

NSA

Obesity: Does it Matter?

Dairy, calcium and body composition of multiethnic youth

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Measured body fat and weight of 323 nine to 14 year old girls from Kaiser Permanente Oahu Female Adolescent Maturation (FAM) study were examined in relation to age, ethnicity and physical activity. Ethnicity was derived from a questionnaire and described in percent of NIH classifications of Asian and White. Age, physical activity and dietary intake (a 3-day record at each exam) were obtained by questionnaire, anthropometry was obtained by measurement and Tanner stage by clinical examination. Mean age, calcium intake, weight and iliac skinfold thickness were 11.5 ± 1.4 y, 736.5 ± 370.7 mg/d, 44.6 ± 13.0 kg and 12.4 ± 6.1 mm, respectively. Multiple regression with age, ethnicity, height, Tanner breast stage, physical activity, energy, soda and total calcium intake explained 17% of the variation in iliac skinfold. Dairy intake, age, and physical activity were significantly negatively associated with iliac skinfold while height, Tanner breast stage and Pacific Islander ethnicity were significantly positively associated; substituting total calcium with dairy calcium, and non-dairy calcium in two separate models accounted for 16% and 15% of the variance, respectively. One gram of total and dairy calcium was significantly associated with a 2.5mm and 2.6mm decrease in iliac skinfold, respectively. There was significant interaction of Asian ethnicity and dairy intake. Non-dairy calcium was not significantly associated with weight or iliac. Soda was significantly positively associated with weight in all three models. Increasing dairy among Asians and decreasing soda intake may help maintain body fat and weight during adolescence.

Two years later, 152 FAM girls were re-examined. A DXA measurement was made at the second examination to determine percent body fat and the trunkal:peripheral fat ratio. In multiple regression analysis adjusted for total energy, calories from fat, fiber and physical activity, iliac skinfold best predicted percent body fat, followed by triceps then subscapular skinfold. During this period, trunkal:peripheral fat ratio increased steadily. Trunkal:peripheral fat ratio was negatively associated with calcium intake and positively with Asian ethnicity, in separate multiple regression models adjusted for Tanner stage of maturation, energy intake and physical activity. Asian x calcium from dairy interaction was not significant. These data suggest that girls gain abdominal fat during puberty, especially Asian girls.

In a population of Samoan women age 18-28 years (n=55) in Hawaii, 2 % were underweight, 16% normal weight, 22% overweight and 60% obese using NIH criteria, or 82% overweight and obese. BMI was linearly related to an increase in percent fatness obtained by DXA and inversely related to fat-free mass. Mean BMI was 31.6 ± 6.5 kg/m², body fat was 43 ± 7 % and fat-free mass was 57 ± 7 %. Mean activity level was PAR 2.5 ± 2.1 or 10-60 minutes of moderate activity/wk. These data suggest high BMI among Samoans in Hawaii is due to sedentary lifestyle and excess body fat. Further study examining diet, blood glucose and blood lipid data will help determine healthy BMI for Samoans.