

EXHIBIT 15

The Honorable David G. Estudillo

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT TACOMA

K.M.K., by and through her mother and
legal guardian, STEPHANIE LYNNE
BROWN; STEPHANIE LYNNE
BROWN,

Plaintiffs,

v.

WASHINGTON INTERSCHOLASTIC
ACTIVITIES ASSOCIATION, et al.,

Defendants.

CASE NO. 3:26-cv-05616-DGE

DECLARATION OF CHAD T.
CARLSON TO PLAINTIFFS' REPLY
IN SUPPORT OF THEIR MOTION
FOR PRELIMINARY INJUNCTION

Rebuttal Expert Report

K.M.K. v. Washington Interscholastic Activities Association

Dr. Chad Thomas Carlson, M.D., FACSM

August 7, 2026

Credentials

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

2. Following my time in Ann Arbor, I matched to a fellowship in Sports Medicine at Ball Memorial Hospital in Muncie, Indiana, training from 1997 to 1999, with clinical time split between Central Indiana Orthopedics, the Ball State Human Performance Laboratory, and the Ball State University training room. I received my board certification in Sports Medicine in 1999, which I continue to hold. Since residency training, my practice has focused on Sports Medicine—the treatment and prevention of injuries related to sport and physical activity.

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

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

5. I have served in and provided leadership for several professional organizations over the course of my career. In 2004, I was designated a Fellow of the American College of Sports Medicine (ACSM). I have served on ACSM's Health and Science Policy Committee continuously from 2010-2026, and for a time chaired their Clinical Medicine Subcommittee. From 2009 to 2013, I served two elected terms on the Board of Directors of the American Medical Society for Sports Medicine (AMSSM), and during that time served as Chair of that body's Practice and Policy Committee. I was subsequently elected to a four-year term on AMSSM's executive committee in 2017, and from 2019–20, I served as AMSSM's President. AMSSM is the largest

1 organization of sports medicine physicians in the world. I gained fellowship status through
 2 AMSSM in 2020—my first year of eligibility. My work for ACSM and AMSSM has brought with it
 3 extensive experience in public policy as relates to Sports Medicine.

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

10 7. I have served as a manuscript reviewer for organizational policy pronouncements, and
 11 for several professional publications, most recently a sports medicine board review book
 12 published in 2023. I have published several articles on topics related to musculoskeletal injuries
 13 in sports and rehabilitation, sexual violence in sport, exercise management, medicolegal issues
 14 in sports medicine, and the transgender athlete, which have been published in peer-reviewed
 15 journals such as Clinical Journal of Sports Medicine, British Journal of Sports Medicine, Current
 16 Reviews in Musculoskeletal Medicine, Athletic Therapy Today, and the Journal of Athletic
 17 Training. In conjunction with my work in policy advocacy, I have helped write several pieces of
 18 legislation, including the initial draft of what became the Sports Medicine Licensure Clarity Act,
 19 signed into law by President Trump in 2018, which eases the restrictions on certain
 20 practitioners to provide health services to athletes and athletic teams outside of the
 21 practitioner's home state. A list of my publications over the past ten (10) years is included as an
 22 appendix to this report.

23 8. In the past four years, I testified as an expert witness by deposition in *B.P.J. v. West*
 24 *Virginia*, S.D. W.V., No. 2:21-cv-00316, *LE. vs. Lee*, No. 3:21-cv-00835, and *Doe vs. Horne*, Case
 25 No. 4:23-cv-00185-JGZ.

26 9. I am being compensated for my services as an expert witness in this case at the rates of
 27 \$475 per hour for consultation, \$800 per hour for deposition or trial testimony.

28 10. My opinions in this brief are my own, based upon my educational training, my decades
 of experience in clinical medicine, and in leadership positions within national sports medicine
 organizations. In creating this document, I have also relied upon research materials widely

1 available to other sports medicine physicians. I may wish to supplement these opinions on the
2 basis of evolving data.

Introduction

11. Sex is binary, with rare variations occurring when normal developmental processes go awry. These variations, termed “Disorders of sexual development” (DSD), are properly viewed as anomalous, and do not alter the existence of the binary itself. We recognize this principle in other areas of medicine as well. The human hand has five digits. Polydactyly is the term given when a person is born with an extra finger. This is actually relatively common, occurring as frequently as every one per thousand births. (Kyriazis Z, 2023). Similarly, the aortic valve is a tricuspid valve, meaning that the valve that prevents the backflow of blood into the left ventricle is ordinarily configured with three leaflets. About 13 per 1000 human infants are born with an aortic valve that is bicuspid (Ng A, 2017). That said, we do not typically speak of a normal spectrum of human fingers per hand, or whether a spectrum of leaflets in the aorta is the norm. Humans have five fingers. Human aortas are tricuspid. Variations occur due to anomalous development, but that does not alter the biological standard. This is how biological sex should be viewed, alongside the occasional DSDs that are known to occur. Even the term “disorders of sex development” is intended to place these conditions in direct comparison to other biological anomalies of development. It has been suggested that “advocates of the DSD label are not seeking to create a third sex. Rather, they want disorders of sex development to be treated like any other physical abnormality.” (Levy, 2009). In sport, sex-based divisions exist precisely because within the sex binary there is a marked difference in physical performance between biological males and females as a group. The recognition of these categorical differences forms the basis for the legal protections conferred on female athletes through laws like Title IX, and for efforts on the part of sports organizing bodies to ensure that athletes are properly classified according to biological sex.

12. In declarations filed in another case, Drs. Goepferd, Millington and McQuillan elaborated on concerns regarding systematic sex determination flowing from policies aimed at protecting the female category in sport. Among these concerns were that:

- The policy itself would result in “increased policing of girls’ and women’s bodies,” and that subjects would be inappropriately “flagged” for confirmatory testing, based on suspicion, thus placing undue burden on women of color – ultimately testing more cisgender than transgender athletes. Confirmatory testing was also framed as triggering for prior victims of sexual assault or abuse, inferring that the rationale for

sex determination for purposes of sports participation did not justify the level of investigation felt to be necessary to label subjects as either male or female.

- That sex determination would be overly invasive.
- That sex determination would be overly expensive.

13. In this paper, I will briefly review the history of sex-based testing in sport, showing that such testing in modern times need be neither unusually embarrassing nor invasive, and properly framed, can represent a logical step for organizations seeking to determine eligibility for the female category. I next review the process that results in formal, academy-level pronouncements on recommendations for pre-participation screening in sport, having served as President of one of the sponsoring organizations. Finally, I will show that a rational and effective determination of sex status for the purposes of categorization in sports can occur – particularly at the high school level – with virtually no expense or invasion of bodily privacy to patients. Indeed, the pre-participation medical clearance form *already in use* by the Washington Interscholastic Activities Association (WIAA) is sufficient to accomplish this objective. (Official Forms, 2026).

14. I will also respond to a few points the various experts have made concerning my original report in this case.

A History of Sex-based Testing in Sport

15. Following eligibility controversies in the first half of the 20th century, the International Amateur Athletic Federation (IAAF) – precursor to World Athletics – introduced a rule requiring female athletes to present a medical certificate verifying their eligibility as females in the mid-1940s. This rule was subsequently adopted by the IOC, starting with the London Games in 1948, leaving it to medical experts in participating member nations to determine in their own way who was verifiably female. (Heggie, 2010).

