

## Harder, better, faster, stronger: why we must protect female sports

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<https://fondofbeetles.wordpress.com/2018/10/01/harder-better-faster-stronger-why-we-must-protect-female-sports/>

(Link to youtube video:

[https://www.youtube.com/watch?v=pzg9QtQelR8&feature=youtu.be&fbclid=IwAR0c080YQdjVkJ0Zc49Zoz7R1TACiPO5V4x54bcRJ\\_LINTYIVluM7aPNE8Dc](https://www.youtube.com/watch?v=pzg9QtQelR8&feature=youtu.be&fbclid=IwAR0c080YQdjVkJ0Zc49Zoz7R1TACiPO5V4x54bcRJ_LINTYIVluM7aPNE8Dc))

In 1988, at the US Olympic trials in Indianapolis, Florence Griffith Joyner romped home in the female 100m quarterfinals to set a new world record of 10.49 seconds (1). This was an astonishing moment in female sports, and not just because of her (in)famous six inch long fingernails. In an event where records usually progress by mere 100ths of a second, she smashed the existing female world record time by nearly three 10ths (the previous holder was Evelyn Ashford, running 10.76s). The world went 'Flo Jo' crazy as they celebrated the 'Fastest Woman Ever', an accolade she still holds today, some 30 years on from the event and 20 years after her death.



Florence Griffith Joyner 10.49s | 100m World Record

**10.49s.** That 10.49 seconds stands as one of the oldest world records in athletics (2). The closest a female has ever got to it is Carmelita Jeter, with 10.64s in 2009. Marion Jones is recorded as the third fastest 100m female sprinter, with 10.65s in 1998.

However, her subsequent admission to steroid use before the 2000 Sydney Olympics means this result might be taken with a pinch of performance enhancing drugs. 10.49s is a time that today's current crop of 100m female sprinters acknowledge is beyond their reach (3). The current 'Fastest Women in the World', 2016 Olympic champion Elaine Thompson and 2017 World champion Tori Bowie, have personal bests of 10.70s and 10.78s respectively. Shelly-Ann Fraser-Pryce, acknowledged as the greatest female sprinter of all time – her medal haul is astonishing – ran a 10.70s personal best in 2012.

