EXHIBIT 14

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 GREGORY A. BROWN TO PLAINTIFFS' REPLY IN SUPPORT OF THEIR MOTION FOR PRELIMINARY INJUNCTION

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

I, Gregory A. Brown, declare as follows:

1. I have submitted an initial declaration to this Court dated June 25, 2026.

2. I now submit this expert rebuttal declaration based on my personal knowledge, and it reflects my expert opinions.

3. In preparing this rebuttal declaration, I have reviewed the declaration filed by the defendants, submitted by Dr. Kate Millington, M.D. I also reviewed the Puyallup School District and the State Defendants' motions responding to the preliminary injunction.

4. In this declaration, as in my previous declaration, when I use the terms "man," "boy," or "male," I am referring to biological males based on the individual's reproductive biology and genetics as determined at birth. Similarly, when I use the terms "woman," "girl," or "female," I am referring to biological females based on the individual's reproductive biology and genetics as determined at birth. When I use the term transgender, I am referring to persons who are males or females, but who identify as a member of the opposite sex. Thus, in this report the terms transwomen, transgender woman, or transgirl refer to a person whose sex is male but who identifies as a woman (if they are an adult) or girl (if they a juvenile).

I. REBUTTAL OF DR. KATE MILLINGTON

A. Overview

5. Dr. Kate Millington's expert declaration submitted on behalf of the defendants in *Brown et al. v. Washington Interscholastic Activities Association, et al*., argues against restricting participation in girls' and women's sports to individuals whose biological sex is female. Dr. Millington raises the following principal points:

    - First, she contends that biological sex is not strictly binary because some individuals have disorders or differences of sex development (DSDs), and that gender identity is distinct from biological sex and also not binary.

    - Second, she argues that gender-affirming medical care for transgender youth is evidence-based, improves mental health and well-being, and should be considered appropriate treatment for carefully evaluated adolescents with gender dysphoria.

    - Third, she maintains that transgender girls who receive puberty blockers at the onset of puberty followed by estrogen therapy do not undergo typical male pubertal development and, because they are not exposed to sustained male testosterone concentrations, there is no scientific basis to conclude that they possess athletic advantages over cisgender girls.

    - Fourth, she acknowledges that transgender women who begin hormone therapy after male puberty may retain some physical characteristics associated with prior testosterone exposure, but argues that estrogen therapy substantially reduces muscle mass, strength, hemoglobin, and other

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

physiological characteristics relevant to athletic performance, making any remaining advantages variable, sport-specific, and insufficient to justify categorical exclusion.

- Fifth, she argues that athletic performance is influenced by numerous biological and environmental factors beyond sex, including height, genetics, training, nutrition, coaching, and psychological factors, and therefore sex alone should not be viewed as determinative of athletic success.

- Finally, she concludes that excluding transgender girls from girls' and women's sports lacks sufficient scientific support, is not shown to improve fairness or safety for female athletes, and causes substantial physical, psychological, and social harms to transgender youth by limiting their opportunities to participate in sport.

6. This rebuttal report addresses Dr. Millington's claims by referencing the relevant sections of my original report and providing additional scientific clarification and context. In doing so, I draw upon peer-reviewed literature, empirical data, and established biological principles to demonstrate that the conclusions presented in Dr. Millington's declaration are inconsistent with the current scientific understanding of sex-based differences in athletic performance.

7. As an initial response to Dr. Millington's report, it is noteworthy that the report does not discuss or acknowledge the Cass Review, the recent U.S. Department of Health and Human Services evidence review, or the other very important recent governmental and systematic reviews that have concluded the evidence supporting gender-affirming hormonal and surgical interventions for minors is of low certainty and that the potential benefits remain uncertain while the risks warrant caution. Dr. Millington's report also does not engage with the recent research indicating that in youth using puberty blockers followed by cross-sex hormones adult male stature is not decreased, despite suggesting that early puberty suppression removes any reason to expect an athletic advantage. Finally, the report does not address the growing body of research published in the past few years documenting measurable sex-based differences in physical fitness and sports performance before puberty. Instead, it repeatedly relies on the premise that because prepubertal boys and girls have similar circulating sex hormone levels, there is no reason to expect athletic differences. That conclusion is presented without engaging with the more recent empirical literature demonstrating that measurable performance differences are present even before puberty.

8. Within this rebuttal I have attempted to use the same subheadings and order used by Dr. Millington to organize my rebuttal comments.

B. Introduction to Sex, Gender Identity, and Gender Dysphoria

9. Regarding her first point, that biological sex is not strictly binary because some individuals have disorders or differences of sex development (DSDs), and that gender identity is distinct from biological sex. This issue is discussed extensively in my expert report (GAB Report ¶¶ 1–13) and in my rebuttal report to Dr. Goepferd (¶¶ 15-18). Briefly summarized, Dr. Millington argues that biological sex is more complex than a

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

simple binary because disorders or differences of sex development (DSDs) exist, and that biological sex and gender identity are distinct concepts. I agree that biological sex and gender identity are distinct concepts. However, I disagree with the implication that the existence of DSDs undermines the biological reality that humans are a sexually reproducing species with binary and dimorphic sex. The overwhelming consensus in biology is that humans are organized around two reproductive classes, male and female. Disorders of sex development are rare developmental conditions occurring within the male or female sex and do not constitute additional sexes or alter the biological classification of humans beyond two reproductive categories. Importantly, DSDs in which an individual's sex is ambiguous at birth occur in 0.02% of the population (GAB Report ¶ 1, ¶10), have a known biological cause (GAB Report ¶ 6), and "are more than 175 times more prevalent in elite female Athletics than in the general population" (GAB Report ¶ 8). Likewise, although gender identity is a distinct psychological construct, it does not alter an individual's biological sex, nor is there a clear biological cause or test to identify a transgender identity (GAB 2026 Report ¶ 6). As I explained in my original report, "every cell has a sex and every system in the body is influenced by sex. Indeed, 'sex often influences gender, but gender cannot influence sex.'" (GAB report, ¶ 2).

10. More recently, Bermon (2026) who is the Director of the Health and Science Department at World Athletics, has stated that in the general population the prevalence of sports relevant disorders of sex development (DSDs) in which a male might have been misidentified as female "is between 1.5 and 4/100,000 (0.0015% and 0.004%)" and has also indicated that these "XY-DSD athletes are more than 175 times more prevalent in elite female Athletics than in the general population" (at 1) (GAB 2026 Report ¶ 8).

11. This conclusion continues to be supported by the recent scientific literature. Janicke et al. (2026) state, "Drawing on evolutionary theory and empirical evidence, we maintain that biological sex is best defined as a binary classification of male and female reproductive strategies rooted in anisogamy, characterised by the production of two discrete gamete types of different sizes" (at 1).

