Women of the Future Are On Track to Run Faster Than Men

By Steve Connor, Science Editor of The Independent

It is the 100 meter final at the 2156 Olympic games. Eight seconds after the starting pistol has fired, the winner takes gold - the first time a woman has beaten a man over this distance.

The seemingly impossible prospect of a woman becoming the fastest person on earth is, according to scientists, just a few generations away.

An analysis of the shrinking gender gap in athletic performance indicates that women athletes are rapidly coming up on the rails on their male counterparts.

A study has shown that women are running faster than they have ever done over 100 meters and, at their current rate of improvement, female sprinters should have overtaken men within 150 years.

This is the conclusion of Andrew Tatem and his colleagues at Oxford University who have compared male and female winning times for the Olympic 100 meters since 1900.

They found that although both men and women have got faster, it is the women who have improved at a faster rate than the men.

Men are about a second ahead of women in 100-meter races. At the Athens Olympics in August, the American Justin Gatlin took gold with a time of 9.85 seconds, while Yuliya Nesterenko of Belarus took the women's title with 10.93.

Dr. Tatem said: "If current trends continue, then women will run faster than men in the 100 meters of the 2156 Olympics." The researchers plotted winning times for the Olympic 100 meters against the year the race took place and found that there was a straight "linear" relationship for each sex - in other words both men and women were getting consistently faster.

The researchers found that the trends were remarkably strong, with no sign that either male or female sprinters have begun to reach a peak performance beyond which it becomes virtually impossible to get any better.

"There is no indication that a plateau has been reached by either male or female athletes in the Olympic 100-meter sprint record," the scientists write in the journal Nature.
The researchers - who normally plot the statistical rise and fall of epidemic diseases - projected the two straight lines on the graph of male and female performance into the future and came to a surprising conclusion.

"Should these trends continue, the projections will intersect at the 2156 Olympics, when, for the first time ever, the winning women's 100-meter sprint time of 8.079 seconds will be lower than that of the men's winning time of 8.098 seconds," the scientists say.
Dr. Tatem said that one possible explanation for the findings is that, as more women in the world have become emancipated over the past century, there has been a larger pool of females who are training to become top-class athletes.

He is confident of the statistical analysis - and that he will not be proven wrong in his own lifetime. "I can probably stake my reputation on it, and then anyone can come back in 2156 and tell me I'm wrong," he said.

But others have made similar predictions of what seems to be a diminishing gender gap in athletics. In 1992, Brian Whipp and Susan Ward carried out a similar study based on the winning times of five Olympic running events that took place between 1900 and 1992, from the 200-meters sprint to the 26-mile marathon.

They found that, over the shorter distances, women were improving at about double the rate of the men.

Over the longer distances the rate of improvement of the women was even faster.

Whipp and Ward went on to conclude that by 1998 the gender difference in some races, notably the marathon, will all but have disappeared - something that did not happen despite the valiant efforts of Paula Radcliffe who last year shaved almost two minutes off the world record she set in 2002.

The problem for any armchair analysis of world records and Olympic running times is that it cannot get round the fact that men and women are fundamentally different in their physiology and build.

Testosterone - the male sex hormone - boosts muscle power and oxygen capacity and men naturally, and legally, have at least about 10 times as much of it circulating in their bodies than women.

As a result, men can build up more muscle bulk than women and develop larger hearts for pumping oxygenated blood from the lungs to the limbs.

The heart of a highly trained female athlete may be able to pump as much blood as a healthy man's heart, but it has to work much harder to do so.

Testosterone also boosts the production of red blood cells, which transport oxygen around the body. This means that men's blood typically has 10 percent more hemoglobin, the vital pigment in red blood cells that carries oxygen from the lungs to the muscles.

With such innate advantages of being a male athlete, it seems difficult to see how female athletes could ever catch up with the performance of men. In fact, another study by exercise scientist Stephen Seiler of the Institute of Health and Sport in Kristiansand, Norway, and his colleague Steven Sailer found that far from getting smaller, the gender gap between male and female athletes was in fact getting wider.

Dr. Seiler and Dr. Sailer examined running performances of men and women over the past 40 years but limited the comparison to events where male and female participants ran under nearly identical conditions, such as temperature and humidity.

They timed the races from films of the events, rather than relying on hand-timed stopwatches, and used the times of the first six runners past the finishing post rather than the time of the winner.

The exercise scientists found that the male-female gender gap was narrowest in the 1970s and 1980s - possibly because the illicit use of steroids had made some female athletes more like men - but since the 1990s had in fact begun to widen.

They concluded that, if the marathon is excluded, the average performance gap for other running events has increased from 11 percent in the mid 1980s to 12 percent in the mid 1990s. In their estimation, therefore, women runners have actually fallen behind men over the past 10 years - something that the other two studies did not show.

Dr. Seiler recently told the journal Science: "We are approaching the limits of human performance in a lot of the one-dimensional events like the 100-meters sprint or marathon."

If this is the case, then the rise of the female athlete is set to hit a plateau that is well below that of the best male athlete. As Norway's marathon queen, Grete Waitz, once said: "As long as women are women, I don't think they will surpass men."

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