16. The genesis of formal sex testing in the Olympic Games probably has its roots in the Cold War. In the mid-twentieth century, concerns arose about the physiques and performances of some female athletes from the Eastern bloc nations, regardless of the documentation from their parent countries. Two sisters in particular, Irina and Tamara Press, dominated events in track and field in the late 1950s and early 1960s, winning six Olympic gold medals and breaking 26 world records. In 1966, IAAF officials at the European Athletics championships required all female competitors to stand for visual inspection of their genitalia in front of a female medical

committee. The Press sisters, along with four other athletes from the Eastern bloc, did not attend, and never competed on the international stage again. (Ritchie, 2008). (Reeser, 2005). The IOC's response to these concerns was the creation of a Medical Commission in 1961. (Martinez-Patino, 2016). Under the auspices of their commission, the IOC continued to accept verification of gender via certificate until the winter games of 1968 in Grenoble, when testing of female athletes for the presence of a Barr Body¹ on the X chromosome was instituted. This non-invasive test involved a buccal (cheek) swab only. Ironically, Barr body testing was used in 1967 to disqualify a Polish sprinter who had passed the visual inspection of the IAAF, illustrating the fact that visual inspection itself was not foolproof. (Heggie, 2010). Ultimately, the IAAF abandoned efforts at systematic sex testing in 1992, while the IOC continued to test all female athletes through the Atlanta games in 1996. The actual test administered in 1992 and 1996 was a confirmatory test of the male Y chromosome, identifying a sequence responsible for testicular formation, known as the "SRY," or "sex-determining region of the Y chromosome." At Barcelona in 1992, fifteen female athletes tested positive for the SRY gene out of over 2000 tests performed. In 1996, eight athletes tested positive out of over 3000 tests performed. (Bhattacharyya, 2024). (Ritchie R, 2008). Prior to the 2000 Sydney Games, the IOC announced an indefinite suspension of universal sex-based testing.

17. In 2009, during the interim period where no sex testing was occurring, questions arose concerning Caster Semenya, a South African middle distance runner with a 46 XY DSD, and testosterone levels that were outside of the range for a physiologically normal biological female.² In April 2011, the IOC and IAAF announced a new eligibility policy for female athletes with hyperandrogenism (elevations of testosterone or its analogues), requiring demonstration of serum testosterone levels below a threshold of 10.0 nmol/L.³ This was determined based

¹ The Barr Body is a clump of chromatin (DNA and proteins) that is visible with nuclear testing, and which represents a deactivated X chromosome in a person with two X chromosomes. All persons with two X chromosomes normally have an "active X" and an "inactive X" chromosome. XY males do not exhibit a Barr body.

² Caster Semenya Q&A: Who is she and why is her case important? *BBC Sport*. <https://www.bbc.com/sport/athletics/67367157>. Accessed August 5, 2026.

³ It is important to point out that at the time of their creation, these regulations were intended to apply to phenotypically female athletes with hyperandrogenic DSDs. The testosterone threshold of 10.0 nmol/L, admittedly above the lower reported normal male threshold of

upon the upper testosterone limit of 4.8 nmol/L for females with polycystic ovarian syndrome, and then adding five standard deviations above it to account for extreme outliers⁴. (Basset A, 2020).

18. In 2018, based on further research, the IAAF announced new regulations for 46 XY DSD individuals, requiring documentation of testosterone levels below 5.0 nmol/L in middle distance events, from 400 m to the mile⁵, following a period of suspension from competition while treatment was instituted. Semenya challenged these regulations and, in 2019, the Court of Arbitration for Sport upheld them. (Camporesi, 2019). (Bermon, 2014). (Bermon S, Serum Androgen Levels and Their Relation to Performance in Track and Field: Mass Spectrometry Results From 2027 Observations in Male and Female Elite Athletes, 2017). (Bermon S, 2018).

19. In their ruling, the Court of Attribution for Sport (CAS) stated that regulations were a “necessary, reasonable and proportionate means of achieving the aim of what is described as the integrity of female athletics and the upholding of the ‘protected class’ of female athletes in certain events.”⁶ It has been suggested that hormone testing is “humiliating,” and “discriminatory against females with hyperandrogenism.” (Basset A, 2020). Loland summarizes well IAAF’s position, stating that “The response by IAAF, accepted by CAS, is that this is not just

around 7.0 nmol/L, was intended to give affected athletes with a congenital condition, wide latitude to qualify for competition as women. It was *not* designed to be a minimally acceptable threshold for *lowering* testosterone by a biologically normal male athlete seeking to compete as a woman. Regardless, it eventually became so.

⁴ It is worth adding that research supports the idea that even women with PCOS retain an ergogenic advantage relative to women without it. This is reflected in an over-representation of women with PCOS in elite sport. (Handelsman D. , 2024).

⁵ The 5.0 nmol/L threshold was chosen because a review of available evidence suggested that the normal female testosterone range falls between 0.12 and 1.79 nmol/L, and that females with polycystic ovarian syndrome could have levels as high as 4.8 nmol/L. Setting the cutoff at 5.0 nmol/L would thus allow athletes with DSDs to compete with women, as long as they maintained their testosterone within the female range (Ingram, 2019).

⁶ Court of Arbitration for Sport. (2019, April 30). Media release: Caster Semenya, Athletics South Africa (ASA) & International Association of Athletics Federations (IAAF) [Press release]. https://www.tas-cas.org/generated/assets/lists/dceab111-07bc-435f-b5f9-de88eff9db72/Media_Release_Semenya_ASA_IAAF_decision.pdf

1 a matter of the rights of DSD athletes, but also of the rights of women within statistically
2 normal testosterone ranges to compete under fair conditions. (Loland, 2020).

3 20. By 2019, it appeared that a certain amount of homeostasis existed around policy for
4 athletes with DSDs. By the 2010's however, the regulatory system imposed on athletes with
5 DSDs began to intersect with the regulation of the transgender athlete, and formerly-
6 abandoned policies began to be revisited.

7 21. In July 2025, acknowledging that sex-based differences in physical performance manifest
8 before the onset of puberty, World Athletics announced that they were once again amending
9 their eligibility rules defining the female category, to require all athletes wishing to participate
10 as women to undergo a once-per-lifetime test for the presence of the sex-determining region of
11 the Y chromosome (SRY gene) (World Athletics, 2025). (Handelsman D. e., 2025). (Brown GA,
12 2025). In announcing their new policy, World Athletics joined World Boxing in reinstituting sex-
13 based testing of athletes seeking eligibility. (Boxing, 2025). World Boxing introduced its sex-
14 based testing policy following controversy at the Paris Olympics regarding eligibility in the
15 female category. (Morik, 2025).

16 22. These changes represented a response to a patchwork set of organizational policies that
17 were released following the International Olympic Committee's publication of its 2021
18 Framework on Fairness, Inclusion and Nondiscrimination on the Basis of Gender Identity and
19 Sex Variations. (IOC, 2021). The IOC Framework represented a movement away from the
20 regulation of female sport on the basis of serum testosterone thresholds, instead tasking
21 international sport governing bodies with determining the eligibility criteria for their own
22 sports, in harmony with the ten principles embedded in the IOC Framework.

23 23. Inherent contradictions with the principles embedded in the IOC Framework had placed
24 sports governing bodies in a difficult position. The Framework included principles such as
25 inclusion, no presumption of (male) advantage, and the direction to avoid targeted sex-based
26 testing, along with contradictory principles of maintaining fairness and preventing harm.
27 Ultimately, given the potential for categorical differences in performance between biological
28 females and biologically male athletes who are transgender, or who have masculinizing
disorders of sex development (DSD), governing organizations tasked with protecting the female
category were left having to decide whether to heed the IOC's advice that no athlete should be

subject to targeted testing aimed at determining sex, gender, or sex variations, in light of the conflict inherent in trying to uphold the principles of fairness and safety. Perhaps unwittingly, the IOC's policy ultimately led to greater scrutiny of the underlying science with respect to biological sex and athletic performance, leading in turn to more restrictive policies by international sport governing bodies, World Athletics being one example.

