

Nutrition Tidbits

News from the EA Martin Program in Human Nutrition and the South Dakota Rural Bone Health Study
South Dakota State University

Did you know...

Low vitamin D levels are linked to diabetes?

See reverse side for related article.

Summer 2004

Bits

By Bill Bones

Food portions: time to rethink

The American Institute for Cancer Research (AICR) urges Americans to reconsider their food portion sizes.

AICR research reveals a link between increased food serving sizes and obesity. One way that the AICR has demonstrated that food serving sizes have gotten larger over time involves comparing portion sizes of American foods with foreign foods. For example, a French croissant has a circumference of 15 inches and contains 174 calories. An American croissant is 18 inches in circumference and contains 270 calories.

Rather than count calories or carbs, the AICR advises Americans to rethink the portions of food they put on their plates.

The organization suggests that each meal contain 2/3 fruits, vegetables, whole grains, or beans, and 1/3 animal protein.

Regular exercise can also help in the fight against obesity.

Source: *Nutrition Today*,
March/April 2004

EAM Program completes analysis of relationship between number of pregnancies, bone size

The Ethel Austin Martin (EAM) Program in Human Nutrition recently completed a lifestyle analysis that looked for a relationship between numbers of pregnancies and the size of womens' arm and hip bones.

Bonny Specker, the endowed chair of the program, recently presented the findings of the analysis at the inaugural Black Forest Forum for Musculoskeletal Interactions. The forum took place in Bad Liebenzell, Germany.

Who Was Involved?

Specker and other researchers from the EAM Program used data they collected from 168 Hutterite women aged 40 to 80 living in 13 colonies in eastern South Dakota.

What Others Have Found

Studies conducted by different organizations over the years show that women with fewer children tend to have greater numbers of bone fractures, particularly in the femoral neck. The femoral neck is the part of the hip bone that people refer to when they say they have "broken their hips."

Many of those studies have examined the relationship between the number of pregnancies and bone density. They did not examine, however, the effect that the number of pregnancies has on bone size.

Researchers involved in those studies discovered that greater numbers of pregnancies mean fewer hip fractures, yet they could not link the reduced numbers of fractures to bone density. Bone density remained the same among the women studied regardless of the number of pregnancies they had.

What the EAM Program Examined

In contrast to studies conducted at other institutions, the EAM Program study looked at the

relationship between lifestyle (i.e., the number of pregnancies) and bone size. Bone size refers to the circumference of bones, and also relates to bone strength.

Specker and EAM Program researchers used a peripheral quantitative computed tomography (pQCT) machine to measure the bone size of the arms of Hutterite women who are taking part in the South Dakota Rural Bone Health Study. The machine works by looking at cross-sections of bones at different points along their lengths. It then measures the circumference of each bone. Greater circumference means greater bone size, which results in greater strength.

The researchers used a dual energy x-ray absorptiometry (DXA) machine to measure the size of the womens' hip bones.

What the EAM Program Found

The EAM Program researchers discovered a link between bone size and the number of pregnancies. Bigger bones are stronger than smaller bones, and the researchers speculate that increased bone size results from added weight and stress placed on bones during pregnancy. The hip bones particularly bear greater weight than normal when a woman is pregnant, and thus grow in size and strength to cope with the additional stress. Similarly, arm bones become bigger and stronger due to added stress caused by carrying infants.

Eating five or more servings of colorful fruits and vegetables a day is part of an important plan for healthier living. Deeply hued fruits and vegetables provide the wide range of vitamins, minerals, fiber, and phytochemicals your body needs to maintain good health and energy levels, protect against the effects of aging, and reduce the risk of cancer and heart disease.

Source: <http://www.5aday.org>



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Nutrition Tidbits

Vitamin D and diabetes

What health and nutrition topics are of particular interest to you? Do you have a comment regarding your experience as a SDRBHS participant? Let us know...we can include your suggestions or comments in future "Nutrition Tidbits" issues.

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A recent study conducted at the University of California at Los Angeles (UCLA) shows that there may be a link between low (less than 20 ng/ml) vitamin D levels and diabetes in apparently healthy adults.

126 healthy adults, including 53 men and 73 women of Caucasian, Asian American, African American, and Mexican American descent, took part in the research project.

Researchers found that about a third of the subjects had vitamin D levels below the normal range. They also found that low levels of vitamin D had a negative effect on the function of beta cells in the pancreas. Beta cells are responsible for insulin production.

They then concluded that low levels of vitamin D are a risk factor for type 1 and type 2 diabetes.

The pancreas of a person with type 1 diabetes produces little or no insulin. The body of a person with type 2 diabetes is unable to use the insulin the pancreas produces.

The researchers also acknowledged that while their subjects were healthy at the time of the study, other disease risk factors may have been present. Those risk factors include being overweight and having abnormal lipids.

Sunlight represents an important natural source of vitamin D. Those living in northern latitudes and other regions where sunlight is lacking can get the vitamin D they need from other sources, such as fortified milk and dietary supplements.

Source: American Journal of Clinical Nutrition, May 2004

SDRBHS Update

As of January 1, 2004, 1,222 individuals (705 women and 517 men) are participating in the South Dakota Rural Bone Health Study. 535 of those individuals are Hutterites, 350 are non-Hutterites who live a rural (farming or ranching) lifestyle, and 337 are non-Hutterites who do not farm. Those people have provided roughly 8,000 quarterly activity and diet records that we have entered into a nutrient database used to calculate intakes.

We have conducted 18-month follow-up visits on over half of the participants, and expect to find that the peak bone density achieved early in life is greater in Hutterite and rural study participants than in non-rural participants. We expect higher physical activity levels to produce such an outcome. The finding would explain why some studies have found that people who live in rural areas have a lower number of bone fractures than people who live in cities. We also expect to see population differences in the rates of bone loss.

As we collect data that address such issues, we also aim to discover how other lifestyle factors affect bone health. You can read about these findings in this newsletter and in upcoming issues.

Visit our website at <http://www3.sdstate.edu/academics/ethelaustinmartinprogram/index.cfm>