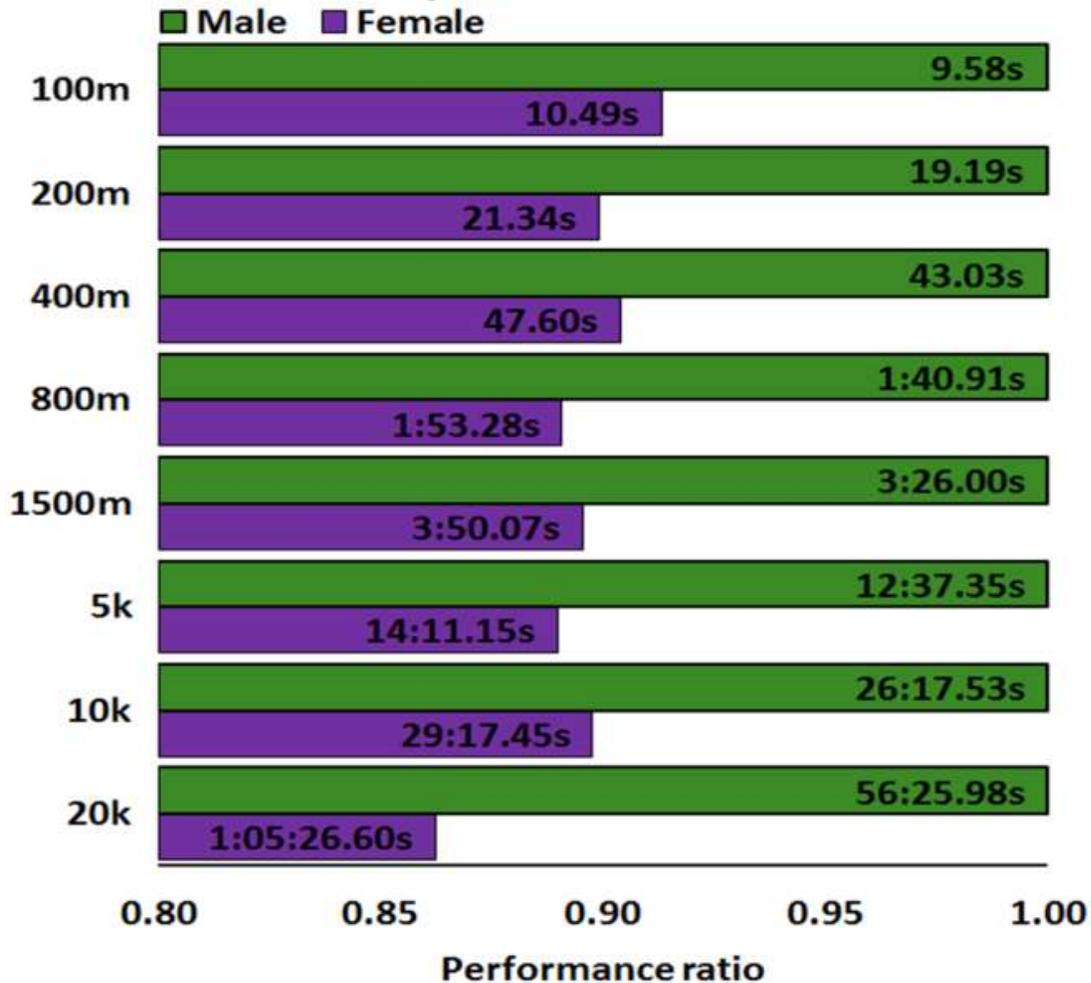
There is controversy surrounding Flo Jo's breathtaking sprint. Firstly, the trackside anemometer measured a wind rating of zero while the equivalent instrument on the adjacent triple jump runway recorded wind speeds that would render the time null (4). Interestingly, Flo Jo had never and would never run as fast as 10.49s, even with strong tailwinds. Nonetheless, the IAAF upheld the record. Even if the run were discounted, Flo Jo would still hold the world record for her 10.61s sprint in wind-legal conditions in the final of the same Olympic trial event. Secondly, that she ran so quickly in the absence of a tailwind is a subject of debate. Although never testing positive for performance enhancing drugs, Flo Jo's sudden peak of speed, her visible increase in muscle mass and her unexpected retirement after the International Association of Athletics Federations (IAAF) announcement that drug testing would become mandatory has, and still does, arouse(d) suspicion (5).

*A note: Neither of those points is disadvantageous to this article – indeed, if this female 100m world record was achieved in wind-assisted and drug-fuelled conditions, it makes the following far bleaker a picture than is presented.*

**Fast women and the 10% gap.** Flo Jo was fast – her average speed over the 100m world record run was 34.3kmph, faster than any female human had run before and has run since – but fast is relative. She wasn't as fast as a female cheetah – Sarah, from Cincinnati zoo, who could run 100m in 5.95s – or as an ostrich, who might average 70kmph, but with admittedly far inferior talons (6). However, short of an extraordinary exhibition meet for which I'd hope all participants are being paid handsomely, a match against an awkward land bird is unlikely for a female 100m runner. There is a more enlightening comparison amongst our own species.

The current male 100m record holder is Usain Bolt, who ran 9.58s in 2009. The time difference between Flo Jo and Bolt is 0.91s, and the time ratio is 0.91 (9.58/10.49). This equates to a 10% performance gap between male and female world records, and is remarkably similar across track races (2; **Figure 1**).

Figure 1. The 10% performance gap between male and female world records in track running. Time – hours:minutes:seconds.100ths.



**Faster than Flo Jo.** What's 10% between males and females? Flo Jo is around 10m behind Bolt as he crosses the finish line, but there's always some bloke who limps home last to great cheers and many congratulations for trying – would she beat that guy? The short answer is 'no'. The general public may have a reasonable guess at what 10m of physical distance between Usain Bolt and Flo Jo looks like, but the general public is almost certainly going to underestimate the number of males who can occupy that 10m gap.

No female has broken the 100m '10 second barrier', or even been close. Males, however, have a list of sub-10 seconders. There are 136 men who have run sub-10 second 100m sprints (2, 7). One naturally wonders how populous a list of males running faster than 10.49s would be. Well, it's a long list, too extensive to plot from 1988 onwards. But in 2017 alone, the last full season of races, 744 senior males ran 100m faster than 10.49s for a combined total of 2825 runs (2; **Figure 2**).

