

Science, Sex, and the Olympics

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Early in the 19th century, the English poet [Robert Southey](#) explained that little girls are "sugar and spice, and all things nice" while little boys are "snips and snails and puppy dog tails." Such descriptions are apparently not rigorous enough to determine who gets to participate in women's events in the **Olympics**, so last month the [International Olympic Committee \(IOC\)](#) issued new regulations on the eligibility of athletes to participate in women's events in the upcoming **London Games**.

The new regulations seek to head off controversies such as erupted at the **Track and Field World Championships in 2009**, when South African runner [Caster Semenya](#)'s victory in the 800 meters was followed by accusations that she had competed unfairly in a women's event. The response to the accusations focused on applying a "gender test," which was embarrassing for the body that governs track and field and demeaning to Semenya, and ultimately did little to clarify things.

The issues here are much broader than just competition categories at the **Olympics** and go to the heart of the challenges in using **science in decision making**. Decisions are almost always formulated in binary categories: pass the legislation, sign the treaty, implement the law – or not. In the case of the Olympics, a binary decision is whether the athlete should compete as a man or woman, since these are the two categories of the games.

But it turns out that the **science of gender** is not so straightforward, and human evolution has not made us all so that we easily fit into binary categories. The **IOC** recognizes this and explains that human biology "allows for forms of intermediate levels between the conventional categories of male and female." Recognizing this ambiguity, the IOC explains: "Nothing in these Regulations is intended to make any determination of sex."

Instead, it has tried to implement a regulation that uses **science as a proxy for determining sex**. Writing in *The New York Times*, a medical geneticist who advised the **IOC** [argued that science could resolve this issue](#): "Let's forget for a while about gender identity politics" and focus on "one parameter that ... could entirely explain why men did better than women in elite sports." The proposed candidate parameter is biological levels of testosterone, admittedly imperfect but apparently serviceable.

The **IOC** explains that female athletes with levels of **androgenic hormones** that "fall into the male range" that confers a "functional" **competitive advantage** will be disqualified from competing in women's events. The IOC makes an explicit comparison between those athletes who have doped by taking **steroids** and those athletes whose bodies produce excessive levels of hormones. Such athletes can now be considered naturally doped – an oxymoron that betrays the illogic of the regulation.

Not only are the proposed regulations ambiguous – what is "the male range"? How is "functionality" determined? – but they are based on a selective reading of the **science of sex and athletic performance**. Despite a widespread belief that **testosterone** is the "one parameter" that determines athletic performance, the science is far more ambiguous. Writing in an academic paper published earlier this month, a team of

researchers criticized the **IOC**'s focus on testosterone, arguing: "The current scientific evidence, however, does not support the notion that endogenous testosterone levels confer athletic advantage in any straightforward or predictable way."

Like so many areas of decision making, the **science of gender** does not provide distinct lines that can make politics go away and render decision making straightforward. And gender is not the only such issue facing the **IOC**. The case of another South African athlete, [Oscar Pistorius](#), who runs on artificial legs, has raised questions about the boundary between the **Olympic Games** and the **Paralympic Games**.

Further, why stop the regulations at outlier levels of **testosterone**? What about regulating rare levels of **human growth hormone**, or **red blood cells**, or **heart capacity**? The list could go on forever.

Science, and the evidence that it produces, can often add insight to **decision making**. We must be prepared, however, to accept that one such insight may be that the world is complicated, colored in infinite shades of grey. Very rarely does science provide clear demarcations. Rather than providing clarity, further scientific investigation may add new perspectives, new knowledge, and new questions that only diversify our palette.

Decision making in the **Olympic** sphere, as in many other human endeavors, is always going to be deeply **political** and **social**. This means that outcomes we view as legitimate must be negotiated and will always be provisional – even the decision of what it means to compete in the women's category at the Olympics. Leaning on science to make our difficult choices can lead to bad decisions and, sometimes, to **politicized science**.

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