Volume 21 Issue 11 November 2021 ISSN 1746-1391

European Journal of Sport Science

The Official Journal of the European College of Sport Science

European Journal of Sport Science

Routledge Taylor & Francis Group

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/tejs20

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To cite this article: Sigmund Loland (2021) Classification in sport: A question of fairness, European Journal of Sport Science, 21:11, 1477-1484, DOI: 10.1080/17461391.2021.1923816

To link to this article: https://doi.org/10.1080/17461391.2021.1923816

EUROPEAN JOURNAL OF SPORT SCIENCE
2021, VOL. 21, NO. 11, 1477–1484
https://doi.org/10.1080/17461391.2021.1923816

Classification in sport: A question of fairness

Sigmund Loland

Institute of Sport and Social Sciences, The Norwegian School of Sport Sciences, Oslo, Norway

ABSTRACT

Competitor classification schemes have been a part of sport since its origins. Eligibility criteria have developed towards inclusion and increasing diversity. The pool of competitors has expanded from the ancient Olympic Games, eligible only to free Greek men, via nineteenth-century English sport favouring primarily the upper class of so-called gentlemen amateurs, to the current global and diverse pool of men, women, children, and able-bodied as well as disabled persons. Hence, the challenge of sound classification schemes has increased. This article examines the principles of fair classification of athletes. With the help of normative theory as well as practical examples, a fair equality of opportunity principle for sport (FEOPs) is formulated. It is demonstrated how sound classification schemes combine the normative backing from FEOPs with relevant scientific insights. Current classification challenges and possibilities for change are discussed. It is suggested that in several sports, biological sex classes can be abandoned, and that in some sports, sex classes can be replaced by body size classes. It is argued, too, that sports in which body height exerts a significant and systematic impact on performance should classify accordingly. In the final part, classification is discussed in light of new techno-scientific possibilities, among them the possibility of innovative performance-enhancing prosthetics.

KEYWORDS

Classification of athletes; ethics; fairness

1. Introduction

Attempts on classifying athletes have followed sport since its beginnings. Initially, in ancient Greece, participation in Olympic events was exclusive for free Greek men. With the rise of modern sport, classification regimes have become more complex and nuanced. In their study of the rise of sport in eighteenth- and nineteenth-century England, "the land of sport" (Mandell, 1984), Elias and Dunning (1986) point to the quest for excitement in increasingly regulated and controlled "unexciting societies". Among other things, gambling required the setup of uncertain competitive outcomes. Whether they were dogs, horses, or humans, competing parties ought to be matched evenly according to assumed performance potential.

Early twentieth-century sport was primarily a young men's world. With the socialist workers' sport movement in the mid-war period, attention was paid to the potential of mass sport in strengthening public health, and programmes included activities for children, youth, and women (Krüger & Riordan, 1996). More nuanced classification schemes emerged, among them in the Scandinavian countries where children were classified according to biological development (body weight and height) in addition to chronological age (Solenes, 2010).

Nuanced classification schemes are also more general outcomes of the rise of sport as a modern phenomenon. Guttmann (1978) points to processes of rationalization and quantification: standardization of conditions to enable comparisons of athletic performances across time and place, and the use of more exact measurement technologies such as the stop watch. With this, the idea of the modern sport record was born. When, as in current indoor track and field, running performances can be measured under laboratory-like conditions at the accuracy of 1/100 of a second, classification regimes come under scrutiny. Are they reasonable and fair? Do they measure up to the accuracy of the competitive setup?

Sporting classification schemes are outcomes of a complex mix of social and cultural forces, technological and scientific developments, and ideals of fairness and values in sport. Over the last decades, the most significant change is perhaps that of increased inclusion and eligibility. In this essay, and based on Loland (2002), my interest will be in the fairness ideals that guide classification and structure the competitive measuring,

CONTACT Sigmund Loland sigmundl@nih.no Institute of Sport and Social Sciences, The Norwegian School of Sport Sciences, P.O. Box 4014 Ullevål Stadion, 0806 Oslo, Norway

comparing, and ranking of athletes according to performance. My first step will be inductive: I will look into existent classification schemes in search of common, normative patterns. The second step will be deductive by formulating what I refer to as the fair equality of opportunity norm in sport (FEOPs) and then testing FEOPs in current, controversial classification issues.