12. Similarly, Landén (2026) states, "Biological sex is rooted in reproduction. Humans, like other animals, are organized to produce either small gametes (sperm) or large gametes (ova), which fuse at fertilisation to form a new individual who is male or female. In this biological sense, sex is binary" (at 1). Landén further observes that "gender identity remains poorly defined. Existing definitions typically describe it as a person's internal sense of gender without independently defining gender itself, making the concept difficult to operationalize and distinguish from related constructs" (at 2).

13. My opinion is further supported by the eligibility policies recently adopted by World Athletics, the International Olympic Committee, and the Women's Tennis Association (WTA). These organizations recognize that only the rare disorders of sex development in which an individual does not experience the anabolic or performance-enhancing effects of testosterone, such as Complete Androgen Insensitivity Syndrome (CAIS), may be eligible for the female category. Conversely, athletes with conditions such as 5-alpha reductase deficiency (5-ARD), who experience male androgenization and the associated physiological advantages, are not eligible for the female category despite being diagnosed with a DSD. These policies recognize that the relevant biological distinction is

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

not simply the presence of a DSD, but whether the individual has undergone male development and benefited from the performance-enhancing effects of male testosterone levels, whether in utero, during minipuberty, or puberty (GAB 2026 report, ¶¶ 6-7, 8, 202, 261-64, 298-308, 406, 430, 446, 448).

C. Approach to Gender Affirmative Medicine

14. In ¶¶ 11–15, Dr. Millington provides a general overview of gender-affirming care for transgender youth. She describes social transition, puberty suppression with gonadotropin-releasing hormone analogs, and opposite sex hormone administration as hormonal interventions in children with gender dysphoria.

15. My report summarizes the current body of research on the effects of puberty blockers and cross-sex hormones on body height, muscle mass, and muscle strength in children. This research demonstrates that such hormonal interventions do not fully eliminate male physiological characteristics relevant to athletic performance when compared with similarly aged, trained, and talented females (GAB 2026 Report ¶¶276–288). My report also summarizes the growing body of literature questioning the efficacy and safety of puberty blockers, testosterone suppression, and cross-sex hormones in pediatric populations, including government-commissioned evidence reviews, systematic reviews, and judicial findings (GAB 2026 Report ¶¶289–297).

16. It is notable that Dr. Millington's declaration does not discuss several recent government-commissioned evidence reviews and systematic reviews that evaluated the quality of evidence supporting puberty blockers and cross-sex hormones for minors (GAB 2026 Report ¶¶289–297). These include the Cass Review (NHS UK, 2024), U.S. Department of Health and Human Services (2025), Miroshnychenko et al. (2025) Gorin, Smids & Lantos (2025), and McDeavitt et al. (2025) each of which concluded that the evidence supporting puberty blockers and cross-sex hormones for minors is of low or very low certainty and that substantial uncertainty remains regarding their long-term benefits and risks. Furthermore, Dr. Millington does not discuss the government evidence reviews from Finland (PALKO, 2020; Kaltiala et al. 2020), Sweden (Socialstyrelsen, 2022), or Norway (UKOM, 2023), all of which recommend a more cautious approach to hormonal interventions for minors because of the limited certainty of the supporting evidence. Collectively, these reports are directly relevant to the opinions expressed by Dr. Millington but are not discussed in her declaration.

17. Whether these interventions should be offered to adolescents is ultimately a clinical and ethical question that falls outside my expertise. My point is more limited. When an expert characterizes the evidence supporting these interventions as established, it is important for the Court to recognize that multiple independent governmental reviews have concluded that the certainty of that evidence is low or very low.

D. Impact of Gender Affirming Hormone Therapy on Sports Performance

18. In ¶16, Dr. Millington correctly states that testosterone plays an important role in athletic performance and that the rise in testosterone during male puberty contributes substantially to the divergence in performance between males and females in many sporting events. I agree with these statements and discuss them extensively in my report

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

(GAB 2026 Report ¶¶ 86–167, 298-311). However, Dr. Millington's discussion omits several important considerations that are directly relevant to the scientific questions before the Court. First, she does not discuss the growing body of evidence demonstrating measurable male advantages in athletic performance before the onset of puberty. Second, she places substantial emphasis on circulating testosterone concentrations while giving little consideration to the numerous anatomical and physiological sex differences that arise through genetic and developmental mechanisms and contribute to athletic performance independently of current testosterone levels. For example, before puberty, when there are not differences in circulating testosterone concentrations between boys and girls, boys exhibit more lean body mass, higher bone density, and larger heart and lungs (Brown 2026 Report ⁋⁋ 266-275) all of which provide advantages in measurements of strength, speed, endurance, and power (Brown 2026 Report ⁋⁋ 168-213) and athletic performance in running, jumping, swimming, and throwing (Brown 2026 Report ⁋⁋ 214-265). Similarly, transwomen with suppressed testosterone concentrations retain higher lean body mass, taller body height, greater muscle strength, power, and endurance than comparable females (Brown 2026 Report ⁋⁋ 310-389). Finally, in ¶17 she cites examples of females with naturally elevated testosterone concentrations and individuals with disorders of sex development as though these extremely rare conditions undermine the biological distinction between males and females or provide a meaningful comparison to transgender girls. In my opinion, they do not.

19. In ¶17 Dr. Millington cites polycystic ovary syndrome (PCOS) and congenital adrenal hyperplasia (CAH) as examples of females who may have testosterone concentrations above the typical female range. However, neither condition alters an individual's biological sex. Females with PCOS or CAH possess a female chromosomal complement (46,XX), develop as females, and remain members of the female sex despite variation in hormone concentrations. These conditions do not result from male development, do not produce the full constellation of anatomical and physiological characteristics associated with male puberty (Sax, 2002), and therefore are not biologically analogous to males who identify as girls or women. Consequently, the existence of these conditions does not provide a scientific rationale for permitting biological males to compete in the female sports category.

20. Likewise, Dr. Millington's discussion of androgen insensitivity in ¶8 and ¶62 illustrates the opposite point from the one she appears to advance. Complete Androgen Insensitivity Syndrome (CAIS) demonstrates that biological effects of testosterone depend not merely on circulating hormone concentrations, but on the body's ability to respond to those hormones. Individuals with CAIS possess XY chromosomes and typically have testosterone concentrations within the male range, yet because their androgen receptors are nonfunctional, they do not experience the masculinizing effects of testosterone. This distinction has been recognized by both World Athletics and the International Olympic Committee, whose current eligibility policies permit consideration of athletes with CAIS for eligibility in women's sports. However, athletes with disorders such as 5-alpha reductase deficiency (5-ARD), in which androgen action results in male physiological development and associated athletic advantages, are excluded from women's sports (GAB 2026 Report ¶¶ 6–8, 430, 446, 448). It is worth noting that 5-ARD is the condition experienced by Caster Semenya (Court of Arbitration for Sport, 2019).

