

THEME 02

The dilemma of future sports regulation

SPORT

SCIENCE

HUMAN
ENHANCEMENT

The fact that athlete Caster Semenya is being “punished” for her high natural testosterone level has stirred up a lot of angry, indignant and disappointed reactions, resulting in a big wave of sympathy for the athlete. If she wants to continue her career, she needs to use hormone therapy to artificially lower her testosterone level. Beyond the emotional debate, fundamental questions loom about fairness in sports, the relationship between sports and science and the role sports regulators can and should fulfill in the future.

Our observations

- In 2018, the IAAF instated a new limit of [5 nanoliters of testosterone per liter of blood](#) for athletes with intersex characteristics that naturally increase testosterone. Hyperandrogenic athlete Caster Semenya – who has a testosterone level above the newly imposed limit - appealed. Last week, the Court of Arbitration for Sport decided in favor of the IAAF, allowing the new limit, thereby forcing Semenya to take hormone therapy. The World Medical Association has called for immediate withdrawal of the new regulations due to a [lack of evidence](#) and because they are contradictory to certain ethical values of the organization. Moreover, they claim health problems might arise from artificially lowering the testosterone level. This is particularly striking, as in most doping cases the protection of athletes' health is cited as an important reason to take action.
- This is not the first time the IAAF imposed a testosterone limit. In 2011, the limit was already set at 10nnol/L. However, the court suspended that rule after Indian athlete Dutee Chuttee [claimed](#) there was no strong evidence that hyperandrogenic athletes received an unfair competitive edge.
- The Semenya case has resulted in a mix of difficult ethical and ontological [discussions](#) about “nature” with respect to athletes and “fairness” in sports. There is also a third debate going on about how we should classify athletes with DSD or transgender athletes in a binary man/woman sports field. This last debate has sparked most attention. Throughout history, the difference between men and women in sports has generally been accepted. Finding a way to distinguish between male and female athletes, however, has proved to be difficult. Multiple methods are possible, such as simple physical inspection or gender tests. Both have their [weaknesses](#), leading to the continuation of testosterone level as the standard. This implies that sex isn't necessarily binary, but exists on a sliding scale. This way It hopes to better account for [intersex conditions](#). In this sense, the method is progressive and in line with current cultural gender fluidity. Nonetheless, actual sports practices do require a binary definition. Therefore, a boundary needs to be set somewhere along the continuum, resulting in an arbitrary limit which will always be perceived as discriminatory by a certain “victimized” group.



Connecting the dots

Sports have always been regulated, a level playing field is an important condition of sport competition. Athletes are classified based on their weight in different rowing or boxing disciplines, often based on strong [evidence](#). Sometimes specific equipment is [forbidden](#) because it is not widely available for everyone or a danger to the integrity of a specific sport. And last, doping is seen as cheating because performance-enhancing drugs create an unfair advantage. Moreover, it forms a possible threat to the health of athletes, leaving regulators with the responsibility to protect athletes against themselves. In this sense, the debate around Semenya is nothing new. Her high testosterone level might give her an unfair competitive edge to other females, making it a regular case of investigation for the IAAF. Yet, it has become a landmark case. It has started such a fierce debate because there is more at stake than in a regular doping case or equipment ban. One of the things that make this case particularly special is that - compared to doping cases - the hyperandrogenic athlete Semenya does not cheat, nor has she any intention to cheat. Her high testosterone level is caused by the SRY gene she naturally carries. Therefore, the IAAF verdict does not force Semenya to re-establish a natural body state, common to most doping cases, but to alter her natural to a non-natural, yet - in the perspective of the IAAF - fair female competitive state. Thus, an underlying question is how far regulative institutions should go in realizing a level playing field. We can identify at least two possible ethical approaches of sports regulators to fairness, in which an important difference emerges. The first approach aims to level out all unfairness and to eliminate every natural difference until all athlete conditions - even biological conditions - are equal. The second approach aims to diminish extreme unfairness but leaves room for natural "unfairness". The two approaches show there is a crucial difference between the desire to be completely the same and striving to be equal. Namely, the second approach accepts that sports are built around inequality and some degree of unfairness: genetics, but also whether or not an athlete has access to psychologists, dieticians, top coaches or facilities. These are all "unfair" differences between athletes or teams. From a historical perspective, sports regulation has mostly been centered around returning to natural and generally accepted states, thereby leaning more towards the first approach. In this perspective, regulation is only about abating extremes and keeping unfairness within reasonable boundaries. For example, in the [famous EPO cases of professional cyclists](#), regulation is mostly reactive, aiming to restore a sports practice that has become perverse and corrupt. However, in the Semenya case, the IAAF is pro-active and thereby has a stronger tendency towards the second approach, as it indicates a strong desire to offset