24. Chromosomal testing of athletes is highly accurate to identify 46 XX females and 46 XY males as such – and thus highly accurate to identify the biological sex of transgender athletes, who in almost all cases, have biologically normal chromosomes, gonads, and anatomy, and do not have DSDs at a rate any different than that of the cisgender population. (Sanberg, 2022). There are some individuals with mosaicisms (a form of DSD), with translocations of, for instance, the SRY gene onto an X chromosome, that result in a positive test in a genetically female individual. More commonly, SRY testing of purported females may turn positive in subjects with androgen insensitivity (another DSD). Handelsman and Bermon have proposed a once per lifetime test profile of SRY test⁷ plus serum testosterone and androstenedione (the precursor hormone which is converted by the testes to testosterone), the combination of which would reliably identify females testing positive for the SRY gene as either 46 XY DSD, or transgender athletes. (Handelsman D. e., 2025).

Sports Governing Policy and the Transgender Athlete

25. The first official policy of the IOC with reference to the transgender athlete (biologically normal athletes without a DSD who claim a gender identity different from their biological sex) was formulated in 2003, by an ad hoc committee convened by the IOC's Medical Commission. (IOC 2003 Policy, n.d.). The policy that was ultimately adopted allowed for competition in the non-birth sex category two years after anatomical sex reassignment surgery and legal recognition as a member of the opposite sex. Documentation of supportive hormonal therapy for a sufficient length of time to ameliorate sex-specific advantages was also required. When

⁷ The SRY test is performed with a buccal swab – a relatively noninvasive test. In this case, a female athlete testing negative for the SRY gene, with normal female levels of testosterone is genetically and morphologically female. A female testing positive for the SRY gene with normal levels of testosterone might be a transgender female on suppressive therapy. A female testing positive for the SRY gene with elevated levels of testosterone most likely has some degree of androgen insensitivity syndrome.

1 reviewing the history of IOC policy about the transgender athlete, it could be argued that this
 2 policy was more of an afterthought until circumstances on the ground began forcing change.
 3 The basic policy of the IOC with regards to athletes with DSDs were adopted into their amended
 4 policy on the transgender athlete, issued in November 2015⁸ as a by-product of the IOC
 5 Consensus Meeting on Sex Reassignment and Hyperandrogenism. Thus, the eligibility threshold
 6 of 10.0 nmol/L for serum testosterone became, in a sense, the benchmark standard, even
 7 though, as has been indicated, it was never appropriate as a suppression threshold.⁹

8 26. In the United States, the one independent sports organizing body with enough public
 9 visibility to influence policy – the NCAA – was also late to the discussion, but heavily influenced
 10 by LGBTQ-related advocacy groups – something which I experienced first-hand as President of
 11 American Medical Society for Sports Medicine (AMSSM). On the medical side, the NCAA has
 12 never instituted any transparent or formal process to systematically evaluate the medical
 13 evidence for a male performance advantage in sport, and then analyze that demonstrated
 14 advantage as pertains to the transgender athlete.

15 27. The NCAA's first medical policy on the transgender athlete was approved by the Board
 16 of Governors in 2010.¹⁰ It only required medical attestation of at least twelve months of
 17 gender-affirming hormone therapy. But there was no requirement for substantiation of
 18 testosterone suppression, and no actual requirement for documentation of adherence to the
 19 medical treatment protocols prescribed by the athlete's treating physician.

20 28. The NCAA convened a Summit in 2020 to discuss revising this policy. I am aware of this
 21 because at the time, I was on AMSSM's Executive Committee, and had nominated our delegate
 22 to the Summit. This Summit was to serve as the initial launch to create an evidence-based

23 ⁸ International Olympic Committee. IOC Consensus Meeting on Sex Reassignment and
 24 Hyperandrogenism. International Olympic Committee website.
 25 https://stillmed.olympic.org/Documents/Commissions_PDFfiles/Medical_commission/2015-11_ioc_consensus_meeting_on_sex_reassignment_and_hyperandrogenism-en.pdf. Published
 26 November 1, 2015. Accessed August 5, 2026.

27 ⁹ *Id.*

28 ¹⁰ National Collegiate Athletic Association. 2010 NCAA Policy on Transgender Student-Athlete
 Participation.
https://ncaaorg.s3.amazonaws.com/inclusion/lgbtq/INC_TransgenderStudentAthleteParticipati
 onPolicy.pdf. Published 2010. Updated 2022. Accessed August 5, 2026.

1 pathway to look into more research, with the goal of development of evidence-based
2 guidelines that would shape the regulations surrounding transgender athlete participation in
3 the NCAA.

4 29. In a subsequent paper published describing the outcomes of this process, (Kroshus,
5 2023). it was noted that the organizers engaged external trans and gender nonconforming
6 advocacy organizations with whom the NCAA Office of Inclusion did not have a prior working
7 relationship, but “did not invite individuals and organizations who have advocated for the
8 prohibition of trans student-athlete participation in collegiate sport.” This is problematic,
9 because the format for this summit was a Delphi consensus process, the entire point of which is
10 to take an issue on which people hold widely divergent views, and solicit anonymous feedback
11 from stakeholders that can then be used to ask further questions of participants and start to
12 move toward a workable consensus around issues with lots of bias. If only a portion of the
13 spectrum of opinion is included in the process, the recommendations are almost guaranteed to
be ideologically skewed.

14 30. By the time of the publication of the summary findings of the Summit (Kroshus, 2023),
15 its stated goals had narrowed to “identifying concrete and feasible steps to support well-being
16 among transgender non-conforming student-athletes participating in collegiate athletics in the
17 USA.” It also specified that “the Summit purview did not include changes to sport setting
18 eligibility policies.” This is reflected in the rather short set of accompanying reference citations
19 attached to the published consensus statement, with only one of twenty-five publications
20 focused on a review of the literature of sports participation and the transgender athlete. That
document was an early review from 2017.

21 31. Following the Summit, the NCAA Board of Governors released a statement directed to
22 state legislators noting that their “long-standing policy” on the transgender athlete “embraces
23 the evolving science on this issue and is anchored in participation policies of both the
24 International Olympic Committee and the U.S. Olympic and Paralympic Committee.” (NCAA
25 2021, n.d.). This was a mischaracterizing statement, because at the time that the IOC’s 2015
26 policy was in place (a policy which required that transgender females maintain a serum
27 testosterone below a threshold of 10.0 nmol/L) the NCAA had never taken a serious
28

1 independent look at the science. In addition, the testing requirement reference was one that
2 the NCAA had never enforced.

3 32. In November 2021, the International Olympic Committee released its Framework on
4 Fairness, Inclusion and Non-Discrimination on the Basis of Gender Identity and Sex Variations.
5 (Martowicz, 2023). The new policy revealed in this framework deferred both questions of
6 disproportionate advantages implicit in gender transition, and the determination of sport-
7 specific eligibility criteria, to individual sports governing bodies. The policy was immediately
8 criticized by multiple stakeholder groups as completely unworkable, and admittedly drafted
9 from a “human rights approach,” rather than with an eye toward medical or scientific evidence.
10 (Pigozzi, 2022). (Handelsman, 2024). Rather than provide a practical, workable policy for
11 international governing bodies to implement, in what appears to be an effort to maintain some
12 semblance of control while at the same time abandoning oversight responsibility, the IOC called
13 on international sports governing bodies to formulate their own sport-specific policies while at
14 the same time admonishing them to do so in a way that respects the principles embedded in
15 the IOC’s framework.

