



Nutrition for Family Living

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February, 2003 Topics

In the News: Obesity and its consequences for life expectancy
FDA to loosen health claim standards
Vitamin A in dietary supplements and fortified foods: too much of a good thing?
Report card on the quality of Americans' diets

In the News: Obesity and its consequences for life expectancy

Several articles appeared in the popular press during January about studies published in the *Annals of Internal Medicine* and *Journal of the American Medical Association* showing that obese individuals have shorter life expectancies.

The studies used data from the Framingham Heart Study, NHANES I, II and III, and the US Life Tables to create statistical models describing life expectancy and the degree of obesity at given ages, controlling for race, gender, and smoking status.

Years of life lost (YLL) was defined as the difference between the number of years a person would be expected to live if he or she was not obese, and the number of years expected to live if the person was obese. Both studies confirmed that obesity has a profound effect on lifespan.

For example, a 20-year-old white male with a BMI greater than 45 is estimated to have 13 YLL due to obesity. When one considers that a 20-year-old white male is expected to live to age 78, that 13 year reduction due to obesity really represents 22% of his remaining years of life. The studies showed that obesity has a marked effect on the life span of whites and the risk of increased YLL was greatest at younger ages.

The findings were somewhat different for blacks. Reduced life expectancy wasn't seen until BMI's reached 37-38 for women and 32-33 for men, in contrast to whites whose life expectancy began to decrease when BMI reached 26-27 for men and 28 for women. While the pattern of decrease was different for blacks, YLL were greatest at younger ages, similar to whites.

The authors offered several possible explanations for the differences between blacks and whites. Different distributions of age, health status, socioeconomic status and other factors that affect mortality may be involved. There may be different confounding variables, and it is possible that the critical variable may be body composition rather than BMI.

Implications for educators: YLL is only one consequence of obesity. When educating people about the importance of good nutrition and healthy lifestyles, it may be more motivating to discuss more immediate quality-of-life outcomes, such as feeling healthy and reducing one's risk of chronic diseases. Also, keep in mind that YLL calculations assume that a person's BMI stays constant throughout their life. It is impossible to predict the effect that achieving a healthy weight will have on life expectancy if a person loses weight.

Fontaine KR et al. Years of life lost due to obesity. *JAMA*. 2003;289:187-193.

Peeters A et al. Obesity in adulthood and its consequences for life expectancy: a life-table analysis. *Ann Intern Med*. 2003; 138:24-32.



FDA to loosen health claim standards

In December, 2002, Mark McClellan, the recently appointed FDA commissioner, announced a new initiative regarding health claims for foods and dietary supplements. The new initiative will require only that a "weight of the evidence" must exist in the scientific community to allow qualified health claims to be made on food and dietary supplement labels.

These criteria extend the existing criteria for dietary supplements to conventional foods. In the past, much more stringent criteria were used for FDA's approval of a new health claim for food. A claim needed to 1) come from a federal scientific body (for example, the National Institutes of Health, or National Centers for Disease Control and Prevention), 2) state a relationship between a nutrient and a disease or health related condition, based on research published by the scientific body, and 3) reflect a thorough review of scientific evidence and consensus of members of the scientific body. This exhaustive process led to approval of seven specific health claims by 1993, with three additional claims approved since then.

The FDA's new initiative would require manufacturers to provide a credible body of scientific data supporting a new health claim. The company would need to demonstrate, based on scientific review, that the "weight of scientific evidence" supports the proposed claim. Approval by a federal scientific body would no longer be required, but the FDA would continue to review all qualified health claims before they are used on a food label.

The FDA also plans to be more vigilant about manufacturers that make false or misleading claims. They also plan to establish a Task Force on Consumer Health Information for Better Nutrition to help consumers obtain accurate, up-to-date, and science-based information about food and dietary supplements.

What does this mean? In the future, we may see more health claims on food labels. Educators will need to be alert to these changes as they help people read labels wisely and make good food choices that fit within their budget. State specialists will keep educators updated on any new health claims and what they mean to the consumer.

For further reading: this article describes the history of health claims on food labels and explains currently accepted claims. Marquart L, Wiemer K, Jacob B. Solid science and effective marketing for health claims. *Nutrition Today*. 2001;36(3):107-111.

"Staking a Claim to Good Health: FDA and science stand behind health claims on foods." Article from *FDA Consumer* giving more background on health claims for food, and explanation of currently accepted health claims. Originally published in 1998, the online version of the article has been updated. <http://www.cfsan.fda.gov/~dms/fdhclm.html>

FDA's Center for Food Safety and Applied Nutrition webpage about dietary supplements: <http://www.cfsan.fda.gov/~dms/supplmnt.html>

The FDA has posted their, "Guidance for Industry: Qualified Health Claims in the Labeling of Conventional Foods and Dietary Supplements" online at <http://www.cfsan.fda.gov/~dms/hclmgui2.html> This explains the new initiative as it applies to food manufacturers.



Vitamin A in dietary supplements and fortified foods: too much of a good thing?

A summary of an article recently accepted by the *Journal of the American Dietetic