even natural differences in female athlete sports to gain fairness. This tendency towards the last approach can be related to a changed attitude of certain sciences. As philosopher Lemmens points out in his [dissertation](#), relatively new disciplines such as synthetic biology, which are related to sports and doping, are strongly performative. They do not only give a description of the world, but also an "inscription" of the world, by intervening and transforming reality according to their principles, creations and inventions, i.e. Biology changes into bio-engineering. In the context of sports, the performative nature of these academic disciplines works both ways. On the one hand, it will create endless new types of doping and performance-enhancing "drugs" or "medicine". Gene-editing tools such as CRISPR might make gene-doping - modifying an athletes' DNA with "cut and paste" techniques - more attractive than regular doping, as it would probably be [more difficult to detect](#). On the other hand, the progress of performative sciences will also give regulative bodies more power and (detection) tools to pro-actively intervene and regulate sports practices. The new types of doping or performance-enhancing drugs will most likely result in a new chapter in the endless battle between "cheating" athletes and regulators trying to hunt them down. As bioethical philosopher Andy Miah stresses, sports are all about [extraordinary performances and transcending boundaries](#). Consequently, athletes and scientists will always conspire to exploit new ways to push the limit in legal ways, exploit "grey areas" in an optimal way or try new illegal methods that are hard to discover. Meanwhile, regulators and scientists will strengthen their cooperation to create [new and better tools](#) to expose them. However, new tools will also provide the opportunity for a more pro-active regulation policy (part of the second approach). This will give more power to regulative bodies and might bring some new unforeseen dilemmas to the future of the sport. The scientific progress of performative sciences might give rise to the possibility to increase the level playing field in the future of sports in a matter we still regard as impossible today. In this line of thought, the Semenya case can be interpreted as a precedent for future dilemmas sports regulators will face as science progresses. In this sense, the perspective of performance as largely determined by a set of specific genes producing testosterone and the pro-active policy of hormone therapy, might only be the tip of the iceberg. The current debate shows that science might create new tools and methods for a "fairer" level playing field in sports, but that there are cultural and societal limits to actually applying and implementing them.

Implications

- A strong motive of sports federations such as the IAAF to use the testosterone limit is to prevent physical disciplines in female sports from being dominated by transgender athletes in the nearby future. However, even with a testosterone limit, trans-athletes remain a difficult case. They are allowed to qualify after hormone therapy, but it remains uncertain whether this adequately offsets a testosterone-fueled puberty.
- Gene-doping could be the new way to go for athletes who want to win fame and prizes, no matter the cost. Gene-doping, however, is not new. In 1990, the psychologist Lee Sweeney reached headlines with his "[Schwarzenegger mice](#)" and in 2003, the WADA put - without any known case - gene-doping on its list of banned doping. Although still in a very early stage for humans, scientists and regulators have shown a strong interest in the developments. Potentially, gene-doping could be an attractive doping method for athletes, as is it more persistent (the DNA keeps naturally making a certain protein, for example) and possibly harder to track (it becomes part of your "nature").