

# Physical activity can protect overweight women from risk for heart disease

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For otherwise healthy middle-aged women who are overweight or obese, physical activity may be their best option for avoiding heart disease, according to a study that followed nearly 900 women for seven years. These findings were reported in a paper led by authors at Albert Einstein College of Medicine of Yeshiva University and Montefiore Medical Center, the University Hospital for Einstein, and published today in the *Journal of Clinical Endocrinology & Metabolism*.

"Being overweight or obese increases a person's risk for developing conditions such as hypertension, elevated triglyceride levels and elevated fasting glucose levels—all of them risk factors for heart disease, the leading cause of death in the U.S.," said lead author Unab Khan, M.B.B.S., M.S.), assistant professor of pediatrics and of family and social medicine at Einstein and attending physician, pediatrics at Montefiore. "With about two out of every three American women overweight or obese, we need to find practical ways to keep them healthier, longer."

The authors identified 866 overweight and obese women, aged 42 to 52 who were enrolled in the Study of Women's Health Across the Nation/, or SWAN, a multicenter, multiethnic study designed to examine the health of women during their middle years. The women studied were categorized as "metabolically benign overweight/obese." That means they had at most one risk factor for heart disease and therefore were at a lower risk for developing the disease. The study's main goal was to identify factors that may influence these women to fall into the "at-risk

overweight/obese" category, i.e., at high risk of developing heart disease—as well as factors that would help women avoid the high-risk category.

Throughout the seven-year study, the women were tested annually for heart disease risk factors. They also completed an annual survey describing their physical activity for the prior 12 months, which ranged from active living, caregiving and doing household chores to exercise and sports.

During the seven years, 373 of the participants—43 percent of the total—had progressed from having at most a single risk factor for heart disease (i.e., metabolically benign overweight/obese) to at-risk overweight/obese, meaning they had developed two or more of the following five heart-disease risk factors: hypertension; low blood level of HDL ("good") cholesterol; elevated blood levels of triglycerides, elevated fasting glucose level (indicating pre-diabetes or diabetes); and elevated levels of C-reactive protein ( indicating inflammation).

Low-to-moderate physical activity—at the start of the study and during it—was the only lifestyle factor found to protect overweight/obese women from becoming at-risk for heart disease. More specifically, women who participated in physical activity during the study were 16 percent less likely to become at-risk for heart disease compared with women who were not physically active.

The researchers also identified several "triggers" that predisposed women to become at-risk for heart disease:

- Women who had elevated fasting glucose levels or took antidiabetic drugs at the start of the study were more than three times as likely to become at-risk for heart disease compared with women who had normal fasting glucose levels when the study

began.

- Women who had hypertension at the start of the study were three times more likely to fall into the at-risk group compared with women who were not hypertensive at the start of the study.
- Women who gained weight during the study were 16 percent more likely to become at-risk for heart disease compared with women who did not gain weight.

"A large number of women who began the study— more than 40 percent of them— were no longer heart-healthy by the end of it," said Dr. Khan. "But our study does demonstrate the important role that physical activity can play in protecting overweight or obese women from becoming at-risk for heart disease. Our findings suggest that physical activity may be able to prevent overweight women from developing heart disease even if they have risk factors for the disease."

The study is titled "Progression from Metabolically Benign to At-risk Obesity in Perimenopausal Women: A Longitudinal Analysis of Study of Women Across the Nation (SWAN)." Dan Wang, M.S., of Einstein was also an author of the study. Other authors were Carrie A. Karvonen-Gutierrez, M.P.H., Ph.D., and Kelly R. Ylitalo of the University of Michigan School of Public Health; Naila Khalil, M.B.B.S., M.P.H., Ph.D., of Wright State University; and senior author Nanette Santoro, M.D., of the University of Colorado-Denver School of Medicine.

**More information:** The study, "Progression from Metabolically Benign to At-risk Obesity in Perimenopausal Women: A Longitudinal Analysis of Study of Women Across the Nation (SWAN)," was published online, ahead of print.

Provided by Albert Einstein College of Medicine

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