin Endocrinol Diabetes*. 2005;113(10):586-592.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

142. Stripp B , Taylor AA , Bartter FC , Gillette JR , Loriaux DL , Easley R , Menard

143. Levy J , Burshell A , Marbach M , Aflalo L , Glick SM . Interaction of spironolactone with oestradiol receptors in cytosol. *J Endocrinol*. 1980;84(3):371–379.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
144. Wierckx K , Elaut E , Van Hoorde B , Heylens G , De Cuypere G , Monstrey S , Weyers S , Hoebeke P , T’Sjoen G . Sexual desire in trans persons: associations with sex reassignment treatment. *J Sex Med*. 2014;11(1):107–118.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
145. Chiriaco G , Cauci S , Mazzon G , Trombetta C . An observational retrospective evaluation of 79 young men with long-term adverse effects after use of finasteride against androgenetic alopecia. *Andrology*. 2016;4(2):245–250.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
146. Gava G , Cerpolini S , Martelli V , Battista G , Seracchioli R , Meriggiola MC . Cyproterone acetate vs leuprolide acetate in combination with transdermal oestradiol in transwomen: a comparison of safety and effectiveness. *Clin Endocrinol (Oxf)*. 2016;85(2):239–246.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
147. Casper RF , Yen SS . Rapid absorption of micronized estradiol-17 beta following sublingual administration. *Obstet Gynecol*. 1981;57(1):62–64.  
[Google Scholar](#) [PubMed](#) [WorldCat](#)
148. Price TM , Blauer KL , Hansen M , Stanczyk F , Lobo R , Bates GW . Single-dose pharmacokinetics of sublingual versus oral administration of micronized 17 $\beta$ -estradiol. *Obstet Gynecol*. 1997;89(3):340–345.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
149. Toorians AWFT , Thomassen MCLGD , Zweegman S , Magdeleyns EJP , Tans G , Gooren LJG , Rosing J . Venous thrombosis and changes of hemostatic variables during cross-sex hormone treatment in transsexual people. *J Clin Endocrinol Metab*. 2003;88(12):5723–5729.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

150. Mepham N , Bouman WP , Arcelus J , Hayter M , Wylie KR . People with gender dysphoria who self-prescribe cross-sex hormones: prevalence, sources, and side effects knowledge. *J Sex Med*. 2014;11(12):2995–3001.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
151. Richards C , Bouman WP , Seal L , Barker MJ , Nieder TO , T’Sjoen G . Non-binary or genderqueer genders. *Int Rev Psychiatry*. 2016;28(1):95–102.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
152. Cosyns M , Van Borsel J , Wierckx K , Dedeker D , Van de Peer F , Daelman T , Laenen S , T’Sjoen G . Voice in female-to-male transsexual persons after long-term androgen therapy. *Laryngoscope*. 2014;124(6):1409–1414.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
153. Deuster D , Matulat P , Knief A , Zitzmann M , Rosslau K , Szukaj M , am Zehnhoff-Dinnesen A , Schmidt CM . Voice deepening under testosterone treatment in female-to-male gender dysphoric individuals. *Eur Arch Otorhinolaryngol*. 2016;273(4):959–965.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
154. Lapauw B , Taes Y , Simoens S , Van Caenegem E , Weyers S , Goemaere S , Toye K , Kaufman J-M , T’Sjoen GG . Body composition, volumetric and areal bone parameters in male-to-female transsexual persons. *Bone*. 2008;43(6):1016–1021.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
155. Meyer III WJ , Webb A , Stuart CA , Finkelstein JW , Lawrence B , Walker PA . Physical and hormonal evaluation of transsexual patients: a longitudinal study. *Arch Sex Behav*. 1986;15(2):121–138.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
156. Asscheman H , Gooren LJ , Assies J , Smits JP , de Slegte R . Prolactin levels and pituitary enlargement in hormone-treated male-to-female transsexuals. *Clin Endocrinol (Oxf)*. 1988;28(6):583–588.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
157. Gooren LJ , Harmsen-Louman W , van Kessel H . Follow-up of prolactin levels