16 33. One month following the release of the IOC’s Framework, Lia Thomas – a University of
17 Pennsylvania swimmer who had competed without much success on the men’s team –
18 exploded into the public consciousness by swimming the fastest times in the nation in the 200
19 and 500 m freestyle, and ultimately becoming an NCAA National Women’s Swimming
20 Champion.¹¹ Thomas provided an immediate illustration of why the IOC’s “no presumption of
21 advantage” was ludicrous. Thomas’ breakout occurred at a time that national and international
22 sports governing bodies were still trying to digest the IOC Framework, and the implications for
23 their own sport.

24 34. On January 19, 2022, a new, phased policy on transgender athlete eligibility was
25 approved by the NCAA Board of Governors.¹² This policy retained the requirement for one year
26

27 ¹¹ Senefeld, J. W., Hunter, S. K., Coleman, D., & Joyner, M. J. (2023). Case studies in physiology:
28 Male-to-female transgender swimmer in college athletics. *Journal of Applied Physiology*,
134(4). <https://doi.org/10.1152/jappphysiol.00751.2022>.

¹² Collegiate Water Polo. (n.d.). National Collegiate Athletic Association updates transgender
student-athlete participation policy. *Collegiate Water Polo Association*.

of gender-affirming hormone therapy, adding in periodic measurements of serum testosterone before the start of the regular season, and prior to participation in championship events. The relevant disqualification thresholds for serum testosterone were to be established by a given sports national governing body, or barring that, the relevant international governing body, or finally, the 2015 IOC threshold of 10.0 nmol/L.¹³

35. What followed in the period between 2022 and 2026 was the scrambling by international governing bodies to come to terms with the transfer of responsibility imposed by the IOC's 2021 Framework (effectively adopted by the NCAA). Subsequent to the IOC's decision, World Aquatics convened a working group made up of athletes, scientists and legal and human rights representatives, tasked with the goal of considering "the best available statistical, scientific, and medical evidence concerning sex differences in sports performance, and any associated male sex-based advantage." The process that this group entered into, and the conclusions that they settled upon are all publicly available within World Aquatic's Policy on Eligibility for the Men's and Women's Competition Categories.¹⁴ These recommendations were presented to the membership of World Aquatics and formally approved in June 2022. Ultimately, World Aquatics determined that any biological male who desires to compete in the women's category must not have experienced male puberty (Tanner Stage II or age 12, whichever later), and must demonstrate ongoing and continuous serum testosterone levels below 2.5 nmol/L (measured by liquid chromatography/mass spectrometry). Finally, in 2023, World Aquatics created an open category for transgender athletes and required that. World

<https://collegiatewaterpolo.org/national-collegiate-athletic-association-updates-transgender-student-athlete-participation-policy/> Published July 26, 2022. Accessed August 6, 2026.

¹³ International Olympic Committee. IOC Consensus Meeting on Sex Reassignment and Hyperandrogenism. International Olympic Committee website. https://stillmed.olympic.org/Documents/Commissions_PDFfiles/Medical_commission/2015-11_ioc_consensus_meeting_on_sex_reassignment_and_hyperandrogenism-en.pdf. Published November 1, 2015. Accessed August 5, 2026.

¹⁴World Aquatics (FINA). Policy on Eligibility for the Men's and Women's Competition Categories. World Aquatics website. <https://resources.fina.org/fina/document/2023/03/27/dbc3381c-91e9-4ea4-a743-84c8b06debef/Policy-on-Eligibility-for-the-Men-s-and-Women-s-Competiition-Categrories-Version-on-2023.03.24.pdf>. Published June 20, 2022. Updated March 24, 2023. Accessed August 5, 2026.

Aquatics showed that a new working policy can be formulated, ratified and enforced within a relatively short period of time. The same is true for the World Boxing and World Athletics policies referenced at the beginning of this declaration. Notably, all of these policies require some kind of testing and verification – whether it’s serum testosterone as in the case of World Aquatics, or sex-based genetic testing as in the case of World Athletics/World Boxing.

36. As indicated at the start of this declaration, wider organizational policy continues to move toward greater restriction as more scientific evidence becomes available. In addition to World Athletics and World Boxing, the International Cycling Union now requires any biological male seeking to compete with biological women to have completed transition before male puberty.¹⁵ In addition, the day after President Trump signed his executive order threatening funding from organizations which don’t comply, the NCAA announced that competition in women’s sports would be limited to biological females.¹⁶ Finally, after convening a working group to review the available evidence in March 2026, the IOC itself announced a renewed requirement for sex-based (SRY) genetic testing of all athletes as a requirement for eligibility in the female category (IOC 2026).

The Preparticipation Monograph and Sex-Based Testing

37. The benchmark standard for compilation of evidence surrounding the medical clearance of student athletes is the Monograph on the Preparticipation Physical Evaluation (PPE) coproduced by five author societies. These include:

- The American Medical Society for Sports Medicine (AMSSM)
- The American College of Sports Medicine (ACSM)
- The American Academy of Family Physicians (AAFP)
- The American Academy of Pediatrics (AAP)
- The American Orthopedic Society for Sports Medicine (AOSSM)

¹⁵ Union Cycliste Internationale. *The UCI adapts its rules on the participation of transgender athletes in international competitions*. UCI website. <https://www.uci.org/pressrelease/the-uci-adapts-its-rules-on-the-participation-of-transgender-athletes-in/6FnXDlZvzxtWFOvbOEnKbC>. Published July 14, 2023. Accessed August 5, 2026.

¹⁶ National Collegiate Athletic Association. *NCAA announces transgender student-athlete participation policy change*. NCAA website. <https://www.ncaa.org/news/2025/2/6/media-center-ncaa-announces-transgender-student-athlete-participation-policy-change.aspx>. Published February 6, 2025. Accessed August 5, 2026.

38. The Monograph represents a joint effort, by relevant stakeholders, to summarize the available data pertaining to the screening of student athletes for sports participation. The current, 5th edition was published in 2019, at the time that I was serving as AMSSM's President. (Bernhardt D, 2019). I also was asked to review the chapter on the musculoskeletal exam as a member of ACSM's Health and Science Policy Committee. Version six is currently out for review to the author organizations, with an anticipated release date of September 2026.

39. The purpose of the Monograph is to provide recommendations for determining medical eligibility for athletic participation, to ensure that participation is safe and medically appropriate for all student athletes involved in school sports. Although the recommendations in the PPE Monograph are not binding, the document heavily influences the medical clearance process state-to-state, because there are clearance forms that are co-produced with the monograph that cover the medical screening history and relevant physical examination. Some states utilize these forms verbatim, while others adopt aspects of the forms into their own versions. Washington's form reflects the former approach.¹⁷ (Form, 2025). I will discuss below how this form applies to this case.

Sex-based testing of student-athletes

40. It is interesting that Defendants' experts, in their declarations, assert that the primary goal of high school sports is to promote diversity and inclusion, rather than competition. Aside from the fact that it is not appropriate for any actor – NFHS, State government, or other advocacy groups – to unilaterally and without qualification declare what the primary purpose or goal of sports is, this assertion does not reflect reality. High school sports have grown exponentially, and with the recent expansion of financial opportunities for female athlete through the NIL, and through development of new and expanding professional sports leagues, the opportunities for advancement through sport for women are greater now than ever before. High school sports are a platform for advancement to the next level of opportunity.

¹⁷ Washington Interscholastic Activities Association. (n.d.). *Pre-participation physical evaluation: History form*. American Academy of Pediatrics. [https://downloads.aap.org/AAP/PDF/PPE-History-Form-\(English\)-rev.pdf](https://downloads.aap.org/AAP/PDF/PPE-History-Form-(English)-rev.pdf).