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

21. In ¶¶ 19–21, Dr. Millington describes the hormonal interventions that may be provided to transgender-identifying youth. Throughout this discussion, she implies that preventing the pubertal rise in testosterone will also prevent the development of male athletic advantages. However, she does not address the extensive evidence summarized in my report demonstrating that males outperform females in running, jumping, swimming, and throwing even before the onset of puberty (GAB Report ¶¶ 168–275). Nor does she discuss the available research indicating that preventing normal male pubertal testosterone exposure through puberty suppression, followed by estrogen administration, does not eliminate male advantages in body height, lean body mass, or handgrip strength compared with biological females of similar age, all of which contribute to male athletic advantages (GAB 2026 Report ¶¶ 276–288). Finally, she does not address the numerous government-commissioned evidence reviews and systematic reviews that have concluded the evidence supporting puberty blockers and cross-sex hormones in minors is of low or very low certainty and that substantial uncertainty remains regarding their long-term benefits and risks (GAB 2026 Report ¶¶ 289–299). These studies undercut her unsupported assertion (⁋ 21) that "there is no reason to believe transgender girls treated in early puberty would have any athletic advantage compared to their cisgender peers." I have shown there is every reason to believe it.

22. In ¶21, Dr. Millington states that "There are no studies of the athletic performance of transgender individuals who received GnRHa early in puberty." While this is correct, the absence of such studies does not support the conclusion that transgirls who undergo puberty suppression have no retained male athletic advantages. Rather, it indicates that this specific question has not yet been directly studied. As explained in my report (GAB Report ¶¶ 276–288), the available research demonstrates that preventing normal male pubertal testosterone exposure through puberty suppression, followed by estrogen administration, does not eliminate male advantages in body height, lean body mass, or handgrip strength, all of which are physiological characteristics that contribute to athletic performance. Importantly, these studies include biological males as young as 10.2 years of age and children in Tanner stage 2, the earliest stage of puberty when puberty blockers are typically initiated. Accordingly, Dr. Millington does not explain how the population she refers to as "early in puberty" differs from the Tanner stage 2 participants already represented in the published literature.

23. The absence of direct studies of athletic performance in transgender youth should not be interpreted as requiring the Court to disregard established principles of exercise physiology. Although relatively few studies have directly examined athletic performance in transgender youth receiving puberty suppression, there is extensive evidence that greater body height, higher lean body mass, and greater muscle strength enhance athletic performance (GAB 2026 Report ¶¶ 14—2875). Likewise, the available research indicates that puberty suppression followed by estrogen therapy does not eliminate male advantages in body height, lean body mass, or muscle strength (GAB 2026 Report ¶¶ 276–288). Accordingly, these well-established physiological principles remain relevant when evaluating the likely athletic consequences of these interventions. Scientific conclusions are based on the totality of the available evidence, including established physiological principles, rather than on the existence or absence of a single category of study.

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

24. In ¶¶ 22–30, Dr. Millington discusses transgender individuals who begin hormone therapy after completing male puberty. In ¶22 she states, "However, just because they have gone through endogenous puberty does not guarantee that they will have athletic advantage over their cisgender peers." Although literally true, this statement addresses a question that is not relevant to the issue before the Court. No scientist would contend that every biological male will outperform every biological female. Athletic performance varies tremendously because of differences in genetics, talent, training, motivation, coaching, and countless other factors. The relevant scientific question is whether biological males, as a class, possess physiological advantages over similarly aged, trained, and talented females because of male development. The answer to that question is unequivocally yes, as documented extensively in my original report (GAB 2026 Report ¶¶ 14–275). A less talented or less well-trained male may certainly lose to a more talented or better-trained female athlete, but that observation does not negate the well-established biological performance advantages associated with male sex. Rather, it simply reflects normal variation in athletic ability within and between the sexes. This is explained in depth in my rebuttal to Dr. Goepferd in ¶¶ 54 – 73. Indeed, if the mere existence of less talented males were sufficient to justify inclusion in the female category, then virtually every sex-segregated sporting competition would become scientifically indefensible, since there are always males whose performance falls below that of elite female athletes. Yet no major sporting organization has ever used this reasoning to justify eliminating the female category. Indeed, Dr. Millington acknowledges this point in ¶ 31 when she states "Not all transgender individuals receive or desire medical interventions. For these individuals, their genetic and hormonal makeup remain similar to their designated sex than their gender identity."

25. In ¶¶ 25–30, Dr. Millington briefly reviews several studies examining the effects of testosterone suppression and estrogen administration in adult transgender women. She states that "transgender women receiving gender-affirming hormone therapy have testosterone levels that are similar to or lower than cisgender women." However, no citation is provided in support of this assertion. Moreover, this statement does not address the findings of Miro et al. (2024), which were discussed in my report (GAB Report 2026 ¶ 381). Miro et al. reported that approximately one in four transgender women did not maintain serum testosterone concentrations below 2.5 nmol/L, the maximum concentration permitted under the World Triathlon eligibility policy for participation in the female category. In addition, among the 261 transgender women included in the study by Miro, the mean serum testosterone concentration after 12 months of hormone therapy remained 3.39 nmol/L. By comparison, Handelsman (2018) reported a mean serum testosterone concentration of 1.69 nmol/L in women with polycystic ovary syndrome (PCOS), a condition characterized by elevated testosterone concentrations in biological females. Thus, the available evidence does not support the categorical assertion that transgender women receiving gender-affirming hormone therapy have testosterone concentrations that are similar to or lower than those of biological females. Rather, testosterone suppression produces highly variable results, and a substantial proportion of transgender women remain above the testosterone concentrations permitted under current international sporting regulations.

26. In ¶25, Dr. Millington cites Wiik et al. (2020), which reported modest reductions in muscle mass (approximately 7%) but no statistically significant reduction in thigh muscle

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

strength after one year of testosterone suppression (Brown 2026 Report ¶¶314, 331, 366, 396). However, she does not mention the five-year follow-up study by Lundberg et al. (2024), which followed the same cohort and found no further reductions in muscle size or muscle strength beyond those observed after the first year of treatment (Brown 2026 Report ¶¶332, 366). Consequently, the longer-term evidence from the same participants does not support the suggestion that continued hormone therapy progressively eliminates male strength advantages.