158. Wierckx K , Van Caenegem E , Schreiner T , Haraldsen I , Fisher AD , Toye K , Kaufman JM , T'Sjoen G . Cross-sex hormone therapy in trans persons is safe and effective at short-time follow-up: results from the European network for the investigation of gender incongruence. *J Sex Med.* 2014;11(8):1999–2011.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
159. Ott J , Kaufmann U , Bentz EK , Huber JC , Tempfer CB . Incidence of thrombophilia and venous thrombosis in transsexuals under cross-sex hormone therapy. *Fertil Steril.* 2010;93(4):1267–1272.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
160. Giltay EJ , Hoogeveen EK , Elbers JMH , Gooren LJG , Asscheman H , Stehouwer CDA . Effects of sex steroids on plasma total homocysteine levels: a study in transsexual males and females. *J Clin Endocrinol Metab.* 1998;83(2):550–553.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
161. van Kesteren PJM , Asscheman H , Megens JAJ , Gooren LJG . Mortality and morbidity in transsexual subjects treated with cross-sex hormones. *Clin Endocrinol (Oxf).* 1997;47(3):337–343.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
162. Wierckx K , Gooren L , T'Sjoen G . Clinical review: breast development in trans women receiving cross-sex hormones. *J Sex Med.* 2014;11(5):1240–1247.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
163. Bird D , Vowles K , Anthony PP . Spontaneous rupture of a liver cell adenoma after long term methyltestosterone: report of a case successfully treated by emergency right hepatic lobectomy. *Br J Surg.* 1979;66(3):212–213.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
164. Westaby D , Ogle SJ , Paradinas FJ , Randell JB , Murray-Lyon IM . Liver damage from long-term methyltestosterone. *Lancet.* 1977;2(8032):262–263.  
[Google Scholar](#) [PubMed](#) [WorldCat](#)
165. Weinand JD , Safer JD . Hormone therapy in transgender adults is safe with

166. Roberts TK , Kraft CS , French D , Ji W , Wu AH , Tangpricha V , Fantz CR . Interpreting laboratory results in transgender patients on hormone therapy. *Am J Med.* 2014;127(2):159–162.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
167. Vesper HW , Botelho JC , Wang Y . Challenges and improvements in testosterone and estradiol testing. *Asian J Androl.* 2014;16(2):178–184.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
168. Asscheman H , T'Sjoen G , Lemaire A , Mas M , Meriggiola MC , Mueller A , Kuhn A , Dhejne C , Morel-Journel N , Gooren LJ . Venous thrombo-embolism as a complication of cross-sex hormone treatment of male-to-female transsexual subjects: a review. *Andrologia.* 2014;46(7):791–795.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
169. Righini M , Perrier A , De Moerloose P , Bounameaux H . D-dimer for venous thromboembolism diagnosis: 20 years later. *J Thromb Haemost.* 2008;6(7):1059–1071.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
170. Gooren LJ , Assies J , Asscheman H , de Slegte R , van Kessel H . Estrogen-induced prolactinoma in a man. *J Clin Endocrinol Metab.* 1988;66(2):444–446.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
171. Kovacs K , Stefaneanu L , Ezzat S , Smyth HS . Prolactin-producing pituitary adenoma in a male-to-female transsexual patient with protracted estrogen administration. A morphologic study. *Arch Pathol Lab Med.* 1994;118(5):562–565.  
[Google Scholar](#) [PubMed](#) [WorldCat](#)
172. Serri O , Noiseux D , Robert F , Hardy J . Lactotroph hyperplasia in an estrogen treated male-to-female transsexual patient. *J Clin Endocrinol Metab.* 1996;81(9):3177–3179.  
[Google Scholar](#) [PubMed](#) [WorldCat](#)
173. Cunha FS , Domenice S , Câmara VL , Sircili MH , Gooren LJ , Mendonça BB , Costa EM . Diagnosis of prolactinoma in two male-to-female transsexual

