The Gender Gap in Sport Performance: Equity Influences Equality

Laura Capranica, Maria Francesca Piacentini, Shona Halson, Kathryn H. Myburgh, Etsuko Ogasawara, and Mindy Millard-Stafford

Sport is recognized as playing a relevant societal role to promote education, health, intercultural dialogue, and the individual development, regardless of an individual’s gender, race, age, ability, religion, political affiliation, sexual orientation, and socioeconomic background. Yet, it was not until the 2012 Summer Olympic Games in London that every country’s delegation included a female competitor. The gender gap in sport, although closing, remains, due to biological differences affecting performance, but it is also influenced by reduced opportunity and sociopolitical factors that influence full female participation across a range of sports around the world. Until the cultural environment is equitable, scientific discussion related to physiological differences using methods that examine progression in male and female world-record performances is limited. This commentary is intended to provide a forum to discuss issues underlying gender differences in sport performance from a global perspective and acknowledge the influence of cultural and sociopolitical factors that continue to ultimately affect female performance.

Keywords: sport participation, female athletes, women

Athletic performance is multifactorial, influenced by inherent biological and anatomical differences, as well as environmental forces that shape the culture, affecting sport participation, athlete development, and training. In Olympic sports, men and women compete in different competitive classifications, presumably because the “weaker sex” could not compete without a disadvantage compared with men. Yet, the long-standing issue of whether women’s performance will eventually “equal” that of men’s surfaced again during the 2012 London Games when the final freestyle split of the 400-m individual medley of Ye Shinwen (28.93 s) surpassed that of male gold-medalist Ryan Lochte (29.10) and tied over the final 100 m (58.65 to Ye’s 58.68), although the overall performance time was 23.25 seconds faster (9.5%) for Lochte. The initial reaction was to suspect that artificial enhancement (ie, doping) had provided the biological advantages typically ascribed to androgenic hormones (eg, enhanced muscle mass, oxygen-carrying capacity). The gender gap in sport, although closing over recent decades, remains, due in part to biological differences but also to societal and cultural influences. Therefore, the aim of this commentary is to reflect on the issues that continue to affect female sports performance around the globe.

Sport is recognized as playing a relevant societal role to promote education, health, intercultural dialogue, and individual development, regardless of an individual’s gender, race, age, ability, religion, political affiliation, sexual orientation, or socioeconomic background.\(^1\) Despite this potential, sport continues to exhibit disparity with respect to gender equity, with reduced opportunities, budgetary allowances, and social support for girls and women around the world.\(^2\)

Not until the London 2012 Olympic Games was a female athlete part of every competing country’s delegation, with 44% of all participants on the distaff side (up from 24% in 1984). Recognizing this gender gap in sport participation and achievement, several international organizations (ie, the European Parliament, European Women and Sport, International Olympic Committee, International Working Group on Women and Sport, International Working Group on Women and Sport, and United Nations Educational, Scientific and Cultural Organization) promoted actions in the past decade (ie, the Brighton Declaration, Windhoek Call for Action, Declaration Thessaloniki, Helsinki Spirit, Montreal Toolkit, Berlin Memorandum, Paris Call for Action, Kumamoto Commitment to Collaboration, Dead Sea Action Plan, Sydney Scoreboard, Los Angeles Declaration) to support gender equity in sport through policies and strategies.\(^3\)–\(^9\)

The Olympic Games are deemed crucial for sportswomen’s athletic and social achievements\(^3\)–\(^9\)–\(^13\) and...
Gender-Based Differences in Athletic Performance

