

New formula gives first accurate peak heart rate for women

June 28 2010

Women who measure their peak heart rates for exercise will need to do some new math as will physicians giving stress tests to patients.

A new [formula](#) based on a large study from Northwestern Medicine provides a more accurate estimate of the peak heart rate a healthy woman should attain during exercise. It also will more accurately predict the risk of heart-related death during a [stress test](#).

"Now we know for the first time what is normal for women, and it's a lower peak heart rate than for men," said Martha Gulati, M.D., assistant professor of medicine and [preventive medicine](#) and a [cardiologist](#) at Northwestern Medicine. "Using the standard formula, we were more likely to tell women they had a worse prognosis than they actually did."

Gulati is the lead author of a study published June 28 in the journal *Circulation*.

"Women are not small men," Gulati added. "There is a gender difference in [exercise capacity](#) a woman can achieve. Different physiologic responses can occur." Gulati was the first to define the normal exercise capacity or fitness level for women in a 2005 study.

The old formula -- 220 minus age -- used for almost four decades, is based on studies of men. The new formula for women, based on the new research, is 206 minus 88 percent of age.

At age 50, the original formula gives a peak rate of 170 beats per minute for men and women. The new women's formula gives a maximum heart rate of 162 beats for women. Many men and women use their peak heart rate multiplied by 65 to 85 percent to determine their upper heart rate when exercising.

"Before, many women couldn't meet their target heart rate," Gulati said. "Now, with the new formula, they are actually meeting their age-defined heart rate."

The new formula is trickier to calculate, Gulati acknowledged, but is easily determined with a calculator. She currently is working on an iPhone application for a quick calculation.

The new formula is based on a study of 5,437 healthy women ages 35 and older who participated in the St. James Women Take Heart Project, which began in the Chicago area in 1992.

With the new formula, physicians will more accurately determine if women are having a normal or abnormal response to exercise. "If it's abnormal, that's a marker for a higher risk of death," Gulati said. "Maybe we need to talk about whether you exercise enough and what we need to do to get it into the normal range."

"We need to keep studying women to get data applicable to women," Gulati said. "It's important to not get complacent that we have data on men and assume women must be the same. They're not."

Gulati's senior author on the study was Morton Arnsdorf, M.D., professor emeritus and associate vice chairman of medicine and former section chief of cardiology at the University of Chicago. Arnsdorf died in a motor vehicle accident in June.

"I feel fortunate to have been his student, have him take me under his wing and be my mentor," Gulati said. "He was an amazing mentor." The Women Take Heart Project study had been sitting dormant, and Arnsdorf encouraged her to open it to do more research, Gulati said.

Provided by Northwestern University

Citation: New formula gives first accurate peak heart rate for women (2010, June 28) retrieved 20 April 2024 from

<https://medicalxpress.com/news/2010-06-formula-accurate-peak-heart-women.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.