174. Nota NM , Dekker MJHJ , Klaver M , Wiepjes CM , van Trotsenburg MA , Heijboer AC , den Heijer M . Prolactin levels during short- and long-term cross-sex hormone treatment: an observational study in transgender persons. *Andrologia*. 2017;**49**(6).
175. Bunck MC , Debono M , Giltay EJ , Verheijen AT , Diamant M , Gooren LJ . Autonomous prolactin secretion in two male-to-female transgender patients using conventional oestrogen dosages. *BMJ Case Rep*. 2009;2009:bcr0220091589.  
[Google Scholar](#) [Crossref](#) [WorldCat](#)
176. Elamin MB , Garcia MZ , Murad MH , Erwin PJ , Montori VM . Effect of sex steroid use on cardiovascular risk in transsexual individuals: a systematic review and meta-analyses. *Clin Endocrinol (Oxf)*. 2010;72(1):1–10.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
177. Berra M , Armillotta F , D’Emidio L , Costantino A , Martorana G , Pelusi G , Meriggiola MC . Testosterone decreases adiponectin levels in female to male transsexuals. *Asian J Androl*. 2006;8(6):725–729.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
178. Elbers JMH , Giltay EJ , Teerlink T , Scheffer PG , Asscheman H , Seidell JC , Gooren LJG . Effects of sex steroids on components of the insulin resistance syndrome in transsexual subjects. *Clin Endocrinol (Oxf)*. 2003;58(5):562–571.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
179. Giltay EJ , Lambert J , Gooren LJG , Elbers JMH , Steyn M , Stehouwer CDA . Sex steroids, insulin, and arterial stiffness in women and men. *Hypertension*. 1999;34(4 Pt 1):590–597.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
180. Polderman KH , Gooren LJ , Asscheman H , Bakker A , Heine RJ . Induction of insulin resistance by androgens and estrogens. *J Clin Endocrinol Metab*. 1994;79(1):265–271.  
[Google Scholar](#) [PubMed](#) [WorldCat](#)

181. Maraka S. Effect of sex steroids on lipids, venous thromboembolism, cardiovascular disease and mortality in transgender individuals: a systematic review and meta-analysis. Available at: <http://press.endocrine.org/doi/abs/10.1210/endo-meetings.2016.RE.15.FRI-136>. Accessed 3 July 2017.
182. Merigliola MC , Armillotta F , Costantino A , Altieri P , Saad F , Kalhorn T , Perrone AM , Ghi T , Pelusi C , Pelusi G . Effects of testosterone undecanoate administered alone or in combination with letrozole or dutasteride in female to male transsexuals. *J Sex Med*. 2008;5(10):2442–2453.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
183. Giltay EJ , Toorians AW , Sarabdjitsingh AR , de Vries NA , Gooren LJ . Established risk factors for coronary heart disease are unrelated to androgen-induced baldness in female-to-male transsexuals. *J Endocrinol*. 2004;180(1):107–112.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
184. Giltay EJ , Verhoef P , Gooren LJG , Geleijnse JM , Schouten EG , Stehouwer CDA . Oral and transdermal estrogens both lower plasma total homocysteine in male-to-female transsexuals. *Atherosclerosis*. 2003;168(1):139–146.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
185. Calof OM , Singh AB , Lee ML , Kenny AM , Urban RJ , Tenover JL , Bhasin S . Adverse events associated with testosterone replacement in middle-aged and older men: a meta-analysis of randomized, placebo-controlled trials. *J Gerontol A Biol Sci Med Sci*. 2005;60(11):1451–1457.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
186. Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults . Executive summary of the Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). *JAMA*. 2001;285(19):2486–2497.  
[Crossref](#)   [PubMed](#)   [WorldCat](#)

187. Murad MH , Elamin MB , Garcia MZ , Mullan RJ , Murad A , Erwin PJ , Montori VM . Hormonal therapy and sex reassignment: a systematic review and meta-analysis of quality of life and psychosocial outcomes. *Clin Endocrinol (Oxf)*. 2010;72(2):214–231.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

188. Van Caenegem E , Wierckx K , Taes Y , Schreiner T , Vandewalle S , Toye K , Lapauw B , Kaufman JM , T'Sjoen G . Body composition, bone turnover, and bone mass in trans men during testosterone treatment: 1-year follow-up data from a prospective case-controlled study (ENIGI). *Eur J Endocrinol*. 2015;172(2):163–171.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

189. Turner A , Chen TC , Barber TW , Malabanan AO , Holick MF , Tangpricha V . Testosterone increases bone mineral density in female-to-male transsexuals: a case series of 15 subjects. *Clin Endocrinol (Oxf)*. 2004;61(5):560–566.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