2. Classification in sport

Classification is a way of regulating and controlling the matching of competitors.[1] Typical classification schemes are based on inequalities between athletes in biological sex, age, body size, and ability/disability. Other inequalities are accepted and even cultivated and admired, such as inequalities in oxygen uptake, strength, endurance, and technical and tactical skills. How can this be understood? What is the rationale for classifying athletes?

A broader look at how sporting rules regulate inequalities indicates an answer. Firstly, all sports include attempts on eliminating or at least minimizing the impact of inequalities in external conditions. In indoor sports, the rules are relatively simple and straightforward. For example, in indoor ball games and netball games such as basketball and badminton, each player and each team play on identical court halves and switch sides regularly. Outdoor sports have the additional challenge of uncontrollable and changing climatic conditions: light, precipitation, wind, temperature, but follow similar procedures. In direct competitions, as in soccer, inequalities are distributed with a regular changing of pitch halves. In indirect competitions in which athletes perform one by one, as in some skiing events and in the throwing and jumping events in athletics, the order of starting positions is distributed in a lottery. In other words, in the evaluation of performance, *inequalities between competitors in external conditions are considered irrelevant*, and sporting rules define how to eliminate or compensate for them.

A second kind of inequality is linked to what Heinilä (1982) calls system strength: the strength of the material, financial, technological, and scientific resources supporting an athlete or a team. There are gross inequalities here, usually reflecting inequalities in society as a whole. Olympic national medal statistics state illustrates the point as it correlates with the ranking of nations according to gross national product (Flegl & Andrade, 2018). A closer look at European club soccer provides an even clearer example.[2] The wealthiest clubs such as Real Madrid, Manchester United, Bayern München, and Barcelona win the majority of national and European titles.

As these are based on extensive system inequalities, there are limited possibilities for sport to eliminate their impact. There exist, however, possibilities for compensation, among other things by sharing scientific knowledge and competence, by regulating the use of resources in leagues and tournaments as exemplified by the European soccer federation UEFA's Financial Fair Play Regulations,[3] and, in its most direct form, by standardizing equipment and technology used in competition. Most sports in which equipment has a certain degree of technological complexity, from sailing to motorsport, have regulations of these kinds. Although inadequate, for instance in skiing in which athletes compete with decisive inequalities in ski material, the general sporting norm is that *inequalities between competitors in system strength are considered irrelevant*.

Attempts on eliminating and compensating for inequalities in external conditions and system strength are common characteristics of most, if not all, sports. As the introductory classification examples indicate, this is also the case for some individual inequalities between athletes, for instance in biological sex, age, body size, and ability/disability. Why?

3. The fair equality of opportunity principle

Inequalities in external conditions and system strength are hard or even impossible for competitors to impact or control. If a radical change in weather determines the outcome of a skiing competition, or if the same sailor wins again and again due to superior technology, competitions are considered failures. Similarly, if men and women compete together on the 100-metre dash, or a 120-kilogram boxer meets a fighter half his weight, outcomes are due primarily to inequalities outside of athlete control. Again, this is considered to corrupt the competition, and classification is the means to avoid it.

The idea of regulating the impact of inequalities upon which individuals have little or no control and for which they cannot be claimed responsible has a long history in ethics and is included in various forms in most ethical theories (Arneson, 2015). Its justification can be deontological in kind with a Kantian view of persons as being of infinite value never to be treated as means only but always also as goals in themselves, or utilitarian with reference to the maximization of average preference-satisfaction or welfare among all parties concerned. Moreover, the idea can be operationalized in local justice schemes adapted specifically to the specific goals and missions of particular practices and institutions (Elster, 1992). In the distribution in democratic welfare societies of basic goods such as health care,

education, and access to the job market, inequalities in biological sex, body size, or ability/disability are considered irrelevant. In fact, in most cases, unequal treatment based on these inequalities is considered discriminatory and prohibited by law. In some practices, however, they exert significant and systematic impact. For some aircraft types, pilots have to meet strict regulations on body size. Disabilities may disqualify for work as a firefighter. And, in the world of sport, the quest for eliminating or compensating for these inequalities opens for classification.

In its general version, the idea is referred to as the fair equality of opportunity principle (FEOP) (Arneson, 2015). A specific FEOP for sport (FEOPs) can be formulated in the following way:

> Inequalities between sport competitors with significant and systematic impact on performance that the competitors cannot impact and control in any reasonable way ought to be eliminated or compensated for.

