

# Target Body Fat Early to Lower Kids' CVD Risks

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NEW ORLEANS — Fatness has more influence than does fitness on cardiovascular disease risk in children and adolescents, data from the Cardiovascular Health in Children and Youth II and III studies show.

The findings suggest that interventions to reduce cardiovascular disease risk should begin early in youth and should focus on reducing body fat, reported Kristin S. Ondrak in a poster at the annual meeting of the American College of Sports Medicine.

Ms. Ondrak and her colleagues used baseline information from a total of 1,824 participants in the CHIC studies, including 938 girls and 886 boys aged 8-16 years, for the current analysis. They assessed fatness and fitness for each participant, as well as cardiovascular disease risk.

Fatness in this study was assessed using the sum of skin folds at the triceps and subscapular sites, and was calculated using established equations that factor in gender, race, and pubertal status. Fitness (defined as aerobic power, or peak oxygen intake [ $VO_{2max}$ ], and here expressed in mL/kg per minute as  $kgVO_{2max}$ ) was estimated using a multistage submaximal test on a cycle ergometer, with a

workload corresponding to a heart rate range of 150-170 beats per minute used to predict the maximum intake. The  $kgVO_{2max}$  measurement includes fat mass, so the researchers also calculated the aerobic power per kilogram of fat-free mass ( $ffmVO_{2max}$ ) to remove the potentially confounding effect of fat mass.

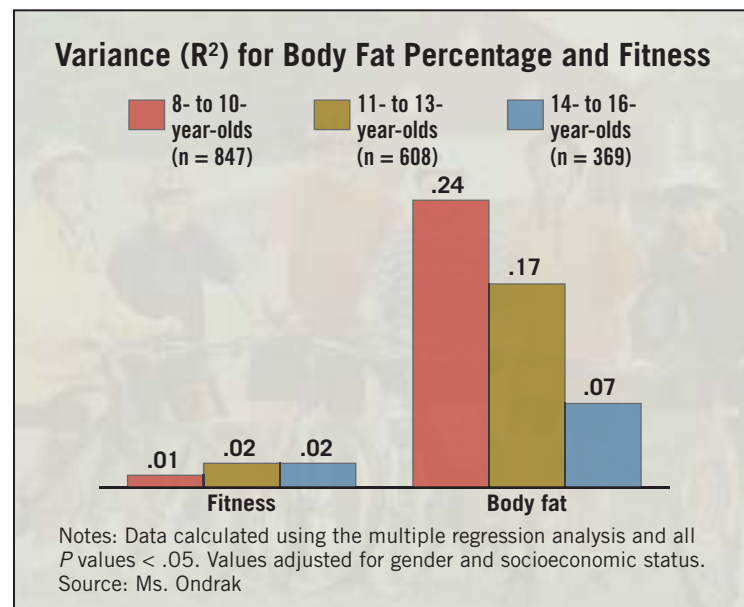
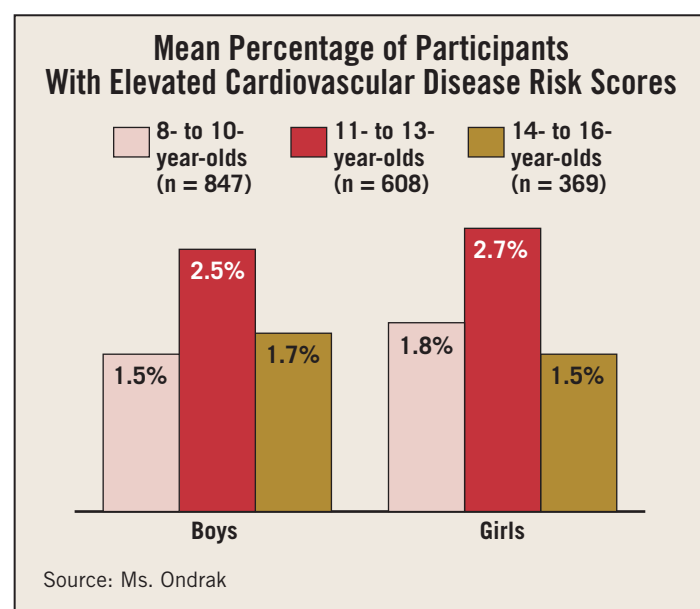
The cardiovascular risk score was based on measurements of HDL cholesterol, total cholesterol, triglycerides, systolic and diastolic blood pressures, and fasting insulin, with each measurement classified into one of three risk categories and assigned a score (0 = no risk, 1 = borderline risk, 2 = at risk); the sum of a participant's scores represented that individual's total cardiovascular risk score.

After adjustment for gender and socioeconomic status, the percentage of body fat was a stronger predictor of cardiovascular disease risk score than was fitness, with fatness accounting for the majority of variance in total risk score in each of three age groups (8-10 years, 11-13 years, and 14-16 years).

