

POSTER SESSION: NUTRITIONAL SCIENCE AND EDUCATION AND BEHAVIORAL STRATEGIES

RELATIONSHIP BETWEEN CALCIUM INTAKE AND MEAL LOCATION AMONG 4TH- TO 6TH- GRADE CHILDREN OF FOUR ETHNICITIES

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LEARNING OUTCOME:

To describe the relationship between calcium intake and meal location.

ABSTRACT TEXT:

This study examined the relationship between calcium intake and meal location among 4th- to 6th-grade students, and the relationship between calcium intake and grade, gender, and ethnicity. Two 24-hour food records were collected from each student (215 completed 2-day food records). Ethnic distribution of the students was 24.7% African-American, 28.8% Euro-American, 37.2% Hispanic-American, and 9.3% Asian-American and other ethnicities. There were 41.9% boys and 58.1% girls, 37.7% in 4th grade, 31.2% in 5th grade, and 31.2% in 6th grade. ANOVA revealed no difference in calcium intake based on grade. Boys consumed more calcium (615 mg), but not a higher calcium density (mg calcium/ 1000 calories) (402 mg/ 1000 calories), than girls (535 mg, 378 mg/ 1000 calories). African-Americans consumed less calcium (474 mg) and lower calcium density (346 mg/ 1000 calories) than Euro-Americans (643 mg, 430 mg/ 1000 calories) for all locations combined and at home (247 mg, 179 mg/ 1000 calories; 364 mg, 246 mg/ 1000 calories, respectively). Hispanic-American students consumed less calcium (248 mg) and lower calcium density (162 mg/ 1000 calories) than Euro-Americans at home (364 mg, 246 mg/ 1000 calories). Students consumed less calcium at restaurants (70 mg) than at home (297 mg) or at school (201 mg). Calcium density was not different by location. Significance was defined at an alpha level of .05. Interventions should include information about restaurant calcium sources and encourage selection of calcium-rich foods.

TITLE: SELENIUM STATUS OF FEMALES DURING EARLY PUBERTY

AUTHOR(S): E.J. Ha, PhD; A. M. Smith, PhD, RD, The Ohio State University, Columbus, OH.

LEARNING OUTCOME:

To determine selenium status and intakes of females during early puberty but prior to menarche.

ABSTRACT TEXT:

The selenium status and intakes of females were studied during early puberty but prior to menarche. Because of the dramatic changes in physical growth during the early adolescent period, nutritional requirements and intakes should be sufficient to support optimum growth. The selenium Recommended Dietary Allowance (RDA) for adolescents has been extrapolated from values derived for adult males and adjusted for body weight and growth factors. Forty healthy Caucasian females in pubertal stage 2 were studied. Anthropometric parameters including height, weight and body mass index (BMI) were all within the normal range. The mean±SEM age was 10.9±0.1 yr. Pubertal stage was 1.98±0.06 for breast and 1.59±0.11 for pubic hair development. Selenium status was assessed by measurements of serum and red blood cell (RBC) selenium and glutathione peroxidase activity (GPx). Results (mean±SEM) for serum selenium (108±4 ng/mL), RBC selenium (211±7 ng/mL), serum GPx (2.8±0.1 U/g prot), and RBC GPx (15.9±0.9 U/g Hgb) were all in the normal range for healthy adults. There was a positive relationship between RBC selenium and BMI (r=0.4024, p=0.01) and weight (r=0.3154, p=0.0474). The mean daily intake of selenium based on 3-d dietary records was 100±4 µg/d. The blood selenium measurements observed appear to be a reflection of the dietary selenium intakes which were more than double the RDA for selenium for this age group (45 µg/d). In summary, the results of this study showed that the selenium intake of girls during early puberty is adequate to maintain selenium status measurements within the normal range, and sufficient to support the growth spurt. These results have important implications during this stage of growth when young females are developing muscle mass, the largest selenium pool in the body.

TITLE: CALCIUM INTAKE OF FEMALE COLLEGE NUTRITION MAJORS COMPARED TO A SAMPLE OF FEMALE COLLEGE NON-NUTRITION MAJORS

AUTHOR(S): Marsha Read, PhD, RD, University of Nevada, Reno and Kelli Crock, BS, University of Nevada, Reno

LEARNING OUTCOME: Reader will recognize that nutrition majors were not more likely to consume higher calcium intakes than non-nutrition majors.

ABSTRACT TEXT: It was hypothesized that nutrition majors, by virtue of their interest and basic knowledge in nutrition would be more likely to adopt and practice appropriate diet behaviors compared to other health related majors. To test the hypothesis, a sample (n=53) of college, female nutrition majors were compared to a random sample (n=51) non-nutrition, female majors with respect to their calcium intake. A validated (correlation coefficient of 0.05) calcium food frequency instrument was administered to both groups. The estimated mean daily calcium intake for nutrition majors was 1267mg SD 797mg; range 360 - 4098mg. For non-nutrition majors the mean calcium intake was 1394mg SD 779 mg, range = 329 -4259mg. Comparisons of calcium intake were also made on the basis of age. No significant differences in calcium intake were noted between the age groups, although the older (31+yo) group had lower mean calcium intake at 1150 mg SD 570 mg compared to the less than 30 yo age group with a mean of 1402 SD 760 mg. The mean calcium intakes are higher among these two samples than are generally reported for larger, national surveys. This may be due to the use of a food frequency instrument to estimate calcium intake rather than a food record and/or due to the relatively small sample size with a very high standard deviation. Repetition of the study with a large sample size is recommended.

ORAL BACTERIAL VACCINE BRONCHO-VAXOM TITLE: INTERFERES ZINC METABOLISM IN MONONUCLEAR CELLS OF PERIPHERAL BLOOD OF PATIENTS WITH CHRONIC NON-OBSTRUCTIVE BRONCHITIS

AUTHOR(S):

A.V. Koudrine, MD, Bioclement Center, Moscow, Russia.

LEARNING OUTCOME:

To define the zinc-dependent component of the immunomodulating effect of Broncho-Vaxom.

ABSTRACT TEXT:

Metalloregulation of immune response and unique role of zinc in induction of numerous cell and humoral dependent immune reactions were documented in recent years (A.Koudrine. *J. Trace Elements in Biol. Med.* 1998. 12: 65-76).

The objective of this study was to test the capacity of widely used preventive oral bacterial vaccine Broncho-Vaxom (BV) (Laboratoires OM, Switzerland) to selectively up-regulate zinc metabolism in mononuclear cells of patients affected by non-obstructive chronic bronchitis.

The group of 50 patients with a mean age of 34.2 years was exposed to BV administration according to conventional scheme. Mononuclear cells and lymphocytes were isolated by sedimentation of blood in ficoll-verografin gradient. Zinc content in both types of cells was examined by an atomic absorption spectroscopy before BV administration and every 10th day in 3 consecutive months of the treatment.

A significant enhancement of zinc content in mononuclear cells on 10th day of 1st month (0.424 +/- 0.02 µg/10⁷ cells respectively, p<0.01) was observed. During the following period dramatic reduction of this value was noted (0.352 +/- 0.02 µg/10⁷ cell). There was no statistically significant change of zinc content in lymphocytes.

These results indicate that BV may provide specific accumulation of zinc in mononuclear cells and could be used in nutrition models providing long-lasting immunomodulating and antitoxic effect. Further studies of this BV capacity are required for elucidation of the roles of gut- and broncho-associated lymphoid tissue in formation of zinc-dependent link.