

**Calcium Intake Is Associated with Percent Body Fat in Peripubertal Girls, but Does Not Predict Change in Percent Fat over Two Years**SUSAN BARR. *Vancouver, BC, Canada*

Some data suggest calcium or dairy products are associated with body fat loss or prevention of fat gain, but few studies have been conducted in children. We conducted a 2-y prospective study in healthy Caucasian girls, initially premenarche and aged  $10.5 \pm 0.7$ y. Body composition (% body fat and % trunk fat) by dual-energy x-ray absorptiometry, height, weight, and Tanner breast stage were assessed at baseline and annually thereafter. Total calcium intake (food plus supplements) and dairy calcium intake were assessed twice yearly using a calcium specific, validated, interviewer-administered food frequency questionnaire (FFQ). Three-day food records were also kept. Physical activity (hr/wk) was assessed twice yearly by interview. Of 51 girls enrolled, 46 completed all measurements. At baseline, participants were  $147.4 \pm 6.7$  cm tall, weight  $40.3 \pm 7.5$  kg, had  $24.8 \pm 9.1\%$  body fat and  $20.0 \pm 9.7\%$  trunk fat. During the study girls gained  $13.7 \pm 2.7$  cm height,  $13.2 \pm 4.9$  kg weight,  $3.8 \pm 3.3$  kg fat,  $1.5 \pm 4.9\%$  body fat and  $2.9 \pm 5.4\%$  trunk fat. Calcium intake and physical activity did not change over time and values at different times were highly correlated. Mean FFQ total calcium was  $838 \pm 352$  mg/d, dairy calcium was  $650 \pm 351$  mg/d, and mean physical activity was  $9.9 \pm 3.5$  hr/wk. Each girl's 2-y averages for these variables were used in regression models to predict baseline, 1-y, 2-y, and 2-y change in % body fat and % trunk fat. Regression models also included height, baseline age, Tanner breast stage, and energy intake. Both total and dairy calcium negatively predicted % body fat and % trunk fat at all cross-sectional time points. Dairy calcium was a slightly stronger predictor than total calcium, explaining 9.2 – 15.7 % of % fat variance (significance of T change 0.023 – 0.004). Physical activity was also a negative predictor of % total and trunk fat at baseline and 2 y. However, no variables entered equations to predict 2-y change in % fat. In conclusion, calcium intake was cross-sectionally associated with % fat in peripubertal girls, but did not predict change in % fat over 2 y.