P85 Imbalanced Food Group and Nutrient Intakes by Elementary School Children in an Affluent U.S. Community
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Objective: To assess in an affluent community the food group and nutrient intake of elementary school-aged children and compare it with their school menus.

Theory, Prior Research, Rationale: Adequate nutrient status in childhood is critical for optimum health; however, communities with limited access to nutrient-dense foods struggle to provide children with adequate nutrients. The question arose whether access-rich communities struggle with similar problems.

Study Design, Setting, Participants, and Intervention: After informing students and parents about the study, Block Kids Food Screeners and blood vitamin D kits were sent to interested parents from public elementary schools in Corvallis, Oregon.

Outcome, Measures and Analysis: Food group and nutrient intakes were calculated from the Block Kids Food Screeners provided by 175 children and from school menus and compared to dietary guidelines. Vitamin D concentrations were quantified from 71 children. Age groups were compared using generalized linear models procedures.

Results: Most children reported a diet insufficient in fiber, essential fatty acids, potassium, and vitamin E and excessive in saturated fatty acids and sodium. Similar imbalances were observed in school meals, although school meals offered on average more nutrient-dense foods and beverages. The 9 to 11 year-old children consumed fewer dairy products and more potato and simple-carbohydrate foods and beverages than the 5 to 8 year-old children, contributing to lower blood vitamin D concentrations and fewer older children meeting dietary recommendations for calcium, fiber, linolenic acid, and phosphorus.

Conclusions and Implications: Our data indicate opportunities to improve dietary and nutrient intakes in elementary school children through school cafeteria and nutrition programs.

Funding: None.

P86 Attitudes of Elementary School Teachers and Cafeteria Personnel on Improving Students’ Diets and Physical Activity Level
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Objective: To identify attitudes and perceptions of elementary school teachers and cafeteria personnel on school nutrition and physical activity education for children.

Theory, Prior Research, Rationale: Schools are a promising ground for implementing nutrition and physical activity programs aimed to control nutrition-related health issues. Since teacher and cafeteria personnel are essential for implementing those programs, it is critical to identify their perceptions and attitudes on improving nutrition and physical activity education for children.

Study Design, Setting, Participants, and Intervention: Three mail surveys (1 nutrition and 1 physical activity education survey for classroom teacher and 1 nutrition education survey for cafeteria personnel) were sent to participating school districts across Oregon. Surveys were returned by 227 classroom teachers and 59 cafeteria personnel.

Outcome, Measures and Analysis: The questionnaires were specifically developed for each target group based on constructs of the Health Belief Model and analyzed using descriptive statistics.

Results: Teachers were concerned about students’ eating habits (89%) and level of physical activity (85%) and were willing to incorporate nutrition education (55%) and physical activity (82%) into classroom activities as long as it did not interfere with the regular curriculum. Teachers favored multi-component programs for nutrition education which included parent participation (53%) and a school cafeteria component (70%); the latter was supported by school cafeteria personnel (78%).

Conclusions and Implications: Our results indicate that elementary school teacher and cafeteria personnel are interested in working together to improve students’ diets and physical activity level through multi-faceted programs that include parent participation and accounts for limited resources.

Funding: USANA Health Sciences, Inc.

P87 Nutrient Intake of Infants and Toddlers: A Longitudinal View of Nutritional Adequacy
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Objective: The purpose of this study is to describe nutrient intake from food, including breast milk and formula, in infants and toddlers, and identify deficiencies and excesses in the diet when compared to the Institute of Medicine’s Dietary Reference Intakes (DRIs).

Theory, Prior Research, Rationale: The first 2 years of life are important to growth and development of children, but there is not much data available on this population. The Feeding Infants and Toddlers Study (2008) is a cross-sectional look at intake for children 0 to 48 months of age however there is no longitudinal view of infant and toddler nutritional sufficiency.

Study Design, Setting, Participants, and Intervention: This longitudinal cohort followed 60 infants and toddlers over 18 months.