This was particularly true for the youngest group (partial  $R^2$  of 0.245 for fatness vs. 0.009 for fitness in the 8- to 10-year age group, .166 vs. -.022 in the 11- to 13-year age group, and .071 vs. .017 in the 14- to 16-year age group), said Ms. Ondrak of the University of North Carolina at Chapel Hill. (See box.) "The contribution of  $kgVO_{2max}$  was minimal," she wrote, noting that results were "remarkably similar" when fitness was determined using  $ffmVO_{2max}$ , which excludes the effect of fat mass (J. Adol. Health 2007;41:146-52). The percentage of body fat "was the strongest predictor of total risk score and the influence of  $ffmVO_{2max}$  was negligible."

Although fatness played a greater role in risk in the youngest age group in this study, it was the 11- to 13-year age group that appeared most vulnerable, because this group had significantly higher cardiovascular risk scores than did the other groups, and also had more risk factors that were classified as "borderline risk" and "at risk" than did the other groups.

Although the mean percentage of body fat was high for boys and girls in each age group



## CLINICAL CAPSULES

### Statins, Colorectal Cancer Tie Examined

Long-term statin therapy did not protect against colorectal cancer in a large case-control study in the United Kingdom.

However, neither did statins promote colorectal cancer, as has been reported in the international PROSPER (Pravastatin in Elderly Individuals at Risk of Vascular Disease) trial, wrote Yana Vinogradova, a research statistician at the University of Nottingham (England), and her colleagues in the August 2007 issue of *Gastroenterology*. The results of trials on the risk of cancer in patients on statins "have been equivocal because of inadequate [statistical] power," they noted.

The current study was designed to have greater statistical power and analyzed data on over 30,000 patients attending 454 general practices in the United Kingdom between 1995 and 2005. A total of 5,686 patients who developed colorectal cancer during the study period were matched to 24,982 control subjects, and their patterns of medication use were compared.

There was no significant association between statin use in general and risk of colorectal cancer, nor was there any associa-

tion between the disease and any of five individual statins assessed. When colon and rectal cancers were considered separately, there also was no association between the risk of either type of cancer and statin use.

In contrast, the protective effect of NSAIDs reported in several previous studies was confirmed in this study, with prolonged use of NSAIDs being associated with a 25% or greater reduction in colorectal cancer risk, said the authors.

### Exercise Pumps Up HDL Levels

Regular aerobic exercise increases HDL cholesterol levels to a modest but still highly significant degree, reported Dr. Satoru Kodama of Ochanomizu University, Tokyo, and associates.

In their meta-analysis of 35 randomized clinical trials that examined the effect of exercise training on serum levels of HDL cholesterol, every 10-minute increase in the duration of exercise beyond a minimum of 120 minutes per week corresponded to a 1.4-mg/dL rise in HDL cholesterol.

The meta-analysis comprised 35 clinical trials that included 1,404 subjects aged 23-75 years who performed at least 15 minutes

a day of exercise such as walking, bicycling, or continuous swimming. They performed a mean of 3.7 exercise sessions each week.

The mean estimated relative intensity of activity was 65% of maximal aerobic capacity. The mean increase in HDL cholesterol levels was "modest although statistically significant" at 2.53 mg/dL, the authors said (*Arch. Intern. Med.* 2007;167:999-1008).

The findings also showed that there is a minimum amount of exercise—120 minutes a week—below which HDL cholesterol levels will not be affected. To raise HDL cholesterol, an increase in the time of each exercise session would be more effective than an increase in the intensity of the activity, because neither the intensity nor the frequency of exercise was found to correlate with cholesterol levels in this study.

### Light Cigarettes Heavy on the Heart

Low-tar, low-nicotine cigarettes impeded the coronary flow velocity reserve (CFVR) of smokers as much as do regular cigarettes, according to data from a small study.

The researchers found similar changes in other hemodynamic and coronary flow measurements, all of which contradict the belief that light cigarettes are less dangerous to coronary health.

Forty smokers—half of whom smoked light cigarettes (8 mg tar, 0.6 mg nicotine, and 9 mg CO) and half of whom smoked regular cigarettes (12 mg tar, 0.9 mg nicotine, and 12 mg CO)—had similarly, and significantly, reduced CFVR values, compared with 22 healthy nonsmokers. The mean age was 24-25 years, and smokers had steadily smoked the same kind of cigarette for at least 3 years (*Heart* 2007 May 15 [Epub doi: 10.1136/hrt.2006.100255]).

Coronary flow velocity reserve at the distal left anterior descending artery was measured using echocardiography, first after a 12-hour fasting and smokeless period and, 2 days later, after the tobacco users smoked two of their usual cigarettes within 15 minutes. Similar decreases in CFVR after smoking were seen in light (2.68 to 2.05) and regular cigarette smokers (2.65 to 2.18). The baseline values in both smoker groups were significantly lower than those of controls.

Similar impairments also were seen between the two smoker groups in mean systolic blood pressure, diastolic blood pressure, and heart rate. The impairment of vascular function was statistically significant, but not clinically disabling.

—From staff reports