



## NEWS RELEASE

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### UC San Diego Study Cites Lack of Vigorous Exercise As Primary Factor in Adolescent Obesity

Lack of vigorous physical activity is the main contributor to obesity in adolescents ages 11 to 15, according to a study of 878 adolescents by researchers at the University of California, San Diego (UCSD) School of Medicine, in collaboration with investigators at San Diego State University.

One of the largest studies ever to look at the multiple factors of diet, physical activity and sedentary behavior on obesity in adolescents, the report was published in the April 2004 issue of the *American Medical Association's Archives of Pediatric and Adolescent Medicine*.

In analyzing dietary factors, the researchers found that fiber intake, and not fat calories, was most closely related to an individual's weight. While the percentage of calories consumed from fat did not differ significantly between a group of normal-weight adolescents and those identified as being at-risk for obesity, or already overweight, the normal-weight adolescents consistently reported higher intake of fibrous foods such as whole grains, fruits and vegetables, as compared to the at-risk and overweight children.

"This is a potentially important finding from this study and emphasizes the need to improve diet quality for adolescents," commented the study's principal investigator, Kevin Patrick, M.D., a UCSD professor of family and preventive medicine.

The study was also one of the largest to examine differences related to gender and ethnic background. A significant finding was that more Hispanic girls (54.8 percent) than non-Hispanic white girls (42 percent) were either overweight or at risk for obesity. However, no difference was found for weight status between boys based on their ethnic heritage.

Consistent with past studies, the researchers also found that boys' overweight status was related to time spent watching television. Boys in the at-risk and overweight group reported significantly more minutes of television watching per non-school day (141.5 minutes/day) than the normal weight boys (108.4 minutes/day), whereas no group difference was found for girls.

"There's often too much emphasis on what people consume and not on how much energy they're expending during a given day," said Patrick. "Our study points to the importance of examining both sides of the energy balance equation when considering the population-wide increase we've seen in overweight in this age group in the past couple of decades. Insufficient physical activity and too much time spent on sedentary behaviors like computer games and watching TV may equal, and even exceed, diet quality as important contributors to overweight in adolescence."

To assess physical activity, the researchers used an accelerometer, a small device worn on a belt that stores data on amount and level of physical activity every minute for a week. The investigators found that both girls and boys in the normal-weight group participated in two to four more minutes per day of vigorous physical activity than those in the at-risk and overweight group. However, only boys showed a statistical difference between groups for minutes per day of moderate physical activity.

“Although this is a seemingly small difference, these adolescents are getting four to 12 minutes of vigorous activity daily and this type of activity burns a lot of energy,” Patrick said.

He noted that the findings illustrate a particular need for increased exercise by all girls and improved interventions with Hispanic girls that takes into account social and cultural aspects that may impact weight.

Recruiting adolescents from the practices of 45 primary care physicians in six San Diego County clinics, the investigators found that 45.7 percent of the 878 children were either at risk for becoming overweight, or were already classified as overweight by the standard body mass index (BMI) for age. The sample was diverse with approximately 42 percent of participants from ethnic backgrounds, primarily Hispanic.

Using a combination of measurement tools and adolescent self-reports for dietary and sedentary behaviors, the researchers compiled data on minutes of physical activity per day, hours of television per day, percentage of calories from total fat, percentage of calories from saturated fat, and amount of fiber (grams per day).

The researchers noted that limitations of their study included its restriction to one geographic region, the use of self-report for dietary and sedentary behaviors, and a relatively narrow age range.

“Nonetheless, the findings from the study contribute to the body of evidence suggesting that adolescents continue to require interventions that target multiple aspects of physical activity and nutrition,” the authors said in their report.

In addition to Patrick, the study authors include Gregory J. Norman, Ph.D., and Marion F. Zabinski, Ph.D., MPH, UCSD; Karen J. Calfas, Ph.D. and James F. Sallis, Ph.D., San Diego State University; and John Cella, M.D., Kaiser Permanente Medical Group, San Diego.

*By Sue Pondrom, UC San Diego News Media Contact. The study was funded by the National Cancer Institute.*