**Figure 2. In 2017, 744 senior males ran 2825 100m races faster than 10.49s.**



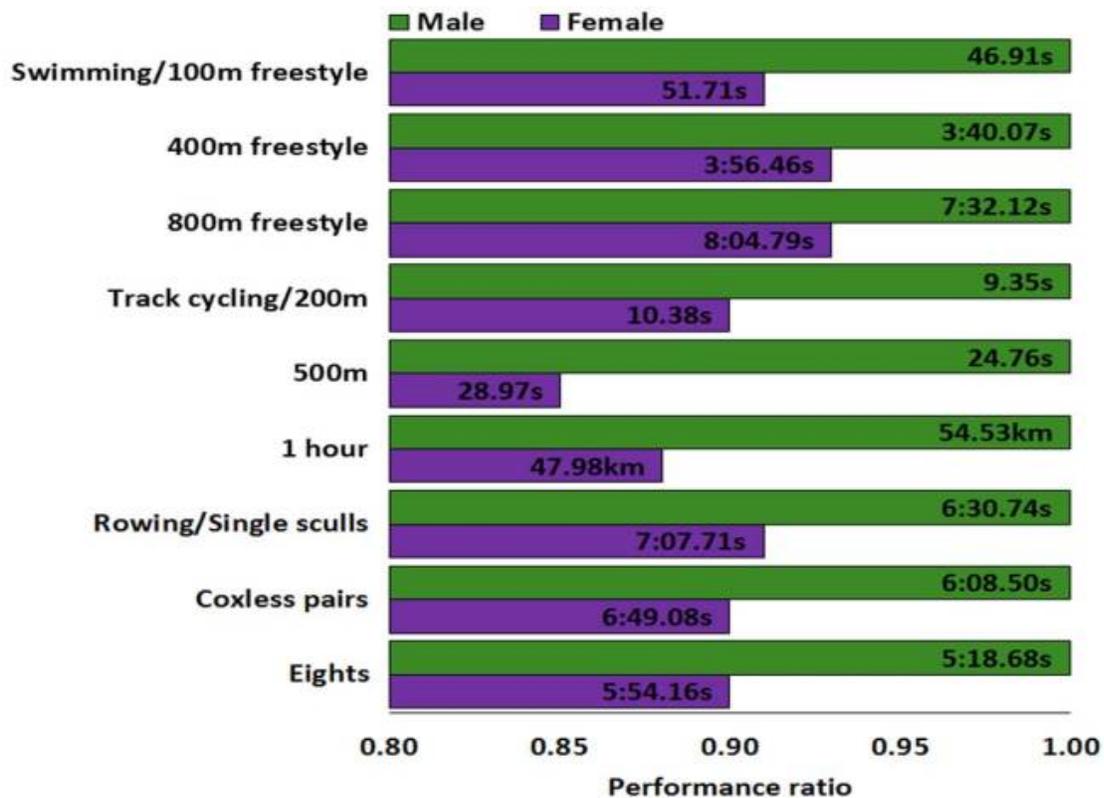
The qualifying time for the male 100m event at the Rio 2016 Summer Olympics was 10.16s (8). The three males who competed for the US qualified with times of 9.80s (Justin Gatlin), 9.84s (Trayvon Bromell) and 9.98s (Marvin Bracy). In the event itself, 58 males ran faster than Flo Jo. Barely making it out of the preliminary rounds, Flo Jo would have finished in the bottom three of all of the eight heats (9). Obviously, she would have required an invitational place for this event, having not qualified in the first place.

But forget 58 senior males running at Olympic level. She's not beating 64 junior UK males who have ever run under 10.49s (10). The most well-tuned, explosive woman who ever trained her eye down a 100m track is beaten by 64 bumfluffed British juniors. She's also not faster than lots of males who don't run track professionally. Marvin Bracy, the US male qualifying for Rio 2016, is an NFL wide receiver, as is Tyreek Hill (10.19s; 11). South African rugby winger Tonderai Chavhanga is faster than Flo Jo (10.27s; 12). Her top speed of 34.32kmph is slower than that of Novak Djokovic as he moves across the tennis court (36.02kmph; 13). She's even slower than Wayne Rooney at full pelt down the footie pitch (34.47kmph; 14), and he's made of potato.

