

## Case 10: Running Away from the Competition

In 2014, Indian sprinter Dutee Chand gold medaled in the 200-meter sprint and the 4x400-meter relay at the Asian Junior Athletics Championships in Taipei, Taiwan. South African runner Caster Semenya, competing in the women's 800 meter run, won gold in the 2009 World Championships, and silver in the 2011 World Championships and 2012 Summer Olympics. Chand's and Semenya's medals, as well as the legitimacy of their even competing in the 2016 Summer Olympics, was contested as their testosterone levels are much higher than is found in most women.<sup>100</sup> Testosterone is associated with (and, some experts suggest, productive of) increased muscle and bone mass, lean body structure, and higher competitive drive.

Chand and Semenya are not the first athletes to encounter the question of endocrinological advantage. At least as early as 1936 questions were raised about alleged sex-based anatomical and physiological advantages of some women athletes.<sup>101</sup> Since that time, the IAAF (International Association of Athletic Federations) has instituted multiple different (often excruciatingly humiliating) tests to determine the sex of women who have at least some typically masculine characteristics or who perform astonishingly well in competition.<sup>102</sup> Various tests have demonstrated that most such women are intersexed: that is, their internal and external reproductive organs are mismatched. For example, an intersexed person may have an XY (male) chromosomal pattern and normal internal testes, but have external female genitalia. Conversely, an intersexed person may have an XX (female) chromosomal pattern and ovaries, but male external genitalia.<sup>103</sup> In the context of the Olympic Games, the concern has been that intersexed competitors who appear to be (and think of themselves as) female may have internal testes that produce testosterone. In such

---

<sup>100</sup> Myron Genel, Joe Leigh Simpson and Albert de la Chapelle, "The Olympic Games and Athletic Sex Assignment," *JAMA* 316, no. 13 (2016): 1359-1360.

<sup>101</sup> Melissa Block, "The Sensitive Question Of Intersex Athletes," *NPR*, June 11, 2017, <http://www.npr.org/sections/thetorch/2016/08/16/490236620/south-african-star-raises-sensitive-questions-about-intersex-athletes>.

<sup>102</sup> Ruth Padawer, "The Humiliating Practice of Sex-Testing Female Athletes," *The New York Times Magazine*, June 11, 2017, [https://www.nytimes.com/2016/07/03/magazine/the-humiliating-practice-of-sex-testing-female-athletes.html?\\_r=0](https://www.nytimes.com/2016/07/03/magazine/the-humiliating-practice-of-sex-testing-female-athletes.html?_r=0).

<sup>103</sup> Neil Kaneshiro, "Intersex," *MedlinePlus*, August 1, 2017, <https://medlineplus.gov/ency/article/001669.htm>.

cases, the female competitors will have elevated (for women) levels of testosterone in their blood.

However, at the 1996 Olympic Games, seven of eight women found to have a Y chromosome were androgen insensitive: though they had blood testosterone levels higher than normal for women with XX chromosomes, their bodies could not use the testosterone to any physiological advantage. Nonetheless, the IAAF decreed that women with high testosterone levels must reduce these levels or be ineligible to compete.

But endocrinologists and sports medicine experts disagree about the effects of this physiological disparity. The testosterone range among competitive athletes is great; males can have low levels and female levels can be high. In fact, a recent study found that “one in six elite male athletes have testosterone levels below the normal reference range...[and] in some cases below the average for female elite athletes.”<sup>104</sup> Further, even in athletes with statistically normal chromosomal patterns (XX for women, XY for men) who have statistically normal appearances, scientists are uncertain how and to what extent testosterone affects performance.<sup>105</sup> For example, the commonly-held assumption about the link between testosterone-fueled males and their innate competitiveness has been debunked by cross-cultural studies, which have shown that girls and women in countries with matrilineal cultures or “lesser economic development...[are] as competitive as their male counterparts.”<sup>106</sup> Add the uncertain effects of differences in nutrition, training, professional coaching, familial and cultural support, and other “nurture” variations; the result is to make determining what makes any particular athlete more or less competitive little more than a guess. Nonetheless, since 2011 female competitors have been tested specifically for testosterone levels. (Men’s testosterone levels are not tested or regulated.)

In June 2014, Dutee Chand, a rising young star for the Athletics Federation of India (AFI), was summoned to Delhi for testing, after which she was told she would not be allowed to compete unless she lowered her testosterone level, and that she was banned from all competition for a year. Chand appealed to the AFI to reinstate her, arguing that she had done nothing wrong. She also appealed to the international Court

---

<sup>104</sup> Cordelia Fine, *Testosterone Rex* (London: Icon Books, 2017), 138.

<sup>105</sup> Padawer

<sup>106</sup> Fine, 124.

of Arbitration for Sport (CAS)—the Supreme Court for sports disputes—which heard her appeal in 2015.

In July 2016 the CAS ruled that scientific evidence was insufficient to prove that women with high levels of testosterone have a significant competitive advantage, that the nature and degree of testosterone’s effect on athletic ability is unknown, as is whether any advantage it confers is greater than such “...variables as nutrition, access to specialist training facilities and coaching, and other genetic and biological variations.”<sup>107</sup> Thus, CAS judges ruled that requiring women to change their bodies to compete was unjustifiably discriminatory; they suspended the requirement until July 2017. If by then the IAAF was unable to demonstrate that naturally high testosterone levels in women was comparable to men’s broader advantage over women, the regulation “shall be declared void.”<sup>108</sup> The International Olympic Committee agreed to eliminate testing pending further evidence.

At the 2016 Summer Olympics Caster Semenya won the gold medal in the 800-meter event. Dutee Chand did not advance beyond the qualifying round.

---

<sup>107</sup> “Interim Arbitral Award in Dutee Chand v. AFI and IAAF,” *Court of Arbitration for Sport*, June 11, 2017, [http://www.tas-cas.org/fileadmin/user\\_upload/award\\_internet.pdf](http://www.tas-cas.org/fileadmin/user_upload/award_internet.pdf).

<sup>108</sup> Jeré Longman, “Understanding the Controversy over Caster Semenya,” *The New York Times*, June 11, 2017, <https://www.nytimes.com/2016/08/20/sports/caster-semenya-800-meters.html>.