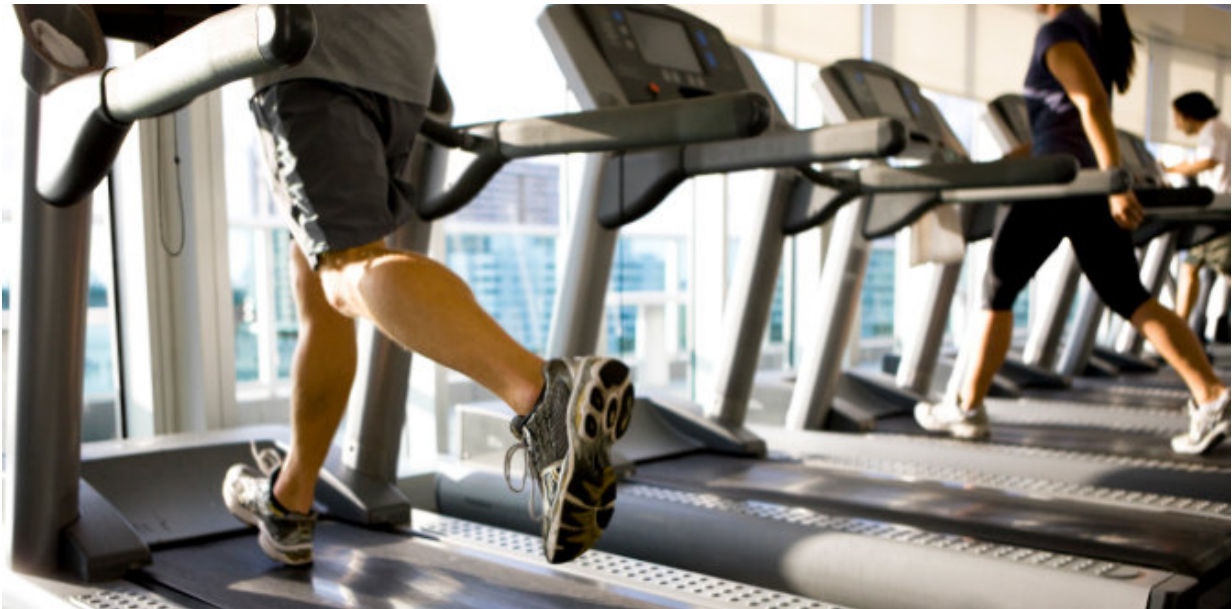


Exercise could outsmart genetics when it comes to heart disease

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Credit: American Heart Association

Exercise, especially cardio fitness, could outweigh genetics when it comes to heart disease, according to new research.

The study, published Monday in the journal *Circulation*, showed strength and cardiorespiratory fitness lowered the risk for [heart disease](#) across the board – whether people were categorized with low, intermediate or high [genetic risk](#).

"Genes don't have to determine destiny," said Dr. Erik Ingelsson, lead study author and professor of medicine at Stanford University. "You can impact your risk by being more fit."

The study examined 482,702 people in England, Scotland and Wales who participated in the UK Biobank, an international research project that recruited participants between ages 40 and 69 years old from 2006 to 2010. Researchers followed those who didn't have any signs of heart disease for about a decade. They tracked activity and exercise through questionnaires, grip strength measurements and other tests.

"It's was a very consistent pattern for all of these different measures," according to Ingelsson, who said he believes it is the largest such study. "All were associated with lower risk of disease in the future."

Researchers specifically investigated the genetic profiles for those at highest risk for [coronary heart disease](#) and a [heart rhythm disorder](#) called atrial fibrillation, or AFib. Those at the highest risk who also had the highest levels of [cardiorespiratory fitness](#) – conducted through oxygen and effort measurements on a stationary bicycle – cut their coronary [heart disease risk](#) by 49 percent and their AFib risk by 60 percent.

The research is important – and timely, said Dr. Russell Pate, a professor in the University of South Carolina's Department of Exercise Science in the Arnold School of Public Health.

"They've demonstrated that physical activity and fitness were associated with a reduced risk of cardiovascular disease outcomes across a continuum of persons," Pate said. "For the public, that's an important message. You can't eliminate genetic risk, but you can absolutely attenuate the effects."

Pate just finished a term on a committee that writes the federal Physical

Activity Guidelines. The group's advisory report was released last month and will be the foundation for the U.S. Department of Health and Human Services' policy recommendations on how physical activity can promote health and reduce the risk of disease. The advisory group's recommendations have a chapter emphasizing the importance of exercise with people who have chronic conditions.

The latest research is "added ammunition in making the case that promotion of [physical activity](#) deserves a prominent place in public health," Pate said.

Heart disease is the leading cause of death in the world, though there are proven ways to lower risk. People often hear about risk factors such as smoking, high cholesterol, high blood pressure and excess weight. Now, the expanding field of genetics can provide more information, Pate said.

"We're in a new era in terms of people being able to know their risk status," he said. "We can now provide information at a new and higher level."

Ingelsson and the study authors suggested it could lead to individualized strength-training and aerobic programs to help people counteract their genetic risk for [heart](#) disease.

But one important question to answer, and a potential future area of study, Ingelsson said, is whether that knowledge truly is power. If we know that lifestyle choices like exercise could offset our genetic risk for [disease](#), how likely are we to start that healthier lifestyle?

More information: Emmi Tikkanen et al. Associations of Fitness, Physical Activity, Strength, and Genetic Risk With Cardiovascular Disease: Longitudinal Analyses in the UK Biobank Study, *Circulation* (2018). [DOI: 10.1161/CIRCULATIONAHA.117.032432](https://doi.org/10.1161/CIRCULATIONAHA.117.032432)

Provided by American Heart Association

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