*A note: Of course, I doubt either Djokovic or Rooney could sustain that speed for 100m.*

**Speed demons.** This 10% performance gap between males and females is not just evident in runners but in other speed events such as swimming (15), cycling (16) and rowing (17; **Figure 3**). It's so reliable a gap that when I considered double checking my scribbled multiplications, perhaps with a calculator, that there were definitely 420 seconds in 7 minutes, I knew my mental arithmetic was correct when my calculations delivered a ratio around 0.9.

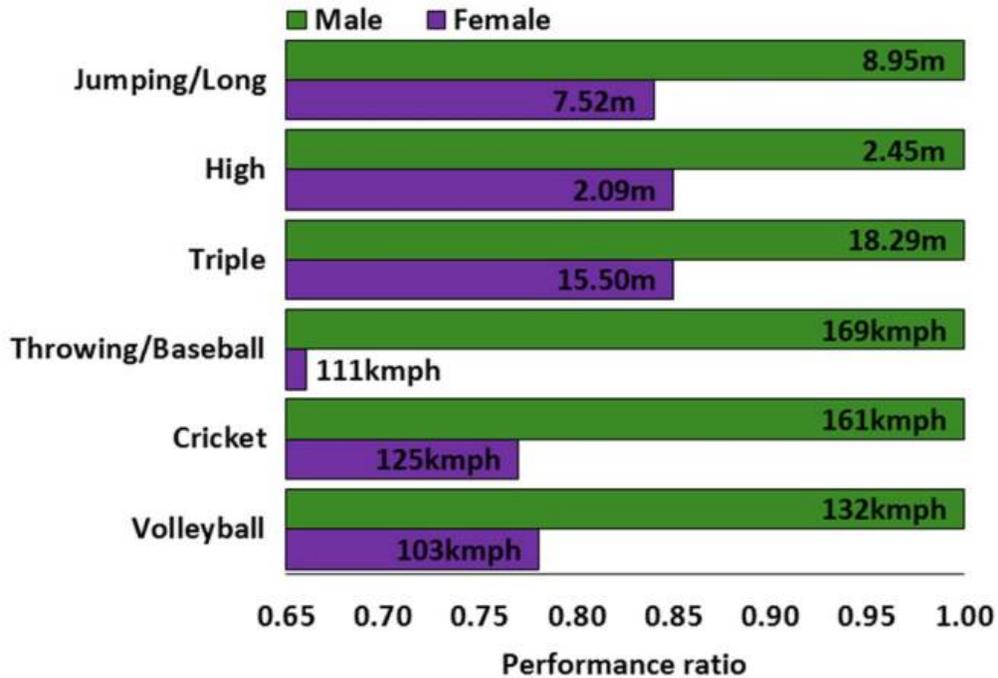
**Figure 3. The 10% performance gap between male and female world records is evident over many speed events. Time – hours:minutes:seconds.100ths. km – kilometres.**



The 10% performance gap starts to widen as we stretch our search beyond speed (although it would reasonably be argued that the events in Figure 2 have a large strength component to performance). In jumping events, the gap is around 15% (2) and in throwing events, it is 20-30+% (18-20; **Figure 4**).

*A note: It's difficult to compare male and female distances in throwing events in field athletics as the weights of projectiles are different between categories. This serves to minimise the gap in distance thrown and, indeed, throws (pun intended) up anomalies such as a longer female record for discus (76.80m for a female throwing a 1kg discus, compared to 74.08m for a male throwing a 2kg discus; 2).*

**Figure 4. A widening performance gap between males and female world records in jumping and throwing events. m – metres. kmph – kilometres per hour.**