FEOPs is a normative, ethical principle. Its justification is not empirical and scientific but based on reason and analysis of the nature of the practice under scrutiny, in this case competitive sport. As with other normative principles, sound application depends upon evidence-based insights and science. To be able to justify a classification regime based on a particular inequality, then, three criteria have to be met: The inequality in question (1) *exerts a significant impact on performance,* (2) *exerts a systematic impact in most if not all competitions, and* (3) is *outside of competitor impact and control*.

Take as an example the running events in athletics. Looking at world records, statistically speaking, men outperform women by 10–12% (Sandbakk, Solli, & Holmberg, 2018). According to insights in human biology and applied exercise science, this is due primarily to sex inequalities in basic predispositions for developing and maintaining running speed. In other words, these are significant and systematic inequalities that athletes cannot impact or control in any reasonable way. With reference to FEOPs and scientific evidence, sex classification in running is justified.

Perhaps the most explicit use of normative premises combined with science is found in Paralympic sport. With a diverse athlete group, there is an urgent need for sound procedures. For a potential Paralympic athlete, a first step is to define whether s/he has an eligible impairment type. There are 10 impairment types, among them impaired muscle power, limb deficiency, and vision impairment carefully defined and exemplified. For instance, limb deficiency is defined as

> … total or partial absence of bones or joints as a consequence of trauma (for example traumatic amputation), illness (for example amputation due to bone cancer) or congenital limb deficiency (for example dysmelia).[4]

Within each type, and based on competent medical examinations of each athlete, sport classes are defined depending on the significance and systematic impact (the so-called activity limitation) of the particular impairment. One and the same class may include athletes with different impairment types. The crucial criterion is that of a similar (ideally identical) degree of activity limitation. Again: Sound classification depends upon sound application of FEOPs and of relevant facts and science. To put the point in more general terms, good ethics depends upon good facts.

Before examining further implications of FEOPs within current classification challenges, a question remains: How can FEOPs be further justified? Principles are backed by more general values. What are the sporting values to be realized with classification? Why do we engage in practices of measuring, comparing, and ranking athletes according to athletic performance at all?

These are broad questions. A detailed discussion of the nature and value of sport is beyond the scope of this article.[5] Still, some tentative answers can be given. The Elias and Dunning (1986) response could be to see sport as "a quest for excitement in unexciting societies". Classification ensures tight competition and open outcomes. This, however, does not explain the detailed and advanced classification regimes in sport. Tight competitions can be achieved in many ways. Mediocre able-bodied athletes can be matched with Paralympic elite athletes. On the 100-metre dash, elite athletes can be matched with animals with similar running speed as humans, or with robots.

Returning to Paralympic classification schemes, a better rationale is found:

> Classification aims to minimise the impact of the impairment on athletes' performance so that the sporting excellence determines which athlete or team is ultimately victorious. Ensuring that athletes are classified prior to competing is crucial to safeguarding the integrity and credibility of the competition.[6]

Classification, both in Paralympic and Olympic sport, is established to evaluate inequalities in sporting excellence. When decisive inequalities that competitors cannot control are eliminated or compensated for, athletes and teams are measured, compared, and ranked according to capabilities and skills that are the outcomes of their own talents and efforts. Although genetic talent is distributed in random ways in the so-called "natural lottery", classification aims at taking out those parts that individuals cannot impact and control in any

reasonable way. Murray (2018, p. 15) visions sport at its best as being about developing one's talent in admirable ways and having the courage to test one's performance potential in competition with others.

This does not imply a view of sport as a morally ideal sphere. McFee's (2000) reference to sport as a moral laboratory is to the point. Sport is morally ambiguous. Elite sport in particular is contested terrain with significant challenges: cheating, the use of illegal drugs, corruption, sexism, violence. The argument is that the normative structure of sport *opens for the realization of moral ideals*. Sound classification schemes are designed to reward hard work, dedication, and resilience, all admirable human qualities with moral relevance. Sport at its best can cultivate not only sporting, but *human* excellence.

Let me turn, now, to some current classification challenges and discuss whether and how solutions can be found.

4. Challenges and FEOPs applications

I have argued that FEOPs is a basic normative principle structuring the setup of sporting competition and upon which classification of athletes and teams is based. I have argued, too, that classification regimes reflect in many ways the norms and values of the social and cultural context of which sport is a part. In some sports, some classification schemes seem anachronistic. Other sports should be exposed to systematic and critical analyses of alternative and perhaps more fair classification. Let me exemplify some of these challenges and suggest possible solutions.

