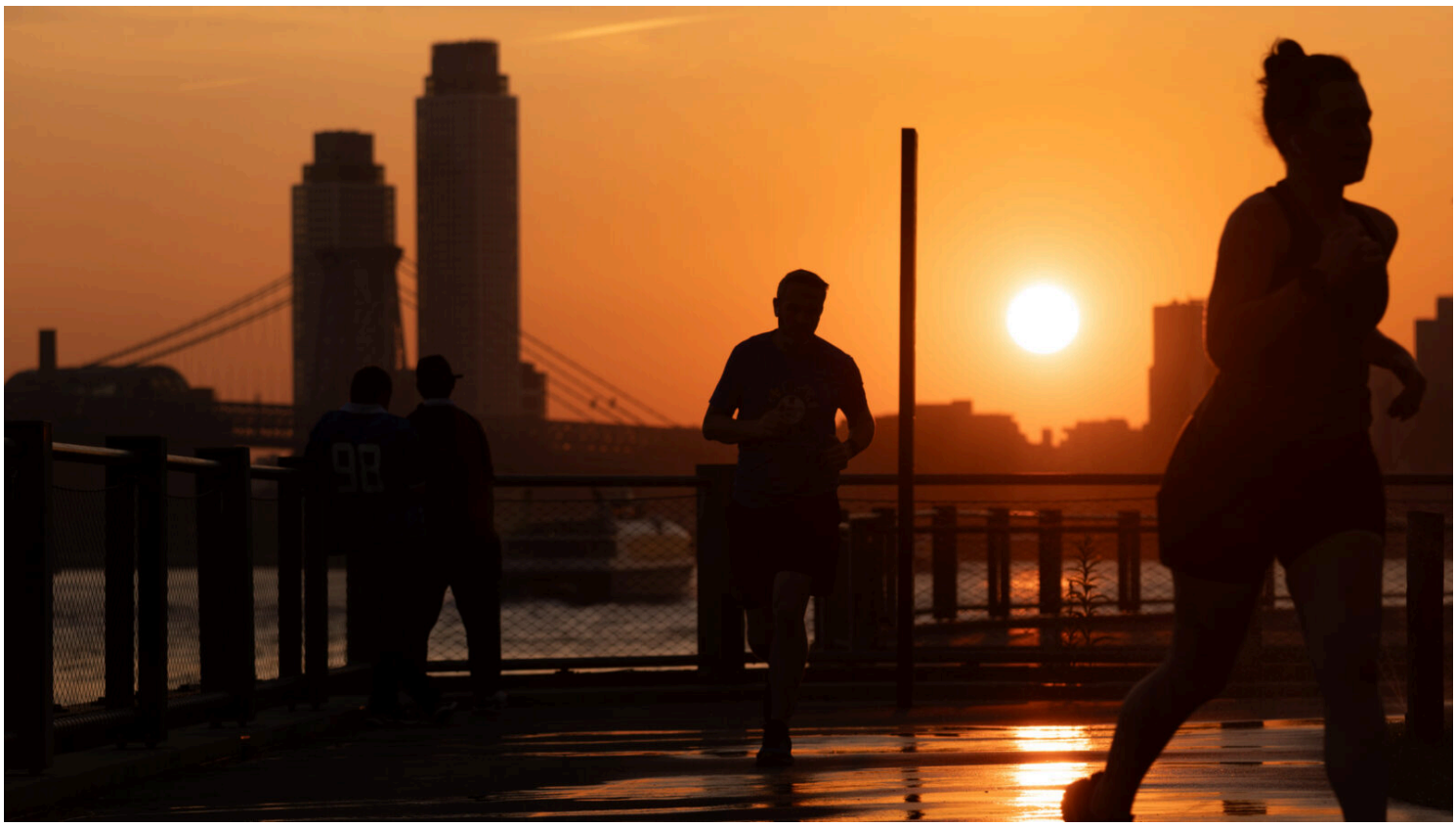
HEALTH

For heart health, physical activity favors women

Women reduced their risk more than men in a large study, but men were more susceptible to coronary heart disease



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By Elizabeth Cooney Oct. 27, 2025

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When it comes to reaping heart health benefits from physical activity, women saw bigger drops than men in their risk of developing coronary heart disease when they followed or exceeded weekly exercise recommendations. And as a new study published Monday in Nature Cardiovascular Research reports, they needed fewer minutes to see significant health improvements.

Based on activity data mined from wearables strapped to the wrists of more than 85,000 UK Biobank participants, the observational study concluded females had a 22% lower risk of coronary heart disease if they logged 150 minutes per week of moderate to vigorous exercise. Males doing the same amount of exercise had a 17% lower risk.

