Students with a lower socioeconomic background benefit from daily school physical activity

November 17 2009

German school students -- especially those with low socioeconomic status (SES) -- significantly improved their exercise capacity and body leanness after a year of daily physical activity classes, according to research presented today at the American Heart Association's Scientific Sessions 2009.

In a study of German school children with high SES and one with low SES students, researchers examined specific cardiac risk factors. Then they randomized 121 students from the high SES school and 58 from the low SES school to either an intervention group receiving daily school physical exercise lessons, or a control group receiving the "regular school sports" twice a week. The average age of both groups was 11 years old.

Among lower SES youth with daily physical activity, cardiorespiratory fitness (measured by maximal oxygen consumption or VO2max) improved by 14 percent and fat-free mass improved by 2.6 percent.

"In Germany, students this age generally participate in two weekly exercise classes," said Claudia Walther, M.D., author of the study and a senior resident at the Heart Center at the University of Leipzig in Leipzig, Germany. "Our aim was to look at the impact of additional school exercise lessons on cardiovascular risk factors of children of different socioeconomic levels."

At the start of the study, body mass index (BMI) and fat-free mass (FFM) — a body composition index in which the higher the number, the more lean versus fatty tissue — differed significantly in children from the lower SES school versus those from higher SES school. The average BMI at the lower at the lower-SES school was in the 60th percentile versus 48th percentile at the higher-SES school.

"Both BMI average values are in the normal range," Walther said. "But children at the higher percentiles are at greater risk of overweight and obesity now and in the future."

FFM was an average 75.5 percent at the lower-SES school versus 78.6 percent at the higher-SES school. Those values are also in the normal range, Walther said. But the greater average value at the higher SES school suggests those children are more active, have higher muscle mass and don't have as much fat mass.

Baseline cardiorespiratory fitness and motor skills were 7.5 percent better at the higher SES school than the lower.

After one year, Walther and her colleagues compared the fitness levels of the daily exercisers to the control students and found that students from both schools improved their exercise capacity and their fat-free mass. After one year of additional exercise at school, there was no significant change in BMI-percentile but a significant increase of fat-free mass in children in the intervention group. The most significant jump in FFM was among children in the intervention from the lower-SES school. It increased an average of 2.6 percentage points.

Furthermore, VO2max increased significantly in the lower SES school students after the intervention but did not reach the higher SES school levels at baseline.

"What this study tells us is that with a simple method like daily exercise lessons, we can have a big effect on the cardiovascular risk factors of German high school students, especially those with lower socioeconomic profiles," Walther said.

Though the study included boys and girls, it's not necessarily representative of children of other cultures or races because all the students were Caucasian, Walther said.

Source: American Heart Association (news : web)