

Distance running is a perfect lab to investigate whether men are more competitive than women

May 26 2015, by Robert Deaner



Credit: AI-generated image ([disclaimer](#))

What are the psychological differences between women and men? What causes these differences, and are they shrinking over time?

The dominant view – held by most scholars and policymakers – is that

[sex differences](#) are slight and can be rather easily altered. Whether this view is true or not has implications for policy, such as Title IX, the [federal law](#) that aims to provide men and [women](#) with equal access to [educational opportunities](#), including athletic opportunities.

For the past decade, I have been investigating psychological sex differences by studying competitiveness in US [distance runners](#). Distance running is ideal for study because the motivation to run varies greatly. While some runners are motivated by competition, most participate for other reasons, such as building social relationships, finding meaning in reaching their goals, and boosting their health and fitness. Distance running is also a great study subject because it is popular with both men and women and the incentives do not favor men. There are, for instance, more collegiate athletic scholarships for distance running available for women than men.

Back in the 1980s, women [comprised](#) roughly 25% of finishers at US road races and about 40% of high school and collegiate runners. Today there are more women than men in road races and on collegiate cross country teams, and women have nearly reached men's participation levels in high school cross country. This convergence in participation mirrors trends in other areas, such as education and employment. It suggests that men and women no longer differ in their motivation.

My studies, however, show that this picture is only superficially correct. If we scratch below the surface, there is clear evidence of a large sex difference in competitiveness in US runners.

What do new studies tell us about the sex difference in distance running?

In one [recent study](#), we recruited over 1,100 varsity intercollegiate

distance runners to complete surveys addressing their training, motivation and performance.

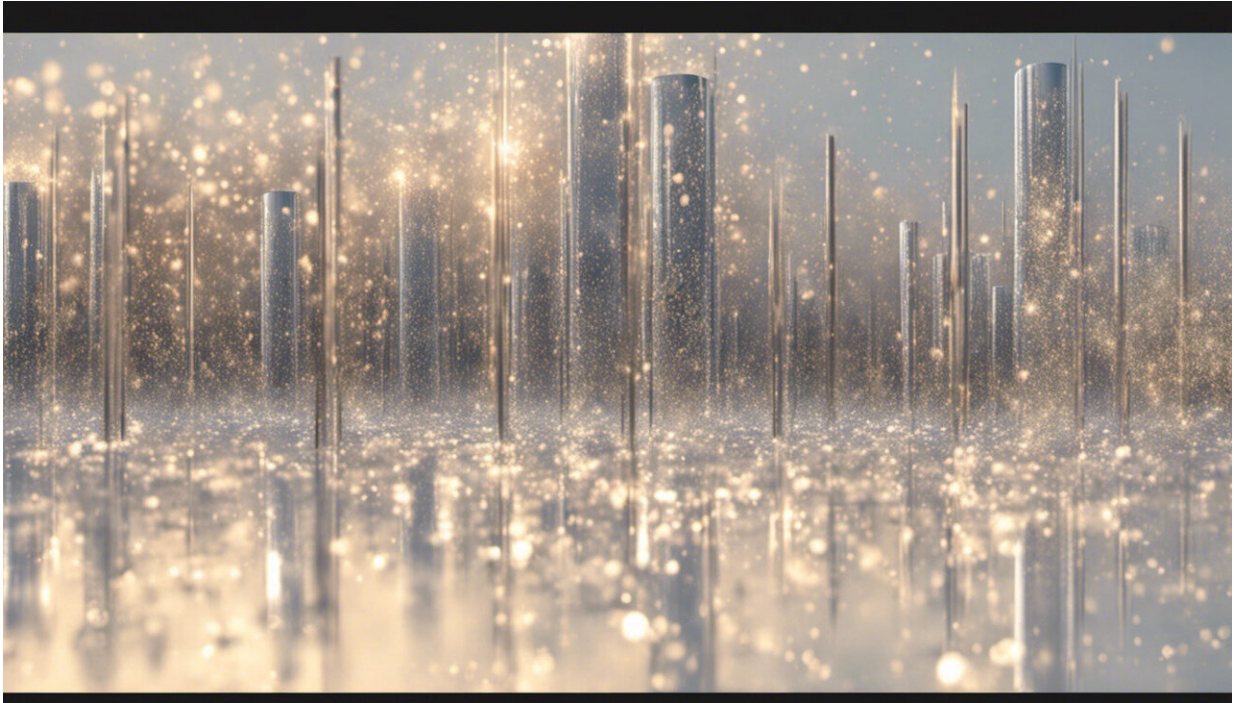
Compared to men, women reported being less competitive, training less and wanting to train less. The women reported greater commitment to their studies. Perhaps the most interesting finding was that these sex differences were just as large among the fastest as among the slowest runners. That is, even the very best female athletes, the ones with full scholarships and realistic professional prospects, were still quite different than their male counterparts.

