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In advance of the 2025 World Athletics Championships in Tokyo, World Athletics (WA) announced that passing a genetic test, specifically for the absence of the *SRY* gene, is a prerequisite for competing in the women's category in all athletics World Rankings Competitions as of September 1, 2025 [Supplementary Table 1]. Athletes who do not pass the test will be considered "biological males" and required to prove that they have complete androgen insensitivity syndrome (CAIS) in order to compete. This requirement recycles an intentionally discontinued practice from the last century. After ending the discredited chromosome (Barr body) tests that had been used since the 1960s, the International Olympic Committee (IOC) briefly used *SRY* gene tests from 1992-1999[1] before they were also withdrawn because of inaccuracy, lack of evidence of performance advantage, excessive cost including the cost of counselling, and the trauma and stigmatisation experienced by athletes and their families.

The initial purpose of the testing was to expose men masquerading as women, though muscular female athletes have always been a source of concern for sport leaders.[2] Only later did the scope broaden to include athletes with a Difference of Sex Development (DSD).[1] Effective September 1st 2025, WA has merged its regulations for DSD and transgender athletes and re-introduced widespread genetic testing for all women's World Ranking Competitions. This, we argue, is a backward step, unsupported by scientific data, and harmful to all women athletes including those with a DSD.

People with DSDs possess one or more of numerous rare genetic characteristics,[3] causing wide variability in pubertal physical development between and within different DSDs, some of which could be relevant to sport performance. However, there are no scientific data of acceptable quality regarding sport performance advantage of people with DSDs possessing an *SRY* gene. Evidence regarding their athletic performance is extremely limited and problematic. Two articles regarding athletes with DSDs authored and repeatedly cited by WA as justification for their regulations in recent years and submitted as scientific evidence to the Court of Arbitration for Sport (CAS) in the case of Caster Semenya are summarised in Table 1, where we highlight their methodological problems including conflicts of interest. No primary independent evidence base demonstrating athletic performance advantage exists to justify testing and regulating the genetic sex characteristics of an entire population of competitors.[4]

Table 1. Two articles regarding athletes with DSDs repeatedly cited by WA with serious methodological problems

Publication	Main result/claim	Methodological problems
Bermon et al. (2014)[5]	“Prevalence of hyperandrogenic 46 XY DSD in our athletic population is approximately 7 per 1000, which is 140 times higher than expected in the general population”	Author conflict of interest: several authors affiliated to WA and study funded by WA. Method: “140 times higher” was calculated using a denominator of 46,XY DSD prevalence in non-athletes of 1 in 20,000 but the study did not assess DSD prevalence in non-athletes, globally or otherwise; a cited paper estimates prevalence in the then European Community but itself provides no source of the estimate.
Bermon (2017)[6]	“reducing T level from the normal male range to the normal female range led to an average decrease of their best chronometric performance of 5.7% over a 2-year period”	Author conflict of interest: author has longstanding affiliation with WA. Publication is a review but contains data and results with the following problems regarding their validity: sample size inadequate (N=3); no method section or statistical analysis; no control group nor assessment or control of confounding factors like training, diet, and side effects of hormone administration. Data obtained from doping samples without valid informed consent. Complaints to data protection regulators about the unlawful processing of personal data by WA are ongoing.

WA implies that genetic tests are straightforward, “easy to administer”, preserve “dignity and privacy” and maintain confidentiality [Supplementary Table 1]. These ostensibly reassuring words ignore the practical challenges, legal constraints, and huge ethical problems of implementing such tests across 214 Member Federations. We highlight five such problems here.

First, informed voluntary consent is ethically (and usually legally) required to conduct genetic testing and to process sensitive personal data arising from such testing.[7] There are no published procedures for obtaining valid consent in the WA regulations. Athletes do not have a genuine free choice because, as highlighted recently by the European Court of Human Rights regarding the previous DSD Regulations at the centre of the Semenya case, consent under the regulations cannot be free because of the coercive context: take the test or do not compete.[8]

Second, *SRY* testing as proposed should be considered a medical examination, in which the results obtained could lead to medical consequences. Hence, for *informed* consent, athletes must have access to appropriate genetic counselling, as required by various laws, to understand the potential consequences of receiving genetic test results prior to consenting. Life-changing medical information should not be revealed to anyone without appropriate counselling,[9] yet the WA regulations make no provision for athletes to access suitably trained counsellors prior to testing.

Third, it will not be possible for WA or national Member Federations to respect an athlete’s right to privacy by keeping genetic test results confidential as they are linked to an athlete’s eligibility to compete in women’s World Ranking Competitions. Accordingly, in the case of an elite athlete who is suddenly ineligible for a World Ranking Competition, an attentive observer will be able to infer that the athlete has the *SRY* gene and was unable to prove that they have CAIS.

Fourth, the WA regulations apply to all World Rankings Competitions, which include international age group competitions as well as national and regional child age group competitions [Supplementary Table 1]. This means that under the new regulations, all teenage girls with sufficient athletic ability are required to undergo a genetic test, and that the tests will be conducted on minors who we may presume lack legal capacity to provide informed consent under applicable laws. The youngest women’s World Championship medallist (Sally Barsosio) was 15 at the time of the event. Numerous other athletes have competed as minors at the international level, including Célestine N'Drin at the Summer Olympic Games in Montréal in 1976 aged 13 years 4 days, while 15-year-old Kelly Doualla won the 100 m event at the European Athletics U20 Championship in August 2025.

Fifth, there is the question of the ‘burden of proof’. The new regulations unfairly oblige athletes with an *SRY* gene to demonstrate to the satisfaction of WA’s Medical Manager that they have CAIS [Supplementary Table 1]. The WA regulations are silent on how an athlete can meet this burden of proof or what information will satisfy the Medical Manager that the athlete has met this burden. Precisely how the biological status of an athlete could be demonstrated - for example, whether they have CAIS or Partial Androgen Insensitivity Syndrome (PAIS) - remains unclear. WA should state explicitly that, under their regulations, further investigation requires clinical examination by gynaecologists or physicians to assess clitoromegaly, symmetry of external genital structures, extent of breast development and pubic hair, and palpation of genitalia.[10] WA must ensure that all Member Federations provide and grant access to the necessary resources and expertise to discharge their duty of care for potentially lifelong psychological and other medical care resulting from the examinations they have mandated.

In summary, these new regulations are an anachronism, and a harmful one. They are a simplistic way of reducing a characteristic to a single gene, which does not reflect the complex nature of sex, and is couched in narratives of protecting the sanctity of fair competition in the women's category that are not based in science and need to be challenged. More fundamentally, equating the puberty and biology of individuals with a 46,XY DSD to male biology is tantamount to questioning their legal registration from birth as female. There are already stigma and shame to people both inside and outside of sport arising from these regulations, and these consequences cannot be considered in any way a proportionate means to attain the objective pursued by WA.

The recent ruling of the Grand Chamber of the European Court of Human Rights in the Semenya case pointed out several fundamental flaws in WA's original DSD Regulations.[8] Many of these flaws (e.g., the forced consent to a medical procedure and the infringement on the privacy of the athletes concerned) are still nested at the heart of WA's new regulations. Given that genetic tests without medical justification are likely to be unlawful in many jurisdictions, the longevity of the new regulations will probably be determined in court, but not before subjecting women and girl athletes to foreseeable and unjustifiable harm.

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SC and AW conceived the idea and produced the initial draft; All authors reviewed and edited the content; All authors approved the final and revised version of the manuscript before submission.

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