Over the years, sport scientists have pondered when and if women will close the sports performance gap with men. To understand the influence of nature on performance, the nurture factor must also be adequately controlled. Methods to accomplish this present challenges. Linear-regression models have predicted when and in what disciplines the gender gap will eventually disappear. These models analyze the rate of progression in male and female performances, and, as with all mathematical models, the techniques are “sterile” by not considering that athletes do not always fit an equation. Analysis of world-record (WR) performances postulated that women would soon outrun men (eg, in long-distance events) because the rate of improvement in female WRs was steeper than that of their male counterparts. However, this did not take into account the sociological aspects (eg, related to reduced opportunities) behind this rate of improvement, as did subsequent studies that indicated that the gender difference in distance running had “stabilized.” The women’s marathon was not included in the Olympics until 1984. In many disciplines, women started competing chronologically later than their male counterparts did (hammer throw, pole vault, and 3000-m steeplechase were the last women’s events introduced in Olympics; women still do not compete in the 50-km race-walk). Even in 2012, the 1500-m freestyle, the longest pool event in Olympic swimming for men, is still not a competitive distance for women (who race only up to 800 m).

Another limitation in analyzing WR progression is that WRs are affected by societal trends, environmental conditions, and “break-through” technological advances. The recently banned full-body “technical” suit led to 18 WRs in swimming during the 2008 Beijing Olympics, compared with only 8 WRs (5 by women) during the London Olympics. Increased buoyancy realized from “tech” suits might have conferred relatively greater benefits for male swimmers than for women. Some women’s track-and-field records have not been broken in several decades. WRs in the 100- to 800-m were set from 1983 to 1988 for women, compared with 2009–2012 for men (except for the 400-m in 1999). WR holders are rare, genetically superior individuals. Is it valid to base comparisons on exceptional times and measures? While this approach eliminates selection bias, is it representative of the athletic population? Paula Radcliffe’s 2003 WR in the marathon (2 h 15′25″) has received enormous attention because it represented a 113-second improvement over her previous 2002 mark, which was itself an exceptional time. Since 2003, very few athletes have approached this time (with Radcliffe recording the only time under 2 h 18 min). According to the International Association of Athletics Federations Web site, since 1993, when the women’s 10,000-m WR was set, only 4 athletes have run it under 30 minutes. Should 29′31″ be the basis of comparison reflecting 10,000 m for all women runners?

Another method of analyzing the gender difference is to compare the top-10 finishers in an event each year. Are top-10 times evenly distributed each year to form an equitable global comparison between women’s and men’s performance in both sprint and endurance events? For track sprint events in 2011, the difference between the first and tenth men in the 100-m was 0′13 (1.3%), while for women it was 0′31 (2.9%), although this gap varies markedly from year to year. In the marathon, the difference between the first and tenth was 2′07″ (1.7%) for men and 4′23″ (3.2%) for women. Data have also been normalized by analyzing the percentage difference in the world’s best each year for the first 100 men and women...
for each discipline. Seiler et al used the top-6 finalists at each Olympics and World Championships in sprint athletics (100-m, 200-m, 400-m), speed skating (500-m), and swimming (100-m freestyle and 100-m backstroke). While this seems a democratic way to analyze data, is the “depth” comparable in the women’s ranks of these sports around the globe, given the variable opportunities for development and rewards for female athletes?

Even more challenging is the comparison of open-skill sport performance, for which athletes develop effective game solutions in relation to opponents. Most gender-related comparisons relate to athletes’ fitness level, whereas technical and tactical aspects of invasion or combat sports are more difficult to objectively assess and evolved predominantly from male sports, making this the reference point. Organizational culture and historical process dictated the delayed introduction of open-skill competitions in the Olympic Games, with the latest entry being women’s boxing in 2012. Female participation rate is a direct result of social acceptability—particularly in societies that might consider specific sports (eg, women’s boxing) less acceptable than more “aesthetic” sports (eg, gymnastics, diving, swimming).

