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Caster Semenya and athletic excellence: a critique of Olympic sex-testing

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Caster Semenya at the 2010 Memorial Van Damme, Brussels, Belgium;
Photo: Erik van Leeuwen

A surprise at the Olympic Opening Ceremony

The Olympic Games officially begin tomorrow, July 27th. Despite the organizers' best efforts, details regarding the opening ceremony have inevitably [leaked](#), spoiling much of the surprise. However, the recent [announcement](#) by the South African Olympic committee that Caster Semenya, a 21-year-old middle-distance runner, will carry the country's flag in the opening ceremony *did* come as quite a surprise. Many had expected the honor to be bestowed on [Oscar Pistorius](#), the first double-amputee track runner to compete in the Olympics.

The Precedent: Caster Semenya

Semenya made [headlines](#) in 2009 when she won the gold medal in the women's 800m at the world track and field championships in Berlin. Finishing in 1 minute 55.45 seconds, Semanya won by a margin of more than two seconds. Earlier in the day, the International Association of Athletics Federations (IAAF) had confirmed that Semanya was undergoing sex testing to determine her eligibility to compete as a woman after questions were raised regarding her muscular appearance and rapid improvement over previous finishing times. What followed was a controversial 11-month investigation during which Semanya, then 18, was banned from competing.

Then a PhD student in Milan, I co-authored a brief report with Paulo Maugeri, "[Caster Semanya: Sport, categories and the creative role of ethics.](#)" published in the *Journal of Medical Ethics*, arguing that sex-testing could not "offer uncontroversial answers regarding [Semanya's] gender" (at the time, tests were still underway), as such determinations are also informed by ethical considerations regarding fairness in competition and athletic skill (216).

The New IAAF and IOC policies on the management of intersex disorders

The controversy regarding Semanya's eligibility was followed, in May 2011, by new IAAF [regulations](#) for determining whether an individual should be allowed to compete as a woman if questions were raised regarding her gender. The International Olympics Committee (IOC) [adopted](#) the same policies in June 2012 in advance of the London Olympics. The new regulations based the determination on the athlete's testosterone levels, on the assumption that the difference in athletic performance between men and women is predominantly due to "high levels of androgenic hormones in males, resulting in increased strength and muscle development" (IAAF Regulations, 1). While both men and women produce androgen, women typically produce 1/10 that of men. According to IOC regulations, if a female athlete is found to have hyperandrogenism "that confers a competitive advantage (because it is functional and the androgen level is in the male range)," she will not be eligible to compete as a woman (4). In order to regain eligibility, women with hyperandrogenism are required to undergo treatment to lower their androgen levels.

Fair versus Unfair Advantages

However, as I argue in "[Out of Bounds? A Critique of the New Policies on Hyperandrogenism in Elite Female Athletes](#)," (co-authored with Katrina Karkazis, Rebecca Jordan-Young, and Georgiann Davis), published in the July 2012 issue of the *American Journal of Bioethics*, these regulations are flawed for at least two reasons. First, there is not enough biomedical data to demonstrate that increased androgen levels provide women with an advantage over their fellow athletes. As "Out of Bounds?" argues, "testosterone is just one element in a complex neuroendocrine feedback system," and levels of endogenous testosterone in women vary depending on age, time of day, and where they are in their menstrual cycle, among other complex environmental factors (8). Studies have even shown that winning or losing a competition can stimulate an increase or decrease in testosterone levels. In short, we lack definitive data to demonstrate that successful female athletes have higher testosterone levels than less successful female athletes.