27. In ⁋ 25, Dr. Millington states "When height is taken into account, the difference in strength between cisgender and transgender women disappears" and cites Azevedo et al. 2022. I describe this paper in my report (Brown 2026 Report ⁋⁋ 314, 322, 358, 367)[1]. I also address the idea of statistically adjusting for body mass, body height or lean body mass in my report (Brown 2026 Report ⁋⁋ 376-378). In short, statistically adjusting for height or lean body mass does not demonstrate that male athletic advantages have disappeared. Rather, it removes from the analysis the very anatomical and physiological characteristics through which male sex confers athletic advantages. Height, skeletal dimensions, muscle mass, and limb length are not confounding variables; they are integral components of male athletic advantage.

28. It is noteworthy that Dr. Millington relies on Alvares et al. (2022) to support the inclusion of transgender girls in the female sports category. First, this study was not conducted in athletes. Earlier in her declaration, Dr. Millington argues that the absence of studies involving transgender youth athletes' limits conclusions regarding athletic advantage. However, as discussed previously in this report (¶¶ 22–24) and in my report (Brown 2026 Report¶¶ 276–288) there are published studies evaluating body height, lean body mass, and muscle strength in transgirls receiving puberty suppression and estrogen administration, despite those participants also not being athletes. The methodology is therefore comparable in that both bodies of research examine physiological characteristics relevant to athletic performance rather than athletic performance itself. Indeed, Alvares et al. acknowledge this limitation, stating, "This study also did not examine athletes, and thus our findings may not be applicable to populations that engage in regular intensive exercise" (at 7). Second, contrary to Dr. Millington's characterization, Alvares et al. found that transgender women who had received gender-affirming hormone therapy for 14.4 ± 3.5 years retained greater lean body mass, greater absolute handgrip strength, and higher absolute VO_2peak than comparable biological females. These physiological characteristics are well-established contributors to male athletic advantage and are therefore directly relevant to the question before the Court, and are discussed further in subsequent paragraphs of this report.

29. In ⁋ 26, Dr. Millington states, "Fat mass, which is increased by estrogen therapy, can decrease overall muscle strength." This statement oversimplifies the relationship between body composition and muscle function (Brown 2026 Report ⁋ 29, 31, 34-35, 100-105, 133-136). An increase in adipose tissue should not be confused with a reduction in the intrinsic force-generating capacity of skeletal muscle. These are distinct physiological phenomena. Simply increasing whole-body fat mass does not itself reduce the force-

[1] This study is cited as Alvares et al. (2022) throughout my report, consistent with the citation used by the journal and PubMed.

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

producing capacity of skeletal muscle, which has been demonstrated through increases or decreases in muscle strength even with no changes in body fat. However, excessive intramuscular fat infiltration (myosteatosis) may impair muscle quality. Dr. Millington does not seem to be referring to myosteatosis in her report. Rather, increased fat mass may reduce relative strength (strength expressed relative to body mass) or impair performance in activities requiring movement of one's own body mass (Comfort et al., 2023; Currier et al., 2026; Kuschel et al., 2022; Suchomel et al., 2018; Suchomel et al., 2016). Any reduction in absolute strength following gender-affirming hormone therapy is attributable primarily to changes in muscle mass and muscle quality associated with testosterone suppression, not to the accumulation of body fat itself (Brown 2026 Report ¶¶ 314-334, 351-378). Moreover, the available evidence demonstrates that transgender women generally retain greater absolute muscle mass and absolute muscle strength than biological females following testosterone suppression. Accordingly, an increase in fat mass should not be interpreted as evidence that the strength advantages associated with male development have been eliminated.

30. In ¶ 27, Dr. Millington states that "Another measure of cardiorespiratory fitness, VO_2peak, is also no different between transgender women and cisgender women when height and fat amount is taken into account" (citing Azevedo et al., 2022). This statement does not accurately describe the analyses performed by these authors. The authors did not statistically adjust VO_2peak for body height. Rather, they reported absolute VO_2peak as well as VO_2peak relative to body mass and fat-free mass. This distinction is important because body height is a major determinant of body size, limb length, lung size, and is a characteristic of male/female differences, whereas expressing VO_2peak relative to body mass or fat-free mass addresses an entirely different physiological question than relative to height or fat amount.

31. The effects of testosterone suppression on aerobic capacity are discussed in my report (GAB 2026 Report 314, 358-360)[2], where I summarize three studies demonstrating that transwomen retain greater absolute aerobic capacity than biological females following testosterone suppression. In the study by Alvares et al. (2022), the mean absolute VO_2peak of the transgender women was 2.61 ± 0.42 L·min^{-1} compared with 2.17 ± 0.41 L·min^{-1} in the cisgender women (at 3), representing an approximately 20% higher

[2] Throughout my report I use the term VO_2max rather than VO_2peak. Both measurements assess maximal aerobic capacity and are commonly used as indices of cardiorespiratory fitness. The distinction is methodological rather than physiological. VO_2max is used when the highest measured oxygen uptake is accompanied by accepted indicators of maximal exercise effort (e.g., heart rate consistent with maximal effort, respiratory exchange ratio ≥ 1.10, blood lactate concentration ≥ 10 mmol·L^{-1}, or a plateau in oxygen uptake despite increasing workload). When these criteria are not satisfied or are not assessed, the highest measured oxygen uptake is typically reported as VO_2peak. Although the terms should not be used interchangeably in the context of exercise testing methodology, both reflect maximal aerobic capacity and are relevant to the discussion of athletic performance.

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

absolute aerobic capacity in the transgender women. This greater absolute aerobic capacity translates into a greater capacity to perform aerobic work, which contributes to performance in endurance sports such as running, cycling, rowing, canoeing, speed skating, and cross-country skiing. Greater absolute VO_2peak is one of the principal physiological reasons males outperform females in endurance sports.

32. Alvares et al. further reported that differences in VO_2peak were no longer statistically significant between transwomen and females after expressing VO_2peak relative to body mass or fat-free mass. This is materially different from Dr. Millington's statement that VO_2peak was adjusted for "fat amount." Accordingly, Dr. Millington's description of Alvares et al. is inaccurate in two respects. First, the analyses were not adjusted for body height. Second, the authors expressed VO_2peak relative to fat-free mass, not "fat amount." Although these differences may appear minor to a non-exercise physiologist, they represent materially different physiological analyses and should not be used interchangeably.

33. As discussed previously with respect to muscle strength (GAB 2026 Report 376-378), statistically adjusting physiological outcomes for body size or lean body mass removes characteristics that are themselves important components of the male athletic advantage. The same principle applies to aerobic capacity. Expressing VO_2peak relative to body mass or lean body mass does not demonstrate that biological males and females are athletically equivalent. Rather, it mathematically removes from the analysis physiological characteristics, including body size and lean muscle mass, that are themselves important contributors to the male athletic advantage. Athletic competitions are determined by the absolute mechanical work and power an athlete can generate, not by oxygen uptake expressed per kilogram of lean tissue. Consequently, these statistical adjustments answer a physiological question regarding aerobic capacity relative to body composition, but they do not establish equivalence in athletic performance. This same methodological issue underlies Dr. Millington's subsequent statement in ¶ 27 that "When differences in height and fat mass are taken into account, there is no difference in muscle strength and cardiorespiratory capacity between transgender and cisgender women."