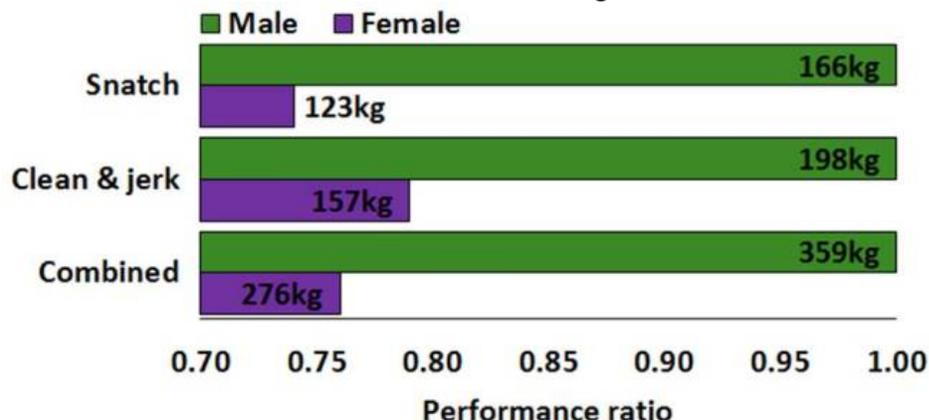


**Raw strength.** Thus far, a comparison of male and female athletes in speed, jumping and throwing events has demonstrated a consistent performance gap. The final event type I will consider, one relying on sheer muscular strength, provides the most clear cut difference in male and female ability.

Olympic weightlifting (this is a discipline name, rather than an event occurring at the Olympics only) comprises two lifts – the *snatch* (a weighted barbell is lifted from the floor to overhead in one movement) and the *clean & jerk* (a weighted barbell is lifted from floor to upper chest, then upper chest to overhead, in two movements). Records are held for individual lifts and competition results are delivered as a combined total of the athlete’s best lifts in each category in a single event (21).

The weight categories in weightlifting are different for males and females but both contain a 69kg (10st12lb) category. World records within this weight category are given in **Figure 5**. The performance gap of 20+% should no longer be surprising to us. However, there is something slightly more nuanced to be uncovered from this weightlifting data, namely how males and females perform compared to their relative sizes.

Figure 5. Females lag 20-25% behind males in Olympic weightlifting. kg – kilograms.



**A problem of scale?** There is no height or weight banding in sprinting. The typical male 100m sprinter is Justin Gatlin (100m in 9.74s), at 1.85m (6'1") and 83kg (13st1lb). Flo Jo, at 1.7m tall (5'6") and 58kg (9st2lb), represents the typical female counterpart. It is tempting to consider that the performance gap between male and female sprinters (and perhaps in other sports) is one of *scale* i.e. if Flo Jo had been 6 inches taller, the gap between male and female sprint records would narrow or even disappear.

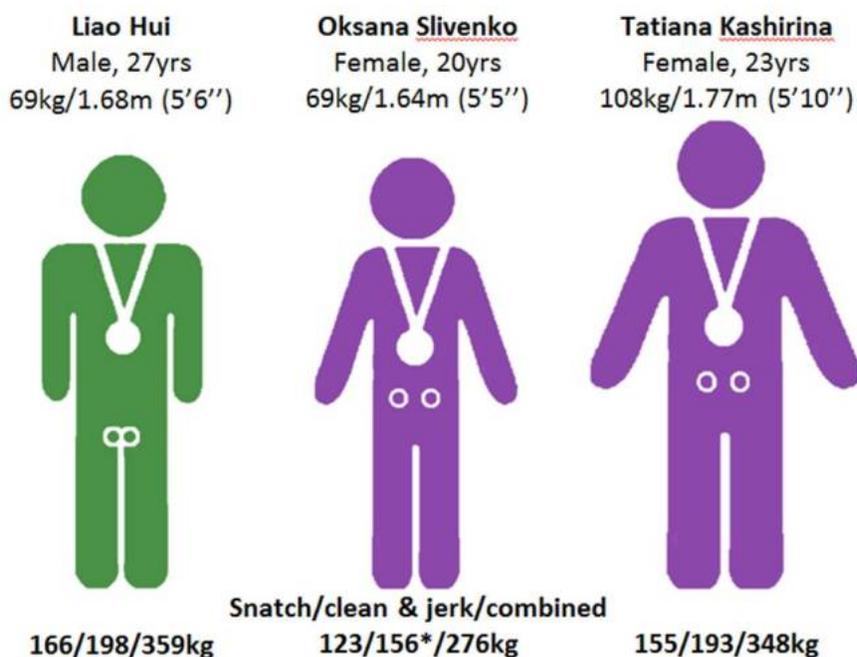
*A note: The most successful male and female sprinters of all time, Usain Bolt (1.95m [6'5"], 94kg [14st11lb]) and Shelley-Ann Fraser-Pryce (1.52m [5'0"], 52kg [8st2lb]), fall far outside these typical measurements.*