When physical activity was amped up to 250 minutes per week, females logged a 30% reduction in their risk of disease. To reach that level, males had to increase their activity to 530 minutes per week.

The vast majority of people in the study had no prior coronary heart disease, but among those who did, active females had a risk of death that was three times lower than males meeting the guidelines. All participants were asked to wear activity trackers for a week while pursuing their normal daily lifestyles, including exercise. Their heart health was then tracked for nearly eight years.

“Our findings highlight the promising potential of sex-specific, tailored coronary heart disease prevention using wearable devices, which may help bridge the gender gap by motivating females to engage in physical activity,” co-author Jiajin Chen of Xiamen Cardiovascular Hospital, Xiamen University, told STAT.

Here’s the gender gap behind that advice: More women (33.8%) than men (28.7%) fall short of their recommended physical activity minutes, previous researchers have determined. Among this study’s participants, females fell behind males in both exercise duration and intensity, as well as adherence to guidelines. Females in the study who met the guidelines reached the same level of health benefits as males, with only half the time exercising.

But there’s another data point in the study that argues against adjusting exercise recommendations, said a scientist who has devoted his career to exploring and explaining the distinctions between male and female bodies outside the reproductive system, with particular emphasis on heart differences at the cellular level.

David Page, a member of the Whitehead Institute for Biomedical Research and MIT professor of biology, pointed to the proportion of people in the study who went on to develop coronary heart disease. The underlying risk was much higher in men than in women, regardless of whether they exercised or not.

“The fact that the males start out having a seemingly inherently higher risk means that on an absolute scale, the benefit to males is closer to that of females,” Page told STAT in an interview. He was not involved in the study.

“One-size-fits-all is not the way we should go forward in preventing and treating coronary heart disease, but I don’t find convincing at all the argument that different advice regarding exercise should be given to males and females,” he said. “It’s very clear from this data, and of course from lots of other data, that exercise is good for both males and females with regard to coronary heart disease.”

We don’t know why these gender differences exist

While the researchers did not pinpoint a mechanism behind the variation, there is a growing understanding of how sex impacts physiology, Holly Andersen, a cardiologist at New York-Presbyterian/Weill Cornell Medical Center, told STAT. She did not work on the study.

Women’s hearts are smaller and beat faster at rest, during exercise, and in sleep, she said. Hypertension is a stronger risk factor for coronary heart disease in women than in men, and regular physical activity has been associated with lower blood pressure.

“The physiologic benefit from exercise for women does not surprise me and underscores the need for continued sex-specific research in cardiovascular disease and prevention,” Andersen wrote STAT in an email. “This research

can translate into better outcomes for women. Deaths due to heart disease are increasing the fastest among young women and we need to change this."

There's more than heart size to consider, Page said. Women have more cardiomyocytes, the heart muscle cells that contract and pump. These cells differ not only in number but in the fuel they use, his lab has discovered. Women's cardiomyocytes burn more fatty acids than male cardiomyocytes, which are more inclined to burning sugar.

These cellular differences have implications early in pregnancy, when a female's cardiac output increases 50%, and in heart failure, when the heart pumps too inefficiently. Women with heart failure tend to live longer and have a lower risk of sudden cardiac death.

There are some important caveats to keep in mind. Most of the people enrolled in the UK Biobank were white, had healthier lifestyles, and lived in areas with less socioeconomic deprivation, the authors noted.

"How these findings translate to a diverse cohort is an important question, particularly as socioeconomically deprived and minority populations experience the lowest levels of physical activity and the worst cardiovascular outcomes," cardiologist Emily Lau of Massachusetts General Hospital wrote in a companion viewpoint.

As for the mechanism driving this disparity, the authors offer a few possibilities. Estrogen, much higher in females, can stimulate the loss of body fat during exercise, which would lower heart disease risk. Androgen is not mentioned, nor the possible effects of sex chromosomes. They cite another study showing that when men do burn lipids during exercise, their risk of coronary heart disease falls. And there are differences in the composition of skeletal muscle and in how glucose is converted into energy, although how this metabolic difference might matter isn't known, the authors wrote. Heart muscle is not mentioned.

What comes next

Exploring these findings in different populations is one of their next steps, Chen said. His team is also conducting biological experiments to investigate the potential underlying mechanisms.

The field is still fundamentally driven by the assumption that male and female hearts are qualitatively the same, Page said.

"I think we need a much deeper, broader understanding of male-female differences in cell biology across the body and I would say the heart and the cardiovascular system come first on that priority list because cardiovascular disease together with cancer compete for first and second positions in all-cause mortality," Page said. "I think the evidence for male-female differences in heart disease and therefore in the heart are overwhelming. And this paper I think adds to the evidence of that."