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Outcome, Measures and Analysis: Three-day food records were collected at 6 weeks, and 6, 12, and 18 months of age and analyzed using Nutrition Data System for Research. The percentage of those who did not meet the DRIs and the percentage with intakes above the Upper Intake Levels (UL), for specific vitamins and minerals, were calculated.

Results: More than 50% of the sample did not meet DRI recommendations for: Magnesium, Iron, Zinc, Vitamins D, E, C, and B6, Thiamin and Folate at 6 weeks; Vitamin D at 6 months; Vitamins D and E at 12 months and Vitamins D, E, and K at 18 months. More than 50% of the sample exceeded UL recommendations for: Zinc at 6 and 12 months; and Phosphorus, Magnesium, Sodium, and Niacin at 18 months.

Conclusions and Implications: Healthcare professionals may want to monitor the diet of infants and toddlers more closely for nutritional adequacy.

Funding: None.

P88 Effectiveness of a 6-week (12-Class) Strength Training and Nutrition Education Program

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Objective: The purpose was to deliver an effective and non-intimidating 6-week strength-training and nutrition program to women.

Theory, Prior Research, Rationale: Strength training improves adults’ overall health and fitness. Unfortunately, just 19.8 percent percent of adult women meet strength-training recommendations. Barriers include feeling intimidated, lack of knowledge, and affordability. We provided a research-based strength training program, Strong Women Stay Young (SWSY), in an Extension facility to overcome these barriers.

Study Design, Setting, Participants, and Intervention: A convenience sample of 244 women, ages 29 to 89, participated twice a week in a SWSY Extension program for 6 weeks. Classes were held in 6 rural and 5 urban counties. At each class, participants completed 6 strength-training exercises and received basic nutrition information from the Dietary Guidelines for Americans.

Outcome, Measures and Analysis: Changes in strength training and eating behaviors were measured. Analysis of Covariance (ANCOVA) and t-test statistical analyses were used to evaluate strength-training results (p<0.05) A paired t-test, with a Bonferroni correction (α = 0.0167), measured changes in eating behaviors.

Results: From Class 1 to Class 12 arm and leg strength significantly increased (p<0.001) by 46 to 80 percent. Linear regression showed that age and prior strength-training experience had a minimal effect on weight-lifting ability. Participants significantly (p<0.0001) increased their daily intake of fruits and vegetables by 0.58 cups, whole grains by 0.75 ounce equivalents, and low-fat dairy by 0.6 cups.

Conclusions and Implications: Women attending the 6-week SWSY program became stronger, regardless of age or previous strength-training experience, and ate healthier. These results indicate that Extension is an excellent setting for conducting this program.

Funding: University of Idaho.

P89 Food Insecurity among Community College Students: Prevalence and Relationship to GPA

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Objective: To investigate the prevalence of food insecurity among community college students and the relationship between food insecurity and student Grade Point Average (GPA).

Theory, Prior Research, Rationale: Prior research has indicated that food insecurity has adverse effects on adult cognition and child academic performance. Food insecurity is more common among African Americans and low-income individuals and both of these groups are over-represented at U.S. community colleges. The prevalence and consequences of food insecurity among community college students has been under-researched in the published literature.

Study Design, Setting, Participants, and Intervention: Data on food security status and student GPA were collected using a survey at 2 community colleges in Maryland; 1 located in a low income urban area (n=150) and 1 located in an affluent suburban area (n=151).

Outcome, Measures and Analysis: Food insecurity was assessed using the United States Department of Agriculture (USDA) Household Food Security Survey Module (HFSSM). Students also self-reported GPA, demographic and living situation information.

Results: Over 50% of the students in the overall sample were food insecure. Food insecurity affected 59% of students at the urban community college and 53% of students at the suburban community college. Food insecurity was significantly associated with lower student GPA in the overall sample and at the suburban community college but not at the urban community college.

Conclusions and Implications: Data suggest that food insecurity may be an issue for a large percentage of the community college population, regardless of the income of the surrounding area. Food insecurity may have adverse effects on student academic performance and is a factor to be considered by college administrators, faculty and students.

Funding: None.