190. van Kesteren P , Lips P , Gooren LJG , Asscheman H , Megens J . Long-term follow-up of bone mineral density and bone metabolism in transsexuals treated with cross-sex hormones. *Clin Endocrinol (Oxf)*. 1998;48(3):347–354.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

191. Van Caenegem E , Taes Y , Wierckx K , Vandewalle S , Toye K , Kaufman JM , Schreiner T , Haraldsen I , T'Sjoen G . Low bone mass is prevalent in male-to-female transsexual persons before the start of cross-sex hormonal therapy and gonadectomy. *Bone*. 2013;54(1):92–97.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

192. Amin S , Zhang Y , Sawin CT , Evans SR , Hannan MT , Kiel DP , Wilson PW , Felson DT . Association of hypogonadism and estradiol levels with bone mineral density in elderly men from the Framingham study. *Ann Intern Med*. 2000;133(12):951–963.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

193. Gennari L , Khosla S , Bilezikian JP . Estrogen and fracture risk in men. *J Bone Miner Res*. 2008;23(10):1548–1551.



194. Khosla S , Melton LJ III , Atkinson EJ , O'Fallon WM , Klee GG , Riggs BL . Relationship of serum sex steroid levels and bone turnover markers with bone mineral density in men and women: a key role for bioavailable estrogen. *J Clin Endocrinol Metab.* 1998;83(7):2266–2274.  
[Google Scholar](#) [PubMed](#) [WorldCat](#)
195. Mueller A , Dittrich R , Binder H , Kuehnel W , Maltaris T , Hoffmann I , Beckmann MW . High dose estrogen treatment increases bone mineral density in male-to-female transsexuals receiving gonadotropin-releasing hormone agonist in the absence of testosterone. *Eur J Endocrinol.* 2005;153(1):107–113.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
196. Ruetsche AG , Kneubuehl R , Birkhaeuser MH , Lippuner K . Cortical and trabecular bone mineral density in transsexuals after long-term cross-sex hormonal treatment: a cross-sectional study. *Osteoporos Int.* 2005;16(7):791–798.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
197. Ganly I , Taylor EW . Breast cancer in a trans-sexual man receiving hormone replacement therapy. *Br J Surg.* 1995;82(3):341.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
198. Pritchard TJ , Pankowsky DA , Crowe JP , Abdul-Karim FW . Breast cancer in a male-to-female transsexual. A case report. *JAMA.* 1988;259(15):2278–2280.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
199. Symmers WS . Carcinoma of breast in trans-sexual individuals after surgical and hormonal interference with the primary and secondary sex characteristics. *BMJ.* 1968;2(5597):83–85.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
200. Brown GR . Breast cancer in transgender veterans: a ten-case series. *LGBT Health.* 2015;2(1):77–80.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
201. Shao T , Grossbard ML , Klein P . Breast cancer in female-to-male

202. Nikolic DV , Djordjevic ML , Granic M , Nikolic AT , Stanimirovic VV , Zdravkovic D , Jelic S . Importance of revealing a rare case of breast cancer in a female to male transsexual after bilateral mastectomy. *World J Surg Oncol*. 2012;10:280.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

203. Bösze P , Tóth A , Török M . Hormone replacement and the risk of breast cancer in Turner’s syndrome. *N Engl J Med*. 2006;355(24):2599–2600.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

204. Schoemaker MJ , Swerdlow AJ , Higgins CD , Wright AF , Jacobs PA ; UK Clinical Cytogenetics Group . Cancer incidence in women with Turner syndrome in Great Britain: a national cohort study. *Lancet Oncol*. 2008;9(3):239–246.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

205. Smith RA , Cokkinides V , Eyre HJ . American Cancer Society guidelines for the early detection of cancer, 2006. *CA Cancer J Clin*. 2006;56(1):11–25, quiz 49–50.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

206. Wilson JD , Roehrborn C . Long-term consequences of castration in men: lessons from the Skoptzy and the eunuchs of the Chinese and Ottoman courts. *J Clin Endocrinol Metab*. 1999;84(12):4324–4331.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

207. van Kesteren P , Meinhardt W , van der Valk P , Geldof A , Megens J , Gooren L . Effects of estrogens only on the prostates of aging men. *J Urol*. 1996;156(4):1349–1353.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

208. Brown JA , Wilson TM . Benign prostatic hyperplasia requiring transurethral resection of the prostate in a 60-year-old male-to-female transsexual. *Br J Urol*. 1997;80(6):956–957.