1 41. It's important to point out that, as far as I am aware, no executive officials in the state of
2 Washington are advocating for universal sex testing of student athletes. This statement is a
3 response to concerns raised in the declarations of Drs. McQuillan and Goepferd that sex
4 designations lead inexorably to invasive sex-based testing. There are two core problems with
5 this claim. First, the PPE process already in place is sufficient to verify eligibility at the high
6 school level. Second, even if something more were desired, there is no reason that sex-based
7 verification needs to be invasive.

8 42. If the law in Washington state ever restricted participation of biological males in
9 women's sports, the PPE form currently endorsed by the state, and reflective of information
10 summarized in the AAP Monograph could be utilized in a highly effective way to identify
11 biological males as male, and biological females as female. Moreover, this can be done
12 exclusively through the history portion of the form. Currently, the form asks student-athletes
13 what their "sex assigned at birth" is. This should be a proxy question for biological sex. It may
14 be appropriate, since Washington is a state where people can apply to have the sex designation
15 on their birth certificate changed, to alter this question to simply state "What is your medically
16 determined birth sex?" The error rate of biological sex determined at birth is thought to be less
17 than 1 per 5000, making this a highly accurate medical "test." (Handelsman, 2025) Also
18 included on the form is a question that pertains to gender identification. So, any discordance
19 between birth sex and gender identity should be noted on the form, which both the student
20 athlete and their parent are required to attest to. It should also be noted that the
21 recommendation of the Monograph writing group was that the preparticipation exam should
22 be done in the patient's medical home, by their primary care physician of record. This provides
23 a clinical touchpoint for an adolescent during a time when preventative care visits are
24 infrequent, but also presumes evaluation by a physician who knows the patient and their
25 history.

26 43. Finally, there are questions on the PPE form on menstrual history, including whether the
27 student has had a period, the age at which that period occurred (menarche), time of most
28 recent period, and the number of periods in the past twelve months. The addition of these
questions to both male-identifying and female-identifying student-athletes would be inclusive
of transgender athletes, since biological females competing as males may still menstruate.

1 Student-athletes identifying as female may be amenorrheic due to an undiagnosed DSD, or
 2 because they are a transgender female. Ultimately, these questions would help the student's
 3 physician identify female athletes who may be appropriate for the physician to request follow-
 4 up testing. Eventually, this could lead to a buccal swab genetic karyotype and, if warranted,
 5 serum androgen levels to diagnose and address any medical concerns. (Klein, 2019).
 6 (Handelsman, 2025). The bottom line is that nothing beyond the PPE form already in place,
 7 perhaps with minor modification, would be needed to determine eligibility at the high school
 8 level, and concerns about invasive testing are misplaced.

9 44. Alternatively, one-time buccal testing for the SRY gene (a cheek swab), which is the IOC's
 10 approach, would be workable and non-invasive, though, as noted above, not necessary at the
 11 high-school level. It would involve a once-per-lifetime cheek swab. A very small number of
 12 students may require follow-up androgen assessment following a positive test, and this would
 13 involve a blood draw, and possibly urinalysis. Again though, while genetic testing is minimally-
 14 invasive, it is not necessary at the high school level, given the efficacy of the medical history
 15 information already collected via the student's PPE form.

15 Conclusion

16 45. When it comes to gender identity, Handelsman (2025) references two areas where
 17 identity should not trump biology. The first regards surveillance of sex-specific cancers that are
 18 unique to either men or women. The second regards participation in competitive sport. Dr.
 19 Goepferd speaks of gender identity as an "internal sense" of a person's biological sex, and that
 20 a person's gender identity is "fixed and cannot be changed or altered." Allowing subjective self-
 21 identification to supersede biological sex in sport would mean that an internally felt identity,
 22 rather than an objective physical fact, controls outcomes in a discipline defined entirely by
 23 physical performance.

24 46. The 2026 policy reversal by the IOC further validates the idea that it is unrealistic to
 25 expect that female sport integrity can be protected through any policy short of exclusion of
 26 biological males from the female category. According to the IOC guidelines, their working group
 27 reached consensus that "to protect fairness in (all) such sports and events, as well as safety...it
 28 is necessary and adequate to base eligibility for competition on biological sex." The IOC's
 statement went on to summarize the physiologic effects of higher circulating testosterone

1 levels, further stating that “XY transgender athletes...have anatomical and physiological
 2 advantages in line with being male,” and that “there is no current evidence that testosterone
 3 suppression or gender-affirming hormone treatment eliminates this advantage.” Finally, the
 4 IOC expressly acknowledged that “in contact sports, the strength and power differential
 5 between males and females increases safety risks to female athletes.” Understanding this,
 6 policies that allow participation of biological males in women’s sports without any hormonal
 7 suppression at all are particularly egregious.

8 47. It bears repeating that biological sex is binary. There is no third sexual category – and
 9 the typical transgender athlete is a biologically normal male or female. When it comes to
 10 decisions about categorization of athletes, what is relevant is not how transgender individuals
 11 physically perform as a group, because the issues raised ultimately involve questions of
 12 individual, not group performance. What is absolutely relevant is what a motivated biological
 13 male who is seeking to participate in women’s sports can do in the context of intensive training
 14 and nutrition strategies, to call on their biological advantage, over and against the biological
 15 females who have to compete against them. Lia Thomas is a good illustration of what the result
 16 of this strategy is. And the progressively sex-restrictive organizational policies that are being
 17 implemented as we speak are in direct correlation to ongoing evidence that sex-based physical
 18 performance disparities are real, and biologically-driven. As a large group of sports scientists
 19 recently indicated:

20 *While we agree that further research on transgender athletes is*
 21 *important for many reasons, including our ability to provide*
 22 *health care and other sports performance support, it is extremely*
 23 *unlikely that such well-controlled, methodologically robust, peer-*
 24 *reviewed evidence on transgender athletes in specific sports will*
 25 *be available in sufficient quantity for many years or possibly, if the*
 26 *elite categorization and specific sport discipline is a strict*
 27 *requirement, ever. While decisions should be informed by the best*
 28 *available controlled trials, using trained transgender athletes are*
a misapplication of the criteria of evidence-based medicine to a
context for which they were never intended and should not be
prescribed. The absence of such specific evidence should not be
misconstrued as a lack of knowledge or an inability to draw

1 *informed conclusions about sex-based advantages in sport.*
2 (Lundberg, 2024).

3 48. Currently, the state of Washington allows biological males to complete a self-attestation
4 process that verifies them as transgender, but which does not impose any requirement to
5 monitor or lower serum testosterone before being given approval to compete alongside
6 biological girls. As can be seen from the history of sex-based testing reviewed earlier, a policy
7 such as this flies in the face of all available evidence, disregards the rights of biologically female
8 student-athletes to experience fair competition, and exposes biologically females to
9 unnecessary risk. Indeed, when looking at the trajectory of most organizing bodies and the
10 evolution of their policies regarding the transgender athlete, Washington would appropriately
11 be viewed as an outlier. Washington does not monitor athlete testosterone levels, so any
12 argument on Dr. Goepferd's part that this monitoring can mitigate any performance gap
13 between men and women makes little sense when locally applied to high school athletes in the
14 state of Washington.