34. In ¶ 26, Dr. Millington states that transgender women receiving gender-affirming hormone therapy have muscle strength "corrected for the amount of fat in their muscles" that is no different from cisgender women, citing Cheung et al. (2024). However, this is not what Cheung et al. reported. Rather, Cheung et al. state that muscle strength corrected for lean mass was no different between transgender women and cisgender women while simultaneously acknowledging that transgender women retain greater absolute lean muscle mass following hormone therapy. Statistical adjustment for lean mass does not demonstrate that athletic advantages have been eliminated. Instead, it removes from the analysis one of the very physiological characteristics through which male puberty confers athletic advantage. Athletic competitions are not determined by the force generated per kilogram of lean tissue. Rather, they are determined by the absolute force, power, speed, endurance, and technical skill that an athlete can produce. Thus, correcting for lean mass may answer a physiological question regarding muscle quality, but it does not establish athletic equivalence between transgender women and biological females. It should be noted that Cheung et al. is a review article rather than a primary research study and relies on previously published investigations, including Roberts et al.

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

(2020) and Chicarelli et al. (2023), both of which are discussed in detail in my report (GAB Report ¶¶ 314, 327-330, 335-336, 353, 395, 400, 407). and in my rebuttal of Dr. Goepferd (¶84, 86, 90), and in a subsequent paragraph in this report. Briefly stated, both Roberts and Chiccarelli found that after 2-4 years of testosterone suppression in male US Air Force personnel they still exhibited greater muscle strength and running speed than their female peers.

35. In ¶27, Dr. Millington cites Greene et al. (2022) in support of the assertion that markers of cardiac size are similar between transgender women receiving gender-affirming hormone therapy and cisgender women. However, Greene et al. did not measure cardiac size, ventricular volume, myocardial function, or other physiological determinants of athletic performance. Rather, the study measured circulating concentrations of high-sensitivity cardiac troponin (hs-cTn) and N-terminal pro–brain natriuretic peptide (NT-proBNP), biomarkers commonly used in the evaluation of myocardial injury and cardiac wall stress. Indeed, the authors specifically noted that future studies incorporating direct measurements of cardiac size are needed. Accordingly, Greene et al. do not support Dr. Millington's statement that cardiac size is similar between transgender women and biological females.

36. In ¶ 26, Dr. Millington cites Roberts et al., 2021 to support the claim that testosterone suppression eliminates male athletic advantage. However, as detailed in my report (GAB 2026 Report ¶¶ 327-328, 335), the findings of Roberts et al. demonstrate the opposite. Transwomen retained significant performance advantages even after two years of hormone therapy. At baseline, transwomen performed 45% more push-ups, 17% more sit-ups, and ran 1.5 miles 21% faster than females during U.S. Air Force physical fitness testing; after two years of testosterone suppression, they still performed 6% more push-ups, 8% more sit-ups, and completed the 1.5-mile run 12% faster. Importantly, Roberts noted that "...transwomen weigh more than CW [cis-women]... Therefore, our study may underestimate the advantage in strength that transwomen have over CW." In practical terms, this means that transwomen were moving more mass per repetition, indicating greater absolute strength, even when performance counts were similar. Such retained strength advantages translate directly to enhanced athletic performance, particularly in power-dependent events like throwing. As noted in my report (GAB 2026 Report ¶42, citing Handelsman, 2024), even a 1% retained performance advantage may substantially influence competitive outcomes in sport. The residual advantages reported by Roberts et al. substantially exceed this threshold.

37. In ¶26, Dr. Millington states that estrogen therapy reduces hemoglobin concentrations, citing Nolan & Cheung (2025). More precisely, reductions in hemoglobin following gender-affirming hormone therapy are primarily attributable to suppression of testosterone rather than the administration of estrogen itself. As discussed in my report, testosterone stimulates erythropoiesis through multiple physiological mechanisms, resulting in higher hemoglobin concentrations in males than females. Consequently, suppression of testosterone is expected to reduce hemoglobin concentrations toward the female reference range (GAB 2026 Report ¶¶ 360-361). Although reductions in hemoglobin may diminish aerobic capacity, hemoglobin represents only one of many physiological determinants of endurance performance and does not eliminate the numerous other anatomical and physiological advantages resulting from male

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

development.

38. As discussed in my report, the published literature regarding hemoglobin changes following testosterone suppression is generally consistent with modest reductions in hemoglobin concentration, but the available evidence remains limited. Harper et al. (2021) reviewed nine studies reporting hemoglobin or hematocrit concentrations before and after testosterone suppression in transgender women. Eight studies reported decreases ranging from 4.6% to 14.0%, whereas one found no statistically significant change. However, as noted in my report, only one of those eight studies reported results meeting the conventional 95% confidence threshold (Harper 2021; GAB 2026 Report ¶ 361). Thus, while testosterone suppression generally lowers hemoglobin concentrations, the available evidence does not demonstrate that this change alone eliminates the athletic advantages associated with male development.

39. Finally, neither of the references cited by Dr. Millington supports the broader conclusion that transgender women become athletically equivalent to biological females. Nolan & Cheung (2025) is a review of laboratory parameters with sex-specific reference ranges, focusing on hemoglobin, hematocrit, renal function, cardiac biomarkers, and prostate-specific antigen. It does not evaluate physical fitness, exercise performance, or competitive athletic outcomes. Likewise, Mairbäurl et al. (2013), which Dr. Millington cites to explain the physiological role of hemoglobin in oxygen transport, does not examine transgender individuals or the effects of testosterone suppression on athletic performance. Accordingly, while these publications provide useful information regarding laboratory physiology, they do not constitute evidence that gender-affirming hormone therapy eliminates male athletic advantages.

40. Collectively, the studies cited by Dr. Millington do not support the conclusion that gender-affirming hormone therapy eliminates the physiological advantages associated with male development. Rather, the available evidence consistently demonstrates that testosterone suppression produces only modest reductions in muscle mass, variable effects on muscle strength, decreases in hemoglobin, and little or no change in skeletal dimensions or body height. Moreover, most published studies have been conducted in relatively small cohorts of non-athletic adults and have evaluated physiological characteristics rather than actual sports performance. When considered alongside the broader body of evidence summarized in my original report (GAB 2026 Report ¶¶ 310–389), the current scientific literature does not support the conclusion that transgender women become physiologically or athletically equivalent to biological females following hormone therapy.