As Coleman (2017) demonstrates, in most sports, sex classification is well justified. According to FEOPs, however, in sports in which predispositions for performance linked to biological sex do not exert a significant and systematic impact, there should be no sex classification. Sandbakk et al. (2018) provide an overview and tentative explanations of sex differences in world record performances in a series of sports. Performance differences are on average 8–12% where men perform better. At the one end of the scale and exceeding the 12% difference, sports are found in which explosive power and upper body strength play significant parts. At the other end, and with less than 5% performance difference, allegedly due to women's more effective fat metabolism, extreme endurance sports such as ultra-endurance swimming are found. It should be emphasized that marginal performance differences do not necessarily have biological explanations but can also be the outcome of traditional gender roles favouring sporting development for men (Schneider & Gonsalves, 2019). In other sports, sex differences are negligible. For example, in their study of the precision sport of rifle shooting, Mon-López, Tejero-González, de la Rubia Riaza, and Calvo (2020) found no significant sex differences in performance at all.

Studies such as these should inform classification regimes. With the premise of equal opportunity to develop performance, extreme endurance events could be organized as what Martínková (2020) labels unisex events in which men and women compete together. In sports emphasizing precise finer motor movement such as shooting, or cue sports (billiards, pool, snooker), there seems to be no rationale for sex classification at all.[7]

A critical review of sex classification is needed too in sports such as curling in which technical and tactical skills predominate and in which basic bio-motor capabilities of endurance, strength, and speed are of less significance. Again, there seems to be no rationale for existent sex classification.

Pushing the argument, one could even challenge the rationale for sex classes in sports such as ski jumping. The sport has received international attention due to a long-standing policy of rejecting female athletes with reference to safety and with essentialist arguments on female biology and psychology (Andersen & Loland, 2017). In its current form with jumping hill profiles favouring light athletes with "flying skills", the rationale for sex classification can be challenged indeed. Müller's (2009, p. 85) review of the ski jumping performance requirements is informative:

> … high in-run velocity, high momentum perpendicular to the ramp at take-off due to the jump and the lift force, accurate timing of the take-off with respect to the ramp edge, appropriate angular momentum at take-off in order to obtain an aerodynamically advantageous and stable flight position as soon as possible, choice of advantageous body and equipment configurations during the entire flight in order to obtain optimum lift and drag values, and the ability to control the flight stability.

With FEOPs as the backing principle, one could hypothesize that, due to the emphasis on technical complexity, and provided equal opportunity between the sexes to develop performance, ski jumping should open for unisex competitions (Hämäläinen, 2014). At least, further research could examine this possibility.

A more general challenge deals with the very justification of binary sex classification as such. The main criticism is that the binary scheme is built on a reductionist understanding. The biological characteristics of males and females are complex, and social and cultural

interpretations of biological sex in terms of gender roles come in many and diverse versions (Schneider, 2000). For example, international sport federations such as World Athletics have been challenged by intersex athletes, among them athletes with assumed hyperandrogenism and elevated testosterone levels who compete in the women's middle-distance running class. World Athletics has argued that there exists sound scientific evidence on the significant and systematic impact of elevated testosterone levels on performance and defined maximum testosterone thresholds (5 nmol testosterone/L blood) for eligibility in the women's class. The issue has caused extensive controversy (Fouché, 2017). Even if science, backed by FEOPs, should support non-eligibility, this has to be weighed against human rights issues as these athletes qualify legally as women. Moreover, with World Athletics so-called Differences of Sexual Development (DSD) regulations, athletes with elevated testosterone levels can become eligible only by reducing their levels with medication, a solution that contradicts established medical ethical codes proscribing medicating otherwise healthy individuals. Clearly, there is a need here for further research (Hamilton et al., 2020), and for further reflection on how to balance sport-specific normative premises such as FEOPs with more general bio-ethical principles, human rights, and insights into the social and cultural construction of gender (Loland, 2020).