15 49. Dr. Goepferd disregards the rationale for any process to "determine if an athlete is
16 allowed to compete as a female." In the process, Dr. Goepferd raises a false argument, inferring
17 that anyone who is deemed suspicious would be targeted, and asserting, without support, that
18 black women "appear (more) masculine or muscular," and that as a result they would be
19 subject to heightened scrutiny. This statement is apparently not based on anything other than
20 Dr. Goepferd's own racial preconceptions. To be clear, universally applied screening criteria are
21 fair, nonprejudicial, and then form the basis for any appropriate targeted testing that is deemed
22 medically necessary. As has been indicated, there is nothing particularly intrusive in answering
23 questions on a form that the state of Washington already mandates use of, and which was
24 developed, in part, by the American Academy of Pediatrics, which can properly be described as
25 an organization that advocates for transgender inclusiveness. Contrary to Dr. Goepferd's
26 contention, the entire purpose of the preparticipation exam is to identify relevant conditions
27 that might affect the safety of student-athletes in competition, or other athletes they compete
28 against. Dr. McQuillan cites the need to protect "private identity information." It bears stating
again that biological sex is not "private medical information" in the athletics context, and that
disclosure of a student-athlete's biological sex in the context of sports participation is absolutely

1 relevant to athlete safety and fairness. In other words, athletes are already required to take
2 multiple steps to compete in sports, including medical examinations, perhaps weight and age
3 verification. Attestation of biological sex as part of the exam is no more invasive than current
4 policies.

5 50. Because women in sport are a protected class, it is incumbent on governmental and
6 nongovernmental organizational policy to guarantee the necessary protections under the law.
7 If state law prohibits biological males from participating in women's sports, some efforts at
8 categorization become necessary. In the case of the transgender athlete, rather than requiring
9 inordinate "policing," stratification of athletes by sex should be straightforward and
10 uncomplicated per the PPE process already in place. As has been indicated, the State of
11 Washington's own preparticipation screening form would essentially achieve this, were all
12 student-athletes required to complete it and attest to their answers. Universal screening
13 through the preparticipation form is unobtrusive, avoids the targeted testing that has been
14 criticized by some, and can be done with relatively little cost or effort. In summary, concerns
15 about the cost or invasiveness of determining biological sex for purposes of compliance with
16 the law are unwarranted and should not be considered an impediment to instituting legal
17 protections for biologically female athletes in the state of Washington.
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Addendum: Comments related to plaintiff reports**Whether the structure of high school wrestling neutralizes safety concerns**

51. In their response, the District argues that there is no evidence that the policies at issue eliminate safety for girls. Similarly, WIAA's response states that the biomechanical safety statistics referenced in my report are "neutralized" by existing WIAA weight classifications in wrestling. This is erroneous. It is of course a given that wrestling is a weight-stratified sport, and that wrestlers compete against other wrestlers who are in a similar weight range. So the issue isn't whether mass differs between two wrestlers in a similar weight class. It instead is whether strength and power do. Weight classes are ultimately only a partial safety measure to try to mitigate the risk of injury. Because relative rapid force production across multiple joints (producing magnified velocities) is greater in biological males than biological females competing against one another in the same weight class, there is still a significant strength and power disparity that likely puts female wrestlers at risk when they are forced by the State of Washington to compete against a biological male.

52. Research in an athletic population confirms that when male and female athletes of similar age and training status are adjusted for body mass or lean body mass, relative strength and power remains significantly greater in males than females. In other words, a male wrestler's strength and power at a given body weight is statistically greater than that of a female. One study looked at arm and leg power in male and female adolescent athletes of similar age, Tanner stage and training level. Researchers found that whether adjusting for mass, lean mass or muscle cross-sectional area, nearly all adjusted arm and leg peak and mean power values remained significantly higher in males. When adjusting for body weight, this included 21% greater lower body peak power, 36% greater lower body mean power, 21% greater upper body peak power and 19% greater upper body mean power. (Nindl, 1995). Thus, in age-matched adolescent boys and girls of similar training status, boys exceeded girls in terms of relative power on almost every measure. Another study looking at relative strength and power in male and female athletes in their mid-twenties showed significantly greater bench press throw performance when adjusted for lean body mass. (Bartolomei, 2021). Relative strength has been shown to be the primary determinant of rapid force generation, which is strongly

relevant to success in a sport like wrestling, where explosive attacks can occur on average every 6-10 seconds. (Hubner-Wozniak, 2004). Researchers who matched male and female team sport athletes according to their relative peak force generating capacity showed similar performance in early contraction velocity on upper body isometric testing. (Comfort, 2024). This study also reinforced the idea that males on average have greater statistical relative power capacity. Because these researchers were matching male and female athletes with similar relative force generation capacity, and because some males have relative power/strength that exceeds the female limit, there were 18 men in this study who could not be matched to a female with similar peak force/lean body mass. In effect, what this is saying is that if the State of Washington were stratifying male and female wrestlers according to both their body mass and their measured strength/power capacity, some athletes would be situated on a somewhat even footing, at least in terms of strength and power, while many males would have greater relative strength than any of the female competitors and would remain unmatched. But that of course is not the State of Washington's policy as pertains to wrestling.

53. The sex-based discrepancy in relative strength and power can be further dialed down to studies looking at athletes in weight-stratified sports. Researchers have shown that elite male judo athletes have higher relative muscle mass than similarly-suited elite female judo athletes. (Franchini 2011). Spanish researchers looking at elite male and female wrestlers in comparable cohorts showed that males demonstrated 42.5% greater relative power on Wingate testing, 45% greater relative peak power, 35% greater relative performance on bench press, 30% greater relative performance on countermovement jump, and 36% greater relative performance on squat. (Pallares 2012). Again, these are relative, not absolute values, adjusted for body weight, meaning that in a wrestling weight division that allows boys and girls to wrestle together, these discrepancies in strength and power would hold. Finally, strength and power discrepancies were directly compared by researchers in Poland, assessing the performance of male and female members of the Polish Olympic wrestling team on upper and lower extremity Wingate testing. Average age of these subjects was 21-22 years old. Looking at lower extremity power, males statistically outperformed women when power was analyzed relative to body mass (32% greater power) and also relative to fat-free mass (17% greater power). Analyzing upper extremity power, males again outperformed women in power relative

1 to body mass (63% greater relative peak power) and fat-free mass (44% greater relative peak
2 power).

3 54. Thus, if relative strength and power is determinative for rapid muscle force generation,
4 and if relative power in biological males exceeds that of biological females, then in a weight-
5 stratified sport like wrestling, where mass is held constant, males retain a significant physical
6 advantage. This advantage confers a greater ability to generate force and impulse during a
7 takedown, generate greater angular acceleration and apply greater rotational torque to
8 shoulders, necks and knees of an opponent. And of course, in most cases, this will be done
9 against an opponent who is less capable of resisting these greater forces. What this practically
10 means on the wrestling mat is that the weaker athlete cannot maintain proper joint position
11 against the applied torque, which may bring the joint into a position where injury occurs. It
12 means that a weaker athlete may be lifted or rotated and driven into the mat before an
13 effective defensive response can be applied. And in a sport where defense against attacks is
14 ongoing and continuous, statistically greater mean (as opposed to peak) power will in most
15 cases translate to a decline in defensive capability of the weaker athlete over the course of a
16 match. To cycle back to the statement of whether weight classification “neutralizes” injury risk
17 in wrestling – clearly it does not. On the contrary, weight classification does not guarantee that
18 any particular pair of wrestlers are strength or power-matched. Research in the athletic cohort
19 confirms that substantial strength and power differences may persist after body-size
20 adjustment, thereby undermining the assertion that weight classification alone neutralizes
21 every biomechanical safety concern.