41. In ⁋ 30 Dr. Millington correctly observes that transwomen are likely to have taller body height than comparable biological females, and that some biological females are taller than others. However, this does not undermine the biological basis for separate male and female athletic categories. As Landén (2026) explains, physical traits such as height vary continuously within each sex and overlap between the sexes, but "an unusually tall and aggressive woman is not thereby intermediate between the sexes. She remains unequivocally female." (at 1) Rather, she simply occupies the upper end of the normal distribution of height within the female sex. Likewise, a shorter-than-average male remains biologically male. The relevant scientific question is therefore not whether a

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

single characteristic such as height occurs in both sexes, but whether males retain the constellation of physiological characteristics associated with male development that collectively influence athletic performance.

42. In ¶31, Dr. Millington acknowledges that "Not all transgender individuals receive or desire medical interventions. For these individuals, their genetic and hormonal makeup remain similar to their designated sex than their gender identity." I agree with this statement, as does the research cited throughout my report. It recognizes that transgender identity, with or without hormonal interventions, does not alter an individual's underlying biological sex. Accordingly, transgirls and transwomen who have not undergone medical intervention remain biologically and physiologically indistinguishable from other biological males with respect to the characteristics relevant to athletic performance. Those who undergo medical intervention remain male and may experience reductions in athletic performance that do not entirely erase the differences between males and females. Therefore, the scientifically appropriate category for transgirls and transwomen is the male category. This conclusion is consistent with the eligibility policies adopted by numerous international sports governing bodies, including (but not limited to) World Athletics, the International Olympic Committee, World Boxing, and the Women's Tennis Association, all of which base eligibility for the female category on biological sex rather than gender identity. It recognizes that when males identity as girls or women it does not alter an individual's genetics, endocrine physiology, musculoskeletal development, or other biological characteristics relevant to athletic performance.

D. Other Factors Apart From Gender That Impact Sport Performance

43. In ¶¶ 32–37, Dr. Millington discusses what she describes as "Factors Apart From Gender That Impact Sport Performance." Because the issue before the Court concerns biological sex rather than gender identity, I understand this section to refer to factors other than biological sex that influence athletic performance. She identifies the age of pubertal onset, body height, other endocrine factors including growth hormone and thyroid hormones, genetic variation, and individual talent as contributors to athletic success. I do not dispute that each of these factors can influence athletic performance. Indeed, many are discussed in my report. However, the existence of multiple influences on athletic performance does not diminish the importance of biological sex as the principal biological determinant underlying the anatomical and physiological characteristics that influence athletic performance.

44. Moreover, several of the factors identified by Dr. Millington are themselves closely related to biological sex rather than independent of it. For example, body height, the timing and effects of puberty, endocrine function, lean body mass, and muscle strength are all influenced by the presence or absence of male testosterone exposure. Likewise, the genetic differences between males and females extend well beyond isolated DNA polymorphisms. As discussed in my report (GAB 2026 Report ¶¶ 11–12), Skaletsky et al. (2003) observed that "the common substitution of the Y chromosome for the second X chromosome dwarfs all other DNA polymorphism in the human genome." Thus, comparing naturally occurring genetic variation within the population to the biological differences associated with sex is a false equivalence. The genetic and physiological effects of biological sex are substantially greater than those associated with ordinary

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

genetic polymorphisms and give rise to the systematic differences in athletic performance that justify separate male and female competitive categories. More importantly, these examples are not analogous to biological sex as a basis for athletic classification. Organized sport has long recognized that many biological differences influence performance and has developed classification systems to address those differences where practical. Youth sports are commonly divided by age because chronological age is an objective characteristic that substantially influences physical development. Likewise, weight classes are used in sports such as wrestling, boxing, and weightlifting because body mass directly affects competitive fairness. Importantly, no classification system completely eliminates individual variation within a category. Athletes within the same age group or weight class differ in height, strength, talent, training, and countless other characteristics. The existence of this normal within-category variation is not viewed as a reason to abandon age or weight classifications. Rather, it reflects the practical reality that athletic classifications are designed to group competitors with broadly comparable biological characteristics, not to eliminate every possible competitive advantage. The same principle applies to biological sex. Separate male and female categories recognize the large, systematic physiological differences between the sexes while accepting the normal variation that exists within each sex.

45. The purpose of athletic classification is not to identify the single best athlete irrespective of biological differences, but rather to identify the best athlete within a defined competitive category. Accordingly, sports crown champions in age groups, weight classes, disability classifications, and the male and female categories, in celebration of the natural variation that exists among competitors within each category (Pike, 2023). Athletic performance is multifactorial. Within any age, weight, or sex category, athletes possess different combinations of body size, limb length, muscle mass, aerobic capacity, neuromuscular coordination, psychological attributes, and technical skill. These factors often balance one another, such that an advantage in one physiological characteristic may be offset by another athlete's advantage in a different characteristic. Competition is intended to determine which athlete performs best within that broadly comparable group, not to eliminate every individual difference. Biological sex is fundamentally different because it influences many of these performance determinants simultaneously. It is therefore not simply one variable among many, but a principal biological determinant of the constellation of physiological characteristics that separate male and female athletic performance

46. Dr. Millington also notes that the onset and timing of puberty vary among individuals. This is correct and has long been recognized in sports science. The relative age effect and differences in biological maturation can influence youth athletic development, selection to elite teams, and competitive success (Cobley et al. 2009). Nevertheless, these normal developmental variations occur within each sex and have never been regarded as a reason to abandon sex-based competition. Although some differences in maturation may temporarily advantage one athlete over another, no serious proposal has suggested classifying athletes according to Tanner stage, circulating growth hormone concentrations, thyroid hormone concentrations, or other endocrine variables. Such biological variation is accepted as part of competition within the male and female categories. The existence of these within-sex differences does not diminish the much larger and well-established physiological differences that exist between the sexes

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

following male puberty.

47. Accordingly, I disagree with any implication that because athletic performance is multifactorial, biological sex should be viewed as merely one factor among many. Height, genetics, talent, coaching, motivation, nutrition, and countless other variables contribute to athletic success, but none of these characteristics create two biologically distinct populations with predictable and substantial differences in physical performance across virtually every sport. Biological sex does. The female category exists not because sex is the only determinant of athletic performance, but because it is the biological characteristic that consistently produces the largest and most systematic performance differences relevant to fair athletic competition. The other factors that influence performance (height, lean body mass, cardiovascular function, and so forth) exist on a continuum within each sex, whereas sex itself creates a categorical divide. A tall woman and a short woman differ in height, but both fall within the female physiological range for skeletal muscle fiber type, cardiorespiratory capacity, body composition, etc. No amount of coaching or nutrition closes the gap caused by sex. As stated in my report, the performance gap between elite adult male and female athletes ranges from approximately 10-65% (Brown 2026 Report ⁋⁋ 20-81) depending on the sport, with the gap widening in events that rely more heavily on explosive power and muscle strength. This gap dwarfs the variation produced by any other single factor. A tall cisgender woman's height exists within female population variation. A transgender woman's height is the product of male developmental biology—typically accompanied by male skeletal proportions (broader shoulders, longer limbs relative to trunk, larger hands and feet), greater bone density, and larger lung capacity and heart size. Height in a male-developed body carries a cluster of co-occurring structural advantages that height in a female body does not. Comparing one isolated trait (height) while ignoring the package of male-typical traits is misleading.