Other current classification challenges concern inequalities in body size. According to FEOPs, in sports in which body size exerts a significant and systematic performance impact, there are reasons to classify accordingly. This is done in a series of sports such as weight lifting and combat sports with a refined system of weight classes.[8] In sports such as volleyball and basketball, however, and in spite of body height being significant for athlete selection and individual and team success (Malousaris et al., 2008; Paulauskas, Masiulis, Vaquera, Figueira, & Sampaio, 2018), no classification is found. This means that, even with superior technical and tactical skills, an athlete at or below average height has a clear disadvantage. Hence, inequalities in body height ought to be eliminated and compensated for. With backing in FEOPs, and with sporting expertise to find reasonable cut off-values, height classes in basketball and volleyball could enhance fairness and have the additional value of including more players at competitive levels.[9]

A further point involving both sex and body size classification is this: In many sports FEOPs provides a rationale for body size classification as a replacement for sex classification. Take the example of ski jumping again. I have hypothesized the possibility of abandoning sex classification. Still, there is a clear advantage of being light. Average height and BMI values of successful jumpers are far below average population values, and weight loss regimes pose a health risk. The International Ski Federation has taken an initiative with some success in which low weight is compensated for by reduced ski length, but without having eliminated the advantage of being light (Virmavirta & Kivekäs, 2019). However, and since body weight and size can not be controlled by athletes in any significant way, weight classes could be introduced. This could enhance fairness with the potential additional benefits of easing an extreme focus on weight and include more athletes at the competitive level.

Similar solutions can be found in other sports as well. An additional example could be Olympic windsurfing. Men and women compete in different classes as men, statistically speaking, are heavier and stronger than their female counterparts which, in particular under hard wind conditions, exert significant and systematic impact on performance. On the other hand, windsurfing requires endurance and regular overall strength and aerobic and anaerobic capacity that can be achieved by both women and men (Bojsen-Møller, Larsson, & Aagaard, 2015). Hence, body height and weight seem more important than biological sex. Moreover, when it comes to technical and tactical sailing skills, there is no reason why women's performances cannot match those of men.

More generally, Tännsjö (2000) makes a call for classification based on *real* individual differences such as those in body size and not on statistical generalizations such as those on biological sex differences. With backing in FEOPs, body size classes (height or weight) could contribute to a more precise and fair classification system.

A final challenge is the development of what can be given the broad characteristic of *assistive technoscience* (Fouché, 2017): technological additions to, or replacements of parts of, the organic body. One example is prosthetic limbs, for instance as used by the bilateral trans-tibial amputee athlete Oskar Pistorius. Other examples are surgery of various kinds, for instance laser vision correction surgery to improve golf performance,[10] or the controversial so-called Tommy John elbow surgery (reconstruction of the elbow ulnar collateral ligament) to enhance elite baseball pitcher performance (Ahmad, Grantham, & Greiwe, 2012).

The history of assistive technoscience in sport is a long and interesting one and of particular relevance to Paralympic sport in which technological means have provided athletes with a series of new possibilities. The Pistorius case marked a shift in the discussion as his

ambition was to compete with able-bodied Olympic athletes. Using the Össur carbon-fiber prosthetic limbs on the 400-metre running race was considered by some, including the International Association of Athletics Federations (IAAF, no World Athletics), an unfair competitive advantage. Somehow Pistorius' disability was turned into a super-ability.[11] In 2007, the IAAF ruled Pistorius ineligible for Olympic competition. The case led to intense debates on classification. Should athletes with prosthetic limbs *a la* Pistorius be allowed into the Olympic events, or should they not? Again, the sound application of FEOPs depends upon sound facts. The factual question was whether Pistorius prostheses gave him an exclusive, significant and systematic competitive advantage. Pistorius was ruled ineligible by the IAAF, but appealed to the Court of Arbitration of Sport (CAS). Both the IAAF and Pistorius engaged biomechanical expertise. Evidence was presented *pro et contra* a competitive advantage ending with the 2008 final CAS ruling that Pistorius was eligible as an Olympian. As technoscience develops in terms of prosthetics and non-therapeutic surgery of various kind, there is reason to expect an increasing number of classification issues. Stringent use of FEOPs combined with sound science is needed more than ever.

5. Conclusion

Historically, the classification of athletes in sport has reflected social and cultural ideas of human inequalities leading to segregation and also discrimination. Along with the development of modern welfare societies, sport has moved towards inclusion and opened for participation independent of social, economic, ethnic and cultural background, and of sex, body size, age, and degree of ability and disability. The circle of eligibility has been extended. With this diversity of participants there is an obvious need for sound and nuanced classification schemes.