22 55. This also runs counter to Dr. Millington’s contention that “fat mass can decrease overall
23 muscle strength,” I believe Dr Millington, citing Cheung, is referring to relative strength when
24 she states that “muscle strength when corrected for the amount of fat in their muscles is no
25 different.” At any rate, she is conflating an *association* between higher fat percentage and
26 lower muscle strength with a *causal* relationship. Further, Cheung, who Dr. Millington cites,
27 goes on to discuss relative lean mass reductions in transwomen that are marginal (77.5% at
28 baseline to 72.5% at one year and 71.7% at two years), as well as a three-year study assessing
cross-sectional thigh muscle area showing a 9% decrease from baseline at year one and 12% at
year three. As my white paper on injury risk discusses, this should be viewed in the context of

1 females on average having 50-60% of male upper limb strength, and 60-80% of male lower limb
 2 strength. So these strength losses over one to three years are marginal at best. Moreover, and
 3 probably most importantly, unlike studies on untrained subjects, motivated male athletes who
 4 desire to intentionally strength train to mitigate any effect of GAH (or who aren't even on GAH)
 5 will most likely retain significant advantage over women in terms of strength and power. That
 6 bears directly on injury risk.

7 **GnRHa treatment and strength discrepancy**

8 56. In their rebuttals, Drs Goepferd and Millington opine that subjects who are on GnRHa
 9 early in puberty and then GAH, have “physical and hormone levels (that) are similar to
 10 cisgender girls,” and that “there is *no reason to believe* transgender girls treated in early
 11 puberty would have any athletic advantage compared to their cisgender peers.” (Millington,
 12 para 21). In fact, Klaver showed statistically greater lean mass in transwomen compared to
 13 ciswomen by age 22 despite the use of GnRHa and GAH, also showing that Tanner stage at the
 14 start of treatment did not affect these findings. Dr. Goepferd also makes this argument, but
 15 goes on to state that even if suppression was started at Tanner 3 or later, the retained benefit of
 16 any masculinizing changes would quickly normalize, which Klaver directly refutes, since the
 17 males in Klaver’s study started GnRHa therapy at Tanner 3. (Klaver 2019).

18 **Pubertal status and risk mitigation in sport**

19 57. In her declaration, Dr. Millington discusses the effects of variable stages of pubertal
 20 development on sports performance, claiming that when children of a similar age, but differing
 21 pubertal status play together on the same sports team, “we don’t typically evaluate or ban
 22 players based on (this).” But in fact, we do. In most youth football leagues, more physically-
 23 developed players are weight restricted from playing in the offensive backfield, or playing
 24 positions such as defensive end, where they can quickly get behind the offensive line and
 25 instigate collisions. In youth wrestling, the heavyweight division carries a maximum weight limit
 26 that cannot be exceeded. Clearly, these restrictions are put in place by the respective sport
 27 governing organizations in order to promote athlete safety. The size variability of same-aged
 28 athletes at different stages of puberty is what drives this.

Sports regulatory authority

58. Drs. Millington and Goepferd reference the current state of sex testing in their declarations, but apparently are not aware that the IOC is no longer monitoring testosterone and has a categorical ban in place supported by SRY testing, announced in March 2026. In fact, as is referenced in my reports, the clear and overwhelming direction of regulatory decision-making by national and international sports governing bodies is to ban the participation of biological males in women's sports who have experienced any part of male puberty, and to impose ongoing and more draconian limits on the upper limit of serum testosterone (for example, to an upper boundary of 2.5 nmol/l by World Aquatics). Many organizations now require one-time genetic verification, including the IOC, World Athletics, World Boxing, and Women's Tennis. Although the NCAA has a categorical ban on biological males playing in women's sports now, and does not allow altered birth certificates, neither do they require any additional verification.

59. In most cases, these organizations developed more restrictive policies at the recommendation of working groups of multiple stakeholders, including a range of medical experts. In the case of the IOC, to quote their own website: "In September 2025 the IOC established a working group to specifically examine scientific, medical and legal developments since 2021. The working group members came from all five continents and included specialists in sports science, endocrinology, transgender medicine, sports medicine, women's health, ethics and law. As a separate part of the working group, International Federation Chief Medical Officers representing individual and team sports were also included."¹⁸ Thus, these organizations and their eligibility policies, along with those of similar groups such as World Rugby, World Aquatics and UK Sport, can be viewed as reflecting the current state of knowledge with respect to the transgender athlete, sports safety and competitive equity.

60. Finally, Dr. Millington contends that "a blanket ban on transgender youth participation in sports fails to consider the nuance of the impact of gender and hormone status on sports

¹⁸ International Olympic Committee. (2026, March 26). *International Olympic Committee announces new policy on the protection of the female (women's) category in Olympic sport*. Olympics.com. <https://www.olympics.com/ioc/news/international-olympic-committee-announces-new-policy-on-the-protection-of-the-female-women-s-category-in-olympic-sport>.

1 performance.” However she states this almost immediately after indicating that there are no
2 studies looking at athletic performance of transgender individuals. This is a circular argument.
3 The reality is, since there is no third biological category, the physical characteristics of a
4 transgender female cohort in any research study are not reflective of biology, but instead reflect
5 the diversity of a unique grouping of individuals. And since individuals who are biologically
6 male can make choices to utilize nutrition and specialized training to mitigate the muscle-
7 wasting effects of GAH therapy, even clinical research using transgender athletes reflect not
8 biology, but the underlying motivations of the subjects. That, in a nutshell, is the problem, from
9 a competitive equity and safety perspective when this issue is evaluated under the umbrella of
10 sports science. And so, it is entirely appropriate to utilize research that is based on human
11 physiology and biological response to both GAH and physical training to make logical inferences
12 that link together and reinforce the decision-making that leads organizations responsible for the
13 integrity of sport and the safety of the athletes competing under their authority to codify
14 restrictions that preserve a dedicated space for biologically female athletes.
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Bibliography

- Bartolomei S, e.a. (2021). A comparison between male and female athletes in relative strength and power performances. *J Funct Morph and Kines*, 6,17.
- Basset A, e. a. (2020). The Biology of Sex and Sport. *JBJS Reviews*, 8(3), 1-8.
- Bermon S, e. a. (2017). Serum Androgen Levels and Their Relation to Performance in Track and Field: Mass Spectrometry Results From 2027 Observations in Male and Female Elite Athletes. *Br J Sports Med*, 51, 1309-1314.
- Bermon S, e. a. (2018, December). Serum Androgen Levels are Positively Correlated with Athletic Performance and Competition Results in Elite Female Athletes. *Br J Sports Med*, 52(23), 1531-1533.
- Bermon, S. e. (2014, November). Serum Androgen Levels in Elite Female Athletes. *J Clin Endocrinol Metab*, 99(11), 4328-4335.
- Bernhardt D, e. a. (2019). *Preparticipation Physical Evaluation, fifth edition* (5 ed.). Itasca, IL: American Academy of Pediatrics Publishing Staff.
- Bhattacharyya, S. (2024). Sex: The Last Real Binary? *Reproduction and Fertility*, 5(e240005).
- Boxing, W. (2025). World Boxing to introduce mandatory sex testing for all boxers. <https://worldboxing.org/world-boxing-to-introduce-mandatory-sex-testing-for-all-boxers/>.
- Brown GA, S. B. (2025). Comment on "Biology and Management of Male-Bodied Athletes in Elite Female Sports" by Handelsman and Bermon. *Drug Testing and Analysis*, 1-3.
- Camporesi, S. (2019). When Does an Advantage Become Unfair? Empirical and Normative Concerns in Semenya's Case. *J Med Ethics*, 45, 700-704.
- de la Chapelle, A. (1986). The Use and Misuse of Sex Chromatin Screening for 'Gender Identification' of Female Athletes. *JAMA*, 256(14), 1920-1923.
- Form, P. (2025). <https://www.wiaa.com/>. Retrieved from Washington State Preparticipation form: [https://downloads.aap.org/AAP/PDF/PPE-History-Form-\(English\)-rev.pdf](https://downloads.aap.org/AAP/PDF/PPE-History-Form-(English)-rev.pdf)
- Handelsman, D. (2024). Toward a Robust Definition of Sport Sex. *Endocrine Reviews*, 45, 709-736.
- Handelsman, D. e. (2025). Biology and Management of Male-bodied Athletes in Elite Female Sports. *Drug Testing and Analysis*, 1-12.
- Harper, J. (2020).