Benefits of Sports Participation for Transgender Youth

48. In ¶¶ 38–49, Dr. Millington discusses the physical, psychological, and social benefits of sports participation for transgender youth, including improvements in mental health, cardiovascular health, bone health, and cognitive development. I do not dispute that regular physical activity and participation in sport provide important health benefits for young people. As discussed in my rebuttal to Dr. Goepferd (¶¶ 47–50, 101-103) and Dr. McQuillan (¶¶ 114–115, 142), these benefits apply broadly to children and adolescents regardless of whether they identify as transgender. However, the existence of these benefits does not address the scientific question before the Court, namely whether biological males possess physiological advantages that justify maintaining a protected female category in sport. The health benefits of physical activity can be realized through participation in many different athletic opportunities and do not depend upon eligibility for a particular sex-based competitive category.

49. Competitive sport necessarily involves selection and exclusion. Team rosters are limited, medals are awarded only to top finishers, and advancement often depends upon outperforming other competitors. Every opportunity awarded to one athlete is necessarily unavailable to another. For this reason, eligibility rules are designed to promote fair competition among athletes within a given category. In my opinion, permitting biological males to compete in the female category despite retained physiological advantages

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

undermines the fairness that sex-based classification is intended to protect. Although participation in sport provides important health benefits to all youth, those benefits do not justify competitive policies that disadvantage the very female athletes for whom the protected category was created.

50. Importantly, maintaining eligibility for the female category based on biological sex does not prohibit biological males who identify as girls or women from participating in sport or from obtaining the many physical, psychological, and social benefits associated with physical activity. They remain free to participate in sports offered in the male or open category, in coeducational sports where available, and in the countless forms of recreational and competitive physical activity available outside the protected female category. The question before the Court is therefore not whether transgender-identifying youth should be permitted to participate in sport, but whether participation in the female competitive category should occur in a manner that preserves the fairness the category was created to provide.

Applicability of Research to Transgender Youth in Sport

51. In ¶¶ 55–59, Dr. Millington correctly observes that there is limited direct research examining the athletic performance of transgender children who undergo puberty suppression followed by gender-affirming hormone therapy. However, she then appears to suggest that this lack of evidence supports allowing transgirls (i.e., biological males who identify as girls) to compete in the female category. In my opinion, the absence of direct evidence demonstrating an athletic advantage should not be interpreted as evidence that no such advantage exists. Rather, where direct evidence is limited, scientific conclusions should be guided by the broader body of relevant biological and physiological evidence.

52. As discussed extensively in my report and in my rebuttal to Dr. Goepferd (¶¶ 54-73), the available evidence consistently demonstrates that biological males outperform biological females in numerous measures of athletic performance before the onset of puberty, including running, jumping, throwing, swimming, and measures of muscular strength (GAB Report ¶¶ 169–275). Furthermore, there is no evidence that transgirls differ anatomically or physiologically from other biological males prior to medical intervention. Accordingly, in the absence of direct studies of transgender youth, the scientifically appropriate comparison is between biological males and biological females of similar age. The available evidence further demonstrates that puberty suppression and subsequent estrogen administration do not eliminate male advantages in body height, lean body mass, or muscle strength (GAB 2026 Report ¶¶ 276–288). Consequently, the current scientific literature does not provide an evidentiary basis for concluding that transgender girls who undergo these interventions become athletically equivalent to biological females. There is no scientific evidence that a male child who identifies as a girl possesses different musculoskeletal, cardiovascular, or neuromuscular characteristics than other biological males solely because of that gender identity. Therefore, in the absence of evidence demonstrating otherwise, biological males represent the appropriate comparator group for evaluating the effects of subsequent hormonal intervention. From a scientific perspective, the appropriate conclusion is that the athletic performance of transgirls receiving puberty suppression and opposite sex hormones has not yet been

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

adequately studied. That uncertainty does not justify assuming athletic equivalence between transgirls and females, when there is copious evidence demonstrating that males have inherent biologically based athletic advantages at all ages. Instead, policy decisions should be informed by the best available evidence, including the extensive literature documenting biological sex differences in athletic performance and the known physiological effects of male development. In my opinion, the current state of the evidence does not support the conclusion that transgender girls should be presumed to have no athletic advantage over biological females.

Response to Plaintiffs' Motion for Preliminary Injunction

53. In ¶¶ 60-71, Dr. Millington largely summarizes opinions and arguments presented earlier within her declaration. These include her opinions regarding the lack of evidence of athletic advantage in transgender youth, the health benefits of sports participation, the psychosocial effects of exclusionary policies, and the role of testosterone in athletic performance. My responses to these issues are set forth above and are not repeated here.

54. Dr. Millington additionally suggests that residual physiological characteristics associated with male development may be advantageous in some sports but disadvantageous in others, citing wrestling as an example in which greater height may increase an athlete's center of gravity. While individual anatomical characteristics may confer advantages or disadvantages depending on the sport or specific event, this observation does not negate the substantial body of evidence demonstrating that biological males retain numerous physiological advantages relevant to wrestling and other strength- and power-dependent sports following male puberty. These include greater lean body mass, absolute muscle strength, grip strength, power production, and skeletal dimensions, all of which have been shown to contribute to wrestling performance. Focusing on a single potential disadvantage, such as center of gravity, does not provide a scientifically balanced assessment of the overall physiological advantages associated with male development (Brown 2026 Report ⁋ 379-383).

55. Furthermore, accepting this line of reasoning would undermine the rationale for virtually all sex-based athletic classification. Every athlete possesses a unique combination of characteristics that may be advantageous in some circumstances and disadvantageous in others. A taller wrestler may have a higher center of gravity but also greater reach and leverage. A shorter wrestler may benefit from a lower center of gravity but has shorter limbs and less reach. Similarly, athletes differ in body mass, lean body mass, muscle strength, aerobic capacity, flexibility, and countless other characteristics that influence performance. Organized sport has never attempted to create competitive categories based on every physiological variable that affects athletic success. Rather, it recognizes that biological sex is unique in producing large, predictable, and systematic differences in athletic performance across virtually every sport. The existence of sport-specific advantages and disadvantages among individuals does not diminish the scientific rationale for maintaining separate male and female categories.