I have discussed the principles of classification in sport and shown how FEOPs is the backing principle. By using a series of examples, I have demonstrated the relevance of FEOPs and discussed and hypothesized how its implementation, via with updated scientific insights, could justify changes, some of them radical, in contemporary sport. Among those is the proposal of less binary sex classification based on statistical generalization, and an increase in classification based on actual individual inequalities in body size.

There is a need for a few final comments. My strict FEOPs approach can be criticized as reductionist and insensitive when it comes to the diversity of social and cultural contexts that shape the interpretation and practice of sports. For instance, in sport at less competitive levels, alternative values including alternative interpretations of fairness often overrule FEOPs concerns. In children's sports, mixing athletes independent of sex, size, age, and ability can be a brilliant pedagogical tool. In recreational sports, keeping binary sex classification may be preferred by practitioners for social and cultural reasons.

My analysis, however, deals not with mass sports but with internationally standardized competitive sport with an emphasis on the measurement, comparison, and ranking of performance. Here, then, there is the need for a shared interpretation of FEOPs. If some sporting communities choose to uphold existent classification schemes in spite of FEOPs prescribing differently, performance evaluations and rankings lose validity and integrity. Moreover, as seen in the shooting and ski jumping examples discussed above, resistance to change often come from hegemonic groups (usually consisting of men) that value exclusive eligibility and experience success within existent schemes. As a rule of thumb, therefore, in competitive sport, FEOPs should be given priority over social and cultural norms and traditions.

What is needed in many sports is not status quo but critical scrutiny and reflection upon how to enhance fairness. It remains to be seen whether FEOPs and scientific insights will play a more dominant role in athlete and team classification in the time to come.

Notes

1. Classification according to sex, body weight, age, and ability/disability follows stable and "given" inequalities between athletes. We may also talk of dynamic classification schemes based on actual performance levels as used in qualification for events such as championships and for various leagues, cups and series. Classification according to performance levels is secondary to the primary classification according to stable and "given" inequalities and will not be discussed further here.
2. https://www.consultancy.eu/news/3093/real-madrid-and-manchester-united-lead-footballs-rich-list. Accessed 21 December 2020.
3. This does not mean that compensation attempts always work as intended. UEFA's Financial Fair Play initiative has been criticized on several accounts and illustrates the complex relationships between elite sport and financial and commercial forces. For a review, see Schubert and Hamil (2018).
4. See https://www.paralympic.org/classification. Accessed 29 December 2020.
5. For an overview of philosophical theories of sport, in particular of their normative functions and their potential of critical moral evaluations, see chapter 2 in Simon, Torres, and Hager (2015).

6. See https://www.paralympic.org/classification. Accessed 29 December 2020.
7. Interestingly, historically speaking, sex classification in shooting was introduced relatively late. The story of the 1992 Barcelona Olympic Games skeet shooting event is illuminating (https://www.olympic.org/news/spotlight-on-shan-zhang. Accessed 3 January 2021). The event had been open for both sexes (although with only men competing) since its 1972 initiation as an Olympic sport. In 1992, Chinese female Shan Zhang won the qualifier, the semi-final, and the final. For some reason, the International Shooting Federation then changed its rules and introduced binary sex classification. Due to a lack of female competitors in the 1996 Atlanta Games, no women's event was organized, and Zhang was not able to defend her title. Since the 2000 Sydney Olympics, however, skeet shooting was organized as a unisex event. Based on FEOPs, however, there should probably not be sex classification in this shooting event at all.
8. Interestingly, even here, debates arise on revision of classification schemes. To improve unpredictability and fairness of competition, and to reduce negative health implications of rapid weight loss to become eligible for specified weight classes, Bešlija et al. (2020) suggest an evidence-based anthropometric classification scheme in taekwondo.
9. Body height exerts a significant impact in many sports, among them tennis. Studies demonstrate the considerable and positive impact of height on serve speed (Vaverka & Cernosek, 2013). However, in tennis, serving is one among a series of technical-tactical element. Agility and quick movement are just as important. Here, less tall players may have a clear advantage. The extensive variability of elite tennis players' body height indicates that height classification is not required.
10. Commercial actors promote these procedures, among other things by referring to elite players who have undergone surgery. See https://shapirolaser.com/professional-golfers-who-have-had-lasik-laser-vision-correction-eye-surgery/. Accessed 8 January 2020.
11. For a detailed discussion of the ethics, science, and politics of the Pistorius case, see Fouché (2017, pp. 100–128).

Disclosure statement

No potential conflict of interest was reported by the author(s).

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