

## **Dietary Predictors of Excess Body Fat Acquisition During Childhood- Abstract**

Moore LL et al. Dietary predictors of excess body fat acquisition during childhood. *Circulation* 2004; 109(7):5, No. 3.

Boston, MA

Dietary intake plays a key role in the acquisition of excess body fat during childhood. Most previous studies of diet and obesity in children have focused on the role of energy intake. The roles of macro- and micro-nutrient intakes, food consumption patterns, and other dietary indicators have been infrequently studied. We used detailed prospectively-collected dietary data beginning at 3–5 years of age for children enrolled in the Framingham Children's Study (FCS) to evaluate which dietary factors might be associated with excessive gains in body fat during the period from preschool to early adolescence.

Dietary intake was estimated by means of multiple sets of three-day diet records collected throughout each year, an annual food frequency questionnaire, and dietary interviews. We evaluated the effects of the following dietary factors on body fat change: macronutrient intakes, mineral intakes, servings per day in the five major food groups, and glycemic index. In this study, both high (35% of calories or higher) and low dietary fat intakes (<30% of calories) were associated with greater gains in body fat throughout childhood than was more moderate fat consumption. By the time of early adolescence, the sum of five skinfolds was 92.2 and 104.6 mm for those in the low and high-fat consumption groups while having more moderate fat intakes (30–34.9% of calories) had a much lower sum of five skinfolds (74.7 mm;  $p<0.05$ ).

While higher intakes of calcium were associated with lower gains in body fat in these children, dairy intake was even more strongly correlated. Children in the lowest tertile of dairy intake had much greater gains in body fat over the next eight years (slope of sum of four skinfolds: 8.5, 4.6, and 4.7 mm/year in the low, middle, and high tertile of dairy servings per day ( $p<0.05$ )). Increased consumption of fruits and vegetables was also associated with lower gains in body fat. Despite considerable discussion of the potential effects of glycemic index on both satiety and weight gain, we found no such association in children in the FCS. We conclude that a diet characterized by moderate consumption of dietary fat when it is associated with high intakes of fruits, vegetables, and dairy products is associated with a lower risk of adolescent obesity.