56. It is also worth noting that Dr. Millington's discussion in ¶63 of an IOC testosterone threshold of 5 nmol/L is outdated and inaccurate. Under the IOC's 2015 eligibility guidelines, transgender women were required to maintain serum testosterone

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

concentrations below 10 nmol/L, not 5 nmol/L. The IOC's 2021 Framework on Fairness, Inclusion and Non-Discrimination on the Basis of Gender Identity and Sex Variations did not establish a universal testosterone threshold; instead, it delegated responsibility for developing sport-specific eligibility criteria to individual international federations. More recently, on March 26, 2026, the IOC adopted a new Policy on the Protection of the Female (Women's) Category in Olympic Sport, under which eligibility for the female category is determined through screening for the presence of the SRY gene rather than by maintaining testosterone below a specified concentration (GAB 2026 Report ¶¶462–465). Accordingly, Dr. Millington's reliance on a 5 nmol/L IOC threshold does not accurately describe either the IOC's prior or current eligibility policies.

Summary

57. Dr. Millington's declaration correctly recognizes that testosterone is an important determinant of athletic performance and that athletic ability is influenced by numerous biological and environmental factors. But she is wrong in claiming that the available scientific evidence supports the conclusion that transgirls and transwomen become athletically equivalent to biological females following puberty suppression or gender-affirming hormone therapy. Her declaration does not address the extensive body of literature documenting measurable male advantages in athletic performance before puberty, the evidence demonstrating that testosterone suppression does not eliminate male advantages in body height, lean body mass, muscle strength, and other physiological characteristics relevant to sport, or the multiple government-commissioned evidence reviews concluding that the evidence supporting hormonal interventions in minors is of low or very low certainty. Moreover, several of the studies she cites do not support the conclusions she attributes to them, and much of the literature she relies upon evaluates physiological surrogate measures in relatively small cohorts of non-athletic adults rather than actual athletic performance.

58. In my opinion, the totality of the available scientific evidence continues to support the conclusion that biological sex is the primary physiological determinant underlying the need for separate male and female athletic categories. The existence of individual variation in talent, body size, training, or hormone concentrations does not diminish the well-established and systematic performance advantages associated with male development. Likewise, the absence of direct studies involving transgender youth should not be interpreted as evidence that biological males who identify as girls possess no athletic advantage over biological females. Rather, the best available evidence supports comparing biological males and females, together with the documented effects of hormonal intervention, when evaluating the fairness of participation in sex-segregated sport. Accordingly, I disagree with Dr. Millington's opinion that the current scientific evidence does not support maintaining eligibility for the female category on the basis of biological sex.

Bibliography of sources cited in this rebuttal, that are not cited in my expert report:

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

Cobley S, Baker J, Wattie N, McKenna J. Annual age-grouping and athlete development: a meta-analytical review of relative age effects in sport. Sports Med. 2009;39(3):235-56. doi: 10.2165/00007256-200939030-00005

Court of Arbitration for Sport. (2019). CAS 2018/O/5794 Mokgadi Caster Semenya v. International Association of Athletics Federations. Lausanne, Switzerland. Retrieved July 25, 2025, from https://www.tas-cas.org/fileadmin/user_upload/CAS_Award_-_redacted_-_Semenya_ASA_IAAF.pdf Last Accessed June 9, 2026

Currier, B. S., D'Souza, A. C., Singh, M. A. F., Lowisz, C. V., Rawson, E. S., Schoenfeld, B. J., Smith-Ryan, A. E., Steen, J. P., Thomas, G. A., Triplett, N. T., Washington, T. A., Werner, T. J., & Phillips, S. M. (2026). American College of Sports Medicine Position Stand. Resistance Training Prescription for Muscle Function, Hypertrophy, and Physical Performance in Healthy Adults: An Overview of Reviews. Med Sci Sports Exerc, 58(4), 851-872. https://doi.org/10.1249/MSS.0000000000003897

Janicke, T., Arnqvist, G., Crochet, P. A., David, P., Jarne, P., Lehtonen, J., Lenormand, T., Morrow, E. H., Parker, G. A., Saunders, P. A., Tonnabel, J., Veyrunes, F., & Haag, C. R. (2026). Biological Sex Is Binary and Rooted in Anisogamy. *Ecol Lett*, *29*(7), e70426. https://doi.org/10.1111/ele.70426

Kuschel, L. B., Sonnenburg, D., & Engel, T. (2022). Factors of Muscle Quality and Determinants of Muscle Strength: A Systematic Literature Review. Healthcare (Basel), 10(10). https://doi.org/10.3390/healthcare10101937

Landen, M. (2026). Sex, Gender and Gender Identity: A Case for Conceptual Clarity. *Acta Paediatr*. https://doi.org/10.1111/apa.70686 Comfort, P., Haff, G. G., Suchomel, T. J., Soriano, M. A., Pierce, K. C., Hornsby, W. G., Haff, E. E., Sommerfield, L. M., Chavda, S., Morris, S. J., Fry, A. C., & Stone, M. H. (2023). National Strength and Conditioning Association Position Statement on Weightlifting for Sports Performance. J Strength Cond Res, 37(6), 1163-1190. https://doi.org/10.1519/JSC.0000000000004476

Pike, J. (2023). Why 'Meaningful Competition' is not fair competition. *J Phil Sport*, *50*(1), 1-17.

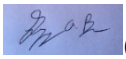
Suchomel, T. J., Nimphius, S., Bellon, C. R., & Stone, M. H. (2018). The Importance of Muscular Strength: Training Considerations. Sports Med, 48(4), 765-785. https://doi.org/10.1007/s40279-018-0862-z

Suchomel, T. J., Nimphius, S., & Stone, M. H. (2016). The Importance of Muscular Strength in Athletic Performance. Sports Med, 46(10), 1419-1449. https://doi.org/10.1007/s40279-016-0486-0

Women's Tennis Association. WTA's Women's Eligibility policy. June 20, 2026. https://wtafiles.blob.core.windows.net/pdf/publications/Women's%20Eligibility%20Policy%20w%20Exec%20Summary%20for%20Website%20(Final).pdf last Accessed August 2, 2026.

I swear or affirm under penalty of perjury of the laws of the United States that the foregoing is true and correct.

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020

 (signed electronically)

Gregory A. Brown, Ph.D., FACSM

Professor of Exercise Science, University of Nebraska Kearney

August 7, 2026

Alliance Defending Freedom
15100 N. 90th Street
Scottsdale, Arizona 85260
(480) 444-0020