[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)

209. Casella R , Bubendorf L , Schaefer DJ , Bachmann A , Gasser TC , Sulser T . Does the prostate really need androgens to grow? Transurethral resection of the prostate in a male-to-female transsexual 25 years after sex-changing operation. *Urol Int*. 2005;75(3):288–290.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
210. Dorff TB , Shazer RL , Nepomuceno EM , Tucker SJ . Successful treatment of metastatic androgen-independent prostate carcinoma in a transsexual patient. *Clin Genitourin Cancer*. 2007;5(5):344–346.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
211. Thurston AV . Carcinoma of the prostate in a transsexual. *Br J Urol*. 1994;73(2):217.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
212. van Harst EP, Newling DW, Gooren LJ, Asscheman H, Prenger DM. Metastatic prostatic carcinoma in a male-to-female transsexual. *BJU Int*. 1998;81:776.
213. Turo R , Jallad S , Prescott S , Cross WR . Metastatic prostate cancer in transsexual diagnosed after three decades of estrogen therapy. *Can Urol Assoc J*. 2013;7(7–8):E544–E546.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
214. Miksad RA , Bubley G , Church P , Sanda M , Rofsky N , Kaplan I , Cooper A . Prostate cancer in a transgender woman 41 years after initiation of feminization. *JAMA*. 2006;296(19):2316–2317.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
215. Moyer VA ; U.S. Preventive Services Task Force . Screening for prostate cancer: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2012;157(2):120–134.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)
216. Futterweit W . Endocrine therapy of transsexualism and potential complications of long-term treatment. *Arch Sex Behav*. 1998;27(2):209–226.  
[Google Scholar](#)   [Crossref](#)   [PubMed](#)   [WorldCat](#)

217. Miller N , Bédard YC , Cooter NB , Shaul DL . Histological changes in the genital tract in transsexual women following androgen therapy. *Histopathology*. 1986;10(7):661–669.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
218. O’Hanlan KA , Dibble SL , Young-Spint M . Total laparoscopic hysterectomy for female-to-male transsexuals. *Obstet Gynecol*. 2007;110(5):1096–1101.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
219. Dizon DS , Tejada-Berges T , Koelliker S , Steinhoff M , Granai CO . Ovarian cancer associated with testosterone supplementation in a female-to-male transsexual patient. *Gynecol Obstet Invest*. 2006;62(4):226–228.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
220. Hage JJ , Dekker JJML , Karim RB , Verheijen RHM , Bloemena E . Ovarian cancer in female-to-male transsexuals: report of two cases. *Gynecol Oncol*. 2000;76(3):413–415.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
221. Mueller A , Gooren L . Hormone-related tumors in transsexuals receiving treatment with cross-sex hormones. *Eur J Endocrinol*. 2008;159(3):197–202.  
[Google Scholar](#) [Crossref](#) [PubMed](#) [WorldCat](#)
222. Coleman E , Bockting W , Botzer M , Cohen-Kettenis P , DeCuypere G , Feldman J , Fraser L , Green J , Knudson G , Meyer WJ , Monstrey S , Adler RK , Brown GR , Devor AH , Ehrbar R , Ettner R , Eyler E , Garofalo R , Karasic DH , Lev AI , Mayer G , Meyer-Bahlburg H , Hall BP , Pfaefflin F , Rachlin K , Robinson B , Schechter LS , Tangpricha V , van Trotsenburg M , Vitale A , Winter S , Whittle S , Wylie KR , Zucker K . Standards of care for the health of transsexual, transgender, and gender-nonconforming people, version 7. *Int J Transgenderism*. 2012;13:165–232.  
[Google Scholar](#) [Crossref](#) [WorldCat](#)
223. Colebunders B , D’Arpa S , Weijers S , Lumen N , Hoebeke P , Monstrey S . Female-to-male gender reassignment surgery. In: Ettner R, Monstrey S, Coleman E, eds. *Principles of Transgender Medicine and Surgery*. 2nd ed. New York, NY: Routledge Taylor & Francis Group; 2016:279–317.