Physical fitness may help reduce chronic disease risk in college students

June 17 2010

Staying in shape may bolster the metabolic profiles of college students, even in those with higher than desirable body fat percentages. In an epidemiological study, researchers at the Friedman School of Nutrition Science and Policy at Tufts University found an association between physical fitness, body fat percentage and certain metabolic risk factors that are precursors to cardiovascular disease and Type 2 diabetes.

The data were collected from 564 male and female students who enrolled in the Tufts Longitudinal Health Study (TLHS), which tracked health and health-related behaviors in college students at Tufts University between 1998 and 2007. For the present study, the authors tracked four biomarkers of metabolic risk (high-density lipoprotein (HDL), low-density lipoprotein (LDL), triglycerides and blood glucose levels) in relation to body fat and physical fitness.

Researchers deemed body fat percentage above 23% in women and above 19% in men as higher than desirable and measured fitness based on performance on a 3-minute step test.

"Although cardiovascular disease and diabetes often surface much later in life, our results tell us that men and women in late adolescence and early adulthood are already showing chronic disease risk, but that keeping fit may help reduce this risk," says senior author Jennifer M. Sacheck, PhD, assistant professor at the Friedman School. "Certain metabolic risk factors were closer to recommended levels in both male and female students whom we classified as fit, even if their body fat

percentages were higher than desirable."

Physical fitness appeared to have a greater impact on certain metabolic risk factors than body fat. Being fit correlated with lower triglycerides and higher HDL, the healthy cholesterol, in women and lower blood glucose levels in men. The results are published in the June issue of *Medicine & Science in Sports & Exercise*.

"We saw a stronger correlation between fitness and reduced metabolic risk in women, which may be due to the small number of men who enrolled in our study. At the same time, we also recognize this study enrolled an unusually healthy population of college students," Sacheck says. "Most of the participants had healthier body fat percentages than the average 18 or 19 year-old, yet nearly 25% demonstrated low levels of HDL, one-third demonstrated elevated LDL cholesterol levels, and 11% had high triglycerides, indicating it's not premature to work on reducing chronic disease risk as a college student."

Sacheck adds that future research might also examine the impact of students' diets on metabolic risk. "Many students change their diets drastically when they enter college. Endless food choices in the cafeteria, late-night food deliveries, and alcohol consumption can result in significant weight gain," she says. "Optimally, students should strive to eat well and keep fit. If a student's body fat percentage is higher than desirable, our results suggest exercise may be an important step in improving their health and reducing their risk of developing cardiovascular disease or Type 2 diabetes later in life. Even walking to class instead of taking the campus shuttle bus is a start."

More information: Sacheck, JM; Kuder, JF; Economos, CD. Medicine & Science in Sports & Exercise. June 2010. 42 (6). 1039-1044. "Physical Firness, Adiposity, and Metabolic Risk Factors in Young College Students."

Provided by Tufts University