In another [recent study](#), we assessed the pacing of 92,000 runners at 14 different marathons. Although men and women both tended to slow their pace in the second half of marathons, this effect was stronger for men.

The sex difference was especially pronounced when looking at runners who slowed by 30% or more – men were three times as likely as women to do this. These results indicate that more male marathoners undertake a competitive, risky pace. They begin at a pace that could lead to a superb performance, given their own talent and training, but one that also increases their chances of crashing or "hitting the wall."

Another [study](#) of ours focused on participation at track races and road races by masters runners, who are at least 40 years old.

At road races, women comprised 52% of participants, but at track meets they comprised about 25% of participants. This pattern is remarkable because road races and track meets draw different kinds of runners. At road races, most runners have a recreational orientation, not a competitive one. This is revealed in how road racers answer questionnaires and in their generally slow performances.



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Track meets are different because, although they are not as popular, the runners who do show up almost always run fast relative to sex-specific, age-specific world records.

The sex difference in participation at track meets indicates that the relatively small number of older competitive runners are still much more likely to be men than women. In this study, we also checked if the sex difference in track meet participation had decreased over the past 25 years, as it had for road race participation. We found that women narrowed the gap slightly in the late 1980s and early 1990s, but the sex difference has been stable since then.

We have also found substantial sex differences in performance depth. For example, in a typical 5-kilometer road race, for every woman that

finishes within 125% of the female world record, there are roughly three men who finish within 125% of the male world record.

We have [documented](#) this pattern in hundreds of road races and also in [large samples](#) of high school, collegiate and professional runners. The best supported explanation for this sex difference is that more men are motivated to do the training necessary for fast performances. We have examined whether this sex difference is shrinking and, again, we found that it isn't.

How robust is the difference?

These studies collectively indicate that male and female runners still differ psychologically, with men generally being substantially more competitive. However, this conclusion has been challenged by some who point out that alternative explanations for each of the studies' findings are conceivable.

For instance, perhaps there are unknown physiological limitations that prevent as many female as male runners from running relatively fast despite a similar number engaging in high-level training. Although such hypotheses deserve study, none can provide a plausible explanation for phenomena as diverse as men and women differently deciding to participate in track meets, pacing differently in marathons and responding differently on surveys.

A vital question is whether the sex difference in competitiveness in distance running applies to other contexts and populations. This is a challenging question, and much research remains to be done.

However, we [recently reviewed](#) the mounting research on sex differences in motivation and interest in sports besides distance running. This research fully supports our distance running results. That is, in the

US and all other known societies, males are, on average, more interested in participating in competitive sports, whereas there is no sex difference in the desire to exercise.

Structural barriers cannot plausibly explain the difference in sports interest because [we showed](#) that the sex difference in sports participation is considerably larger, not smaller, in informal settings where there are no barriers.

We were even able to test whether the sex difference in wanting to play competitive sports is decreasing in the US. We did this by analyzing intramural sports participation, which is an excellent measure of motivation to play because there are no substantial external incentives, such as scholarships, or constraints on participation, such as roster limits. We [found](#) that, for both coed and single-sex intramural competition, men participated about three times as frequently as women, and this difference had been stable since at least the early 2000s.

What causes the sex difference?

A key question is whether the sex difference in competitiveness can be erased. This is, of course, a challenging question, but the existing research indicates that decades of expanding athletic opportunities for girls and women, although beneficial in many respects, has not decreased the sex difference in competitiveness.

It may be that patterns of socialization for girls and boys are crucial yet beyond the reach of public policies. Another possibility is that the sex difference in competitiveness reflects, at least in part, innate predispositions that evolved in response to the different challenges men and women faced during our evolutionary history.

There is also [evidence](#) that prenatal exposure to androgens (hormones

that influence the development of male characteristics) is reliably associated with sports interest.

Differences between sexes aren't about who's better or who's worse

Journalists and scientists who discuss sex differences often use value-laden language, saying thing like, "When it comes to such-and-such, women are better than men" or vice versa. Such statements are regrettable, and our distance running research illustrates why. In the study of collegiate distance runners, the men were more competitive in their running, but the women were more committed to their studies. There is no compelling reason to believe that one preference is "better" than the other.

Likewise, in the study of marathon pacing, men's greater use of risky strategies probably increases their odds of achieving an exceptional performance, but women's more even pacing would lead to less discomfort and, in most cases, a better chance of achieving a satisfying performance. Again, it is misleading to baldly state, as several journalists have done, that, based on our results, women are better than men at pacing.

Among distance runners, men are, on average, more competitive than women, and there is no indication this difference is disappearing. This difference doesn't make men superior to women, and it doesn't make women superior to [men](#). Different is different, and we should value and accept this diversity.

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