Scandinavian Journal of Medicine & Science in Sports

WILEY

EDITORIAL

Fair and Safe Eligibility Criteria for Women's Sport

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Received: 9 August 2024 | **Accepted:** 10 August 2024

Funding: The authors received no specific funding for this work.

The Paris 2024 Olympic boxing competition, featuring athletes with alleged male advantages in the female category, has reinvigorated controversy about eligibility criteria for women's sport. Recently, in this journal [1], we explained how endogenous testosterone production during male development leads to performance advantages arising from well-established sex-based differences in body size, muscle mass, endurance, speed, strength, and power. These physical advantages are so large that they necessitate a separate and protected female category that excludes male advantage to ensure fair and safe competition for female athletes. The unfortunate developments in the 2024 Olympic Games compel these matters to be revisited.

During press conferences at the 2024 Olympic Games, the International Olympic Committee (IOC) invited solutions to address eligibility for women's sport. We take this opportunity to propose our solution, which includes: (a) recognizing that female sport that excludes all male advantage is necessary for female inclusion; (b) recognizing that exclusion from female sport should be based on the presence of any male development, rather than current testosterone levels, (c) not privileging legal "passport" sex or gender identity for inclusion into female sport; and (d) accepting that sport must have means of testing eligibility to fulfill the category purpose.

Historically, administering sex-based eligibility testing has been controversial, mainly due to failures in protecting athlete consent, dignity, and confidentiality [2]. As early as the 1950s, eligibility was based on visual inspection of entrants into women's sport. In 1968, these "nude parades" were replaced by more discreet molecular methods including sex chromosome screening, and later by the more specific and sensitive test for the presence of Y chromosome genetic material [3]. However, mandatory sex verification was abolished in 1999. Among concerns at the time was the risk that sport would discover that entrants in female events had an XY difference of sex development (DSD), and that the potential for traumatization and stigmatization of these athletes [3] was not justified, given the prevailing understanding that such athletes are not advantaged in the female category.

Today, 25 years later, there is ample evidence that biological sex is a crucial differentiator in ensuring fairness and influencing safety for female athletes [1]. The participation of male-born competitors (e.g., transgender women) and athletes with certain XY DSDs in female sport is a growing concern. These athletes experience male-typical development from testes producing testosterone, with resultant physiological differences creating athletic advantages and safety risks [4–6], even in athletes with XY DSDs who might have been observed as female at birth.

The ethical failures of sports federations in the past cannot be allowed to obstruct accessible solutions to such an important issue in women's sport. The ethical framework that governs modern genetic testing is thorough and, importantly to overcome the shortcomings of the past, it emphasizes individual consent, confidentiality, and dignity. Current technology enables a screening procedure for "sports sex" that involves a simple cheek swab to determine sex chromosomes. This screen can be performed reliably and quickly and should be done in duplicate to ensure reliable results.

The results of this sex chromosome screening should be used to indicate the need for follow-up tests as part of standard medical care, including counseling and psychological support as part of

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the ongoing duty of care to the athlete. This will permit greater understanding of a potential medical condition, but also allow for an evidence-based assessment of male advantage in sport [5]. However, to preserve confidentiality and dignity, athletes must be screened early—perhaps when they first register in the female category in an affiliated competition and before they are thrust into the global spotlight. This would prevent the individual targeting and unsolicited public scrutiny that has occurred numerous times, most recently in the 2024 Olympic Games. An early, cohort-wide approach that treats all participants equally is overwhelmingly preferable to the current approach that invites targeted testing based on allegation, suspicion, subjective assessment, and bias. Despite the potential for unexpected outcomes, a survey of female athletes after the Atlanta 1996 Olympics revealed that 82% supported sex testing, with only 6% reporting discomfort about the test protocol [3]. Nearly three decades later, we should revisit and respect the female athlete's voice.

It is crucial that sports federations in sex-affected sports are empowered to protect female athletes and ensure fair competition. At least one major international federation (World Aquatics) is explicit in that the eligibility criteria include genetic sex screening, and more federations should consider this addition to eligibility criteria. Rather than "policing female bodies," screening followed by comprehensive follow-up in the rare cases that require extra consideration, with emphasis on the duty of care to every athlete, will ensure preservation of the female category for fair and safe sport.

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Ethics Statement

The authors have nothing to report.

Conflicts of Interest

The authors would like to make a joint conflict of interest statement in which we declare the following: Several authors have received payment to provide expert testimony related to this topic. Several authors have received payment for their consultancy work with sports organizations and/or companies. Several authors have received travel and accommodation expenses for speaking engagements related to this topic. Several authors have spoken in the mainstream media on this topic. Three authors (E.N.H., C.D., and J.P.) are unpaid advisors to advocacy organizations.

Data Availability Statement

The authors have nothing to report.

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