The State of Gender Equity: A Global Perspective

Diverse sport cultures, systems, and organizations exist worldwide. For example, despite European female athletes representing 44% (ranging from 28% to 60%) of their national delegations at the 2012 Olympic Games, there are large gender disparities in the European Union. In general, young European women play less sport than their male counterparts, especially in dominant patriarchal Mediterranean societies. Furthermore, average representation of European women in decision-making positions of sport organization is strikingly low (board chairs 6% ± 5%, chief executive 17% ± 6%, board of directors 19% ± 8%), with better representation in Scandinavian countries. To increase gender mainstreaming, the European Commission called for actions to promote equity in sport, consistent with its Strategy for Equality between Women and Men. In Australia, there is also a dominance of men (~75%) on boards of national sporting organizations. As a result, the Women in Sport Branch was established within the Australian Sports Commissions, which conducts research and develops innovative policies, programs, and practices addressing gender issues in sport. The Australian government also provides funding for sports leadership initiatives (Women’s Leadership Grants and Scholarship for Women). On a global basis, enhanced education, mentoring, and establishment of national and international networks are deemed fundamental to reduce gender bias in sport-administrative bodies. Thus, academic, political, and sport organizations worldwide must take the responsibility to apply recommendations to expedite gender equity in sport.

To provide additional global perspective, we posed ourselves the following question:

What is an Olympic Gold medal “worth” in your country for male versus female athletes?

Australia

All Australian athletes received equivalent high-performance funding in preparation for the 2012 London Olympic Games and incentive money for winning medals. Female athletes won 57% (20/35) of total medals at the 2012 Games, slightly higher than 52% at the Beijing Games. Despite this, women received only 34% of television coverage in 2008. When examining television coverage in Australia across all sports, only 9% of sports reporting is dedicated to women’s sport, compared with 81% for male sport.

Europe

Olympic medals are rewarded differently across European countries ($0 up to the equivalent of $190,000 US) with no gender inequity reported. However, there are large discrepancies in professional and nonprofessional sport. In Italy, 6 national sport federations (eg, soccer, basketball, cycling, motorcycling, boxing, and golf) only recognize professional sport status for men. Salary differentials endure in nonprofessional sports, with female athletes rarely entering national or international sport and sport-related markets.

Japan

Overall, male athletes are under more pressure than female athletes are to win gold medals because societal expectations are higher. For instance, Japanese male Judo athletes have historically dominated in the Olympics, so male Judo athletes were criticized for not winning any gold medals during the 2012 London Olympics. Female Japanese athletes have had a better gold-medal-winning ratio than their male counterparts since the 2008 Beijing Games. After Japan’s women’s soccer team won the 2011 World Cup, the Japanese government realized that supporting female athletes is more cost-effective in winning medals. With this success, additional support and resources will flow to female athletes to maintain the top ranking in medal competitions for international sporting events. Therefore, the “worth” of females winning gold medals is considered higher than that of male athletes according to the current trend.

South Africa

A gold medal in the 2012 London Olympic Games was worth the equivalent of $30,000 US from the South African Sports Confederation and Olympic Committee (SASCOC). The SASCOC budget of US $10,000,000 (over a 4-y Olympic cycle) spent for athlete preparation...
was equivalent by gender in Olympic and Paralympic Games, but distribution between sports is different and depends on medal potential according to their international peer group. In a country relatively recently returned to the Games, every gold medal is considered equal regardless of gender or race of the athlete, especially for so-called major sports like swimming and athletics. Former female Olympic swimming champion Penny Heyns and recent champions Chad le Clos and Cameron van der Burgh cannot be separated with regard to public acclaim and adoration after their success. Regarding endorsements, the public appeal of the individual is paramount. With few international stars, gender bias is difficult to pinpoint.

**United States**

The US Olympic Committee provided $25,000 US for gold medals—an incentive equivalent for male and females. However, the actual value of a gold medal is realized from corporate sponsorships based on the athlete’s marketability. Unfortunately, a female athlete’s appearance and popularity of her sport may dictate what an Olympic gold medal is really “worth.” Salaries of Olympic men and women gold-medal basketball players in their professional leagues remain inequitable: Women’s Olympic men and women gold-medal basketball players earn $18–25 million for the top-10 male players. Thus, the real value of a gold medal is highly variable.

**Conclusion**

In closing, as media coverage, financial incentives, and support provided by national governing bodies and sport federations increase and sociocultural inequities are minimized for women, a gender gap in performance will no doubt remain in certain events. Yet, only then will it be reflective of the inherent biological differences between men and women that affect sport performance. Until that time, discussion of “true” gender differences remains limited.

**References**