- 1 Harper, J. (2020). *Sporting Gender: The History, Science and Stories of Transgender and Intersex*
2 *Athletes*. Lanham, MD: Rowman & Littlefield.
- 3 Heggie, V. (2010). Testing Sex and Gender in Sports; Reinventing, Reimagining and
4 Reconstructing Histories. *Endeavor*, 34(4), 157-163.
- 5 Hilton E, L. T. (2021). Transgender Women in the Female Category of Sport: Perspectives on
6 Testosterone Suppression and Performance Advantage. *Sports Medicine*, 51(2), 199-214.
- 7 Ingram, B. e. (2019, June). Transgender Policy in Sport, A Review of Current Policy and
8 Commentary of the Challenges of Policy Creation. *Current Sports Medicine Reports*,
9 18(6), 239-247.
- 10 *IOC 2003 Policy*. (n.d.). Retrieved from International Olympic Committee:
11 [https://www.olympics.com/ioc/news/ioc-approves-consensus-with-regard-to-athletes-](https://www.olympics.com/ioc/news/ioc-approves-consensus-with-regard-to-athletes-who-have-changed-sex-1)
12 [who-have-changed-sex-1](https://www.olympics.com/ioc/news/ioc-approves-consensus-with-regard-to-athletes-who-have-changed-sex-1)
- 13 IOC. (2021). *IOC Framework. Fairness, Inclusion, Non-Discrimination on the Basis of Gender*
14 *Identity and Sex Variations*.
- 15 Klein, D. (2019, July 1). Amenorrhea: A Systematic Approach to Diagnosis and Management.
16 *American Family Physician*, 100(1), 39-48A.
- 17 Kroshus, E. (2023). Improving Inclusion and Well-Being of Trans and Gender-Nonconforming
18 Collegiate Student-Athletes: Foundational Concepts from the National Collegiate Athletic
19 Association Summit on Gender Identity and Student-Athlete Participation. *Br J Sports*
20 *Med*, 57, 564-570.
- 21 Kyriazis Z, e. a. (2023). Polydactyly: Clinical and molecular manifestations. *World Journal of*
22 *Orthopedics*, 14(1), 13-22.
- 23 Levy, A. (2009). Either/Or. *New Yorker*, 85(39), pp. 46-59.
- 24 Li, F. e. (2022, April). Rule Changes to Increase Shared Medal Winning at the Olympics. *Frontiers*
25 *in Sports and Active Living*, 4, 1-6.
- 26 Loland, S. (2020). Caster Semenya, Athlete Classification, and Fair Equality of Opportunity in
27 Sport. *J Med Ethics*, 46, 584-590.
- 28 Lundberg, T. (2024). The International Olympic Committee Framework on Fairness, Inclusion
and Nondiscrimination on the Basis of Gender Identity and Sex Variations Does Not
Protect Fairness for Female Athletes. *Scand J Med Sci Sports*, 34, 1-12.
- Martinez-Patino, M. (2016). The Unfinished Race: 30 Years of Gender Verification in Sport. *The*
Lancet, 388, 541-543.

- 1 Martowicz, M. (2023). Position Statement: IOC Framework on Fairness, Inclusion and Non-
2 discrimination on the Basis of Gender Identity and Sex Variations. *Br J Sports Med*, 57(1),
3 26-32.
- 4 Morik, R. (2025, June 6). *Controversial boxer Imane Khelif skipping competition following World*
5 *Boxing's new mandatory sex testing*. Retrieved from New York Post:
6 [https://nypost.com/2025/06/06/sports/controversial-boxer-imane-khelif-skipping-](https://nypost.com/2025/06/06/sports/controversial-boxer-imane-khelif-skipping-competition-following-world-boxings-new-mandatory-sex-testing/)
7 [competition-following-world-boxings-new-mandatory-sex-testing/](https://nypost.com/2025/06/06/sports/controversial-boxer-imane-khelif-skipping-competition-following-world-boxings-new-mandatory-sex-testing/)
- 8 NCAA 2021. (n.d.). Retrieved from ncaa.com: [https://www.ncaa.org/news/2021/4/12/ncaa-](https://www.ncaa.org/news/2021/4/12/ncaa-board-of-governors-statement-on-transgender-participation.aspx)
9 [board-of-governors-statement-on-transgender-participation.aspx](https://www.ncaa.org/news/2021/4/12/ncaa-board-of-governors-statement-on-transgender-participation.aspx)
- 10 Ng A, e. a. (2017). Bicuspid Aortic Valve Disease: New Insights. *Structural Heart*, 1(1-2), 9-17.
- 11 *Official Forms*. (2026). Retrieved from Washington Interscholastic Activities Association:
12 <https://www.wiaa.com/forms/>
- 13 P, G. (2010, October). *On the Team: Equal Opportunity for Transgender Student Athletes*.
14 Retrieved from www.ncrights.org: [https://www.ncrights.org/wp-](https://www.ncrights.org/wp-content/uploads/2013/07/TransgenderStudentAthleteReport.pdf)
15 [content/uploads/2013/07/TransgenderStudentAthleteReport.pdf](https://www.ncrights.org/wp-content/uploads/2013/07/TransgenderStudentAthleteReport.pdf)
- 16 Pigozzi, F. (2022). Joint Position Statement of the International Federation of Sports Medicine
17 (FIMS) and European Federation of Sports Medicine (EFSMA) on the IOC Framework on
18 Fairness, Inclusion and Non-discrimination Based on Gender Identity and Sex Variations.
19 *BMJ Open Sp Ex Med*, 8, 1-6.
- 20 Reeser, J. (2005). Gender Identity and Sport: Is the Playing Field Level? *Br J Sports Med*, 39, 695-
21 699.
- 22 Ritchie R, e. a. (2008). Intersex and the Olympic Games. *JR Soc Med*, 101, 395-399.
- 23 Ritchie, R. (2008). Intersex and the Olympic Games. *Journal of the Royal Society of Medicine*,
24 395-399.
- 25 Sanberg, D. (2022, May 9). Differences/Disorders of Sex Development: Medical Conditions at
26 the Intersection of Sex and Gender. *Annu Rev Clin Psychol*, 18, 201-231.
- 27 World Athletics. (2025, July). World Athletics introduces SRY gene test for athletes wishing to
28 compete in the female category. [https://worldathletics.org/news/press-releases/sry-](https://worldathletics.org/news/press-releases/sry-gene-test-athletes-female-category)
[gene-test-athletes-female-category](https://worldathletics.org/news/press-releases/sry-gene-test-athletes-female-category).

World Athletics, 2. (2025). <https://assets.aws.worldathletics.org>. Retrieved from World Athletics:
<https://assets.aws.worldathletics.org/document/688a175005020be5dc97f90a.pdf>

DECLARATION UNDER PENALTY OF PERJURY

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed this 7th day of August 2026 at Des Moines, Iowa.

A handwritten signature in blue ink, appearing to read "Chad T. Carlson", with a long horizontal flourish extending to the right.

Chad T. Carlson