A comparison of our 69kg Olympic weightlifting record holders suggests differently (**Figure 6**). Liao Hui (male; 166/198/359kg) and Oksana Slivenko (female; 123/156/276kg) were, at the time of their record breaking lifts, two people of the same weight and about an inch different in height. Hui outlifts Slivenko by 43kg in the snatch and 42kg in the clean & jerk, for a total of 85kg greater combined. 85kg is 13st5lb, about the weight of a typical male 100m sprinter, and over 30% of the female combined lift weight. Even when body size is approximately equivalent, females are not close to male strength.

**The strongest female in the world.** So, the 69kg male weightlifter hammers the 69kg female weightlifter on strength. Where are the females who are stronger than Hui? How tall and heavy are they? The answer is, in Olympic weightlifting, they don't exist. Holding the records in the heaviest female weight category (+90kg) is Tatiana Kashirina, with 155/193/348kg (**Figure 6**). You've read that correctly. The male record holder for the 69kg category can outlift the female record holder in the top category, a female who has a 4 inch height advantage and over 6 stone of weight on him, a female who might reasonably be described as the strongest woman in the world. Clearly, the strength performance gap between males and females is not one of scale.

Kashirina *would* beat the male records in the 56kg (139/171/307kg) and 62kg (154/183/333kg) categories (21). Chen Lijun holds the clean & jerk and combined records at 62kg; he's 1.62m (5'4"). So the strongest woman in the world has a shot against males who are 46kg (7st3lb) lighter and at least six inches shorter than her. She's only lifting 13% more than the male record holder in a weight category almost half her bodyweight.

**Figure 6. The male 69kg Olympic weightlifting world record holder is 30% stronger than his female counterpart and lifts heavier than the female world record holder in the top weight category.** kg – kilograms. \*All lifts are world records except Slivenko's clean & jerk, where the record is Zarema Kasayeva's 157kg.



**Male puberty and testosterone.** Testosterone, the androgen driving male physical development, is a wonderful hormone. It is responsible for advantageous skeletal features that develop during male puberty, such as increased height, increased bone size and density, longer limbs, wider hand spans and a narrower pelvis, all of which make a 100m sprint or a slam dunk far easier. It also directs hugely increased muscle building capacity, allowing higher absolute masses to be achieved in shorter training times, mass which, by the way, contains a higher proportion of fast twitch fibres (responsible for explosive power) than observed in female muscles. To support this superior physicality, males have greater lung capacity, a higher VO2 max (the amount of oxygen consumed during high intensity exercise), a bigger heart with faster stroke rate and higher levels of haemoglobin, and thus can oxygenate their muscles more efficiently.

Analysis of adult/senior female sporting performances demonstrate parity with males around the age of 15 years old for individual events, and perhaps younger in team sports (22). It's no surprise that adult female athletes are outrun, outjumped, out thrown and outlifted when males get that all-important surge of testosterone that will propel their development into superior athletes. Testosterone-driven puberty has delivered us athletes like Usain Bolt, Sébastien Chabal and Anthony Joshua. As the original anabolic steroid (prior to steroids, performance enhancing drugs were stimulant or analgesic in nature), and used widely in the 1980s in state-led doping programmes, it has almost certainly delivered us a fair few elite females too.

**Sex-segregation is necessary for female achievement.** Female athletes are awesome creatures, pushing their bodies to ever further extremes in pursuit of sporting glory. Female sport is still largely overlooked in favour of its male equivalent, but the drive is there to increase participation in early years, to improve media coverage, to reward outstanding females with the fame, victory medals and, depending on the sport, prize money they deserve for being the best at what they do.

**But males are harder. Males are better (at sports, at least). Males are faster. Males are stronger. The performance gap between male and female athletes is utterly astounding; it's not a "gap", it's the Grand Canyon. Without sex-segregated sporting categories, the most wonderful 10.49s that female athletics has ever seen would be a footnote in history. We owe it to the female sports stars of today and to the girls who aspire to be tomorrow's sporting heroes to fight for their right to take home gold.**

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