Second, even if a direct causal relationship between increased testosterone levels and athletic performance were proven, this would not constitute sufficient evidence to ban Caster Semanya or other athletes with hyperandrogenism from competing as female. To reach such a conclusion, one would have to demonstrate not only that such an advantage exists, but also that such an advantage is *unfair*. And it isn't. Among professional athletes, we find a vast range of biological and genetic variants that provide them with a possible athletic advantage, but these do not disqualify them from competition. One famous case concerns Finnish athlete [Eero Mäntyranta](#), who won two gold medals in cross-country skiing at the 1964 Winter Olympics in Innsbruck. It was later determined that Mäntyranta had primary familial and congenital polycythemia, a rare genetic mutation characterized by an elevated absolute red blood cell mass and a consequent increase of 25-50% in the blood oxygen carrying capacity. Certainly, such an increase could provide Mäntyranta with a competitive edge.

Cases like Mäntyranta's are hardly rare. Endurance athletes in particular have been [shown](#) to have mitochondrial variations that increase aerobic capacity and endurance. Acromegaly, a hormonal condition resulting in large hands and feet, is especially prevalent among [basketball players](#). There has also been [speculation](#) that Michael Phelps, winner of 8 gold medals at the 2008 Beijing Summer Olympics, has Marfan's syndrome, a rare genetic condition affecting connective tissues that results in long limbs and flexible joints (an obvious advantage for a swimmer).

All these examples—and there are many more—show that elite athletes derive advantages from a range of biological variations, and hyperandrogenism is no different in this regard. Why single it out? For the sake of consistency, either one would have to ban from competition all

athletes who derive athletic advantage from biological variations, or let everybody who is “out of the ordinary,” compete, Caster Semenya—and other athletes with hyperandrogenism—included.

Athletic excellence: A complex product of multiple factors.

Not all of us were born athletes. Even if I trained ten hours a day and channeled all my physical and mental energy to improving my athletic performance, I would never be able to reach the exceptional level of performance required to qualify for the Olympics (I could maybe manage a casual Sunday run). Competition at the elite level is based not only on effort and perseverance, but also on an athlete’s physical ability, access to the necessary material resources (training facilities, coaches, etc.), and a pinch of good luck. It is out of this complex entanglement of factors that athletic excellence is produced.

The new IAAF and IOC rules aim instead at isolating the presumed positive effect of increased androgen levels on athletic performance from a myriad of other factors. However, as I have attempted to show, such a move is logically flawed, and consequently, the new regulations themselves are logically flawed—it is impossible to reduce the complexity of athletic excellence to a univocal relationship between androgen levels and performance.

All bodies, to one degree or another, are beset by functional limitations. According to Thomas Murray, President Emeritus of the Hastings Center, “sports provide an opportunity to live fully in those bodies, to test their capabilities and limits, and to integrate them with our will, intellect, and character” (Murray 2009, 237). The new IAAF and IOC regulations are especially worrisome insofar as they require athletes with hyperandrogenism to undergo medical treatment to reduce the level of testosterone in order to compete as females. Not only could such unnecessary medical treatment have harmful effects on the athlete’s health, but by requiring athletes to undergo medical treatment for hyperandrogenism, the IAAF and IOC policies deprive these athletes of the possibility to test their bodies’ limits and capabilities. In short, they deprive them of the essence itself of athletic performance, which, according to Murray, is both a “celebration of and a challenge posed by our embodiment” (Murray 2009, 236). In so doing, they not only fail to achieve the ideal of ‘fairness’ they aim for, but instead arrive at its exact opposite.

Aiming for Gold

Caster Semenya [qualified](#) for the Olympics after finishing second at the 2011 World Track Championships in Daegu, South Korea. [Commenting](#) on the decision to have Caster Semenya carry the flag, South African Olympic committee chief executive Tubby Reddy stated: “Look, there were a few athletes in the reckoning [including, Oscar Pistorius], we just felt that Caster would be the ideal choice. [...] She’s been a world champion and we expect her to win the gold medal”. The choice of Caster as flag-runner goes beyond gold medal dreams for South Africa—it is a public demonstration that her country has finally made up its mind to back her up, whatever controversy will take place in London this summer concerning her supposed unfair advantage over fellow athletes. Let’s [look out](#) for Caster at the Women’s 800m final on Saturday, August 11th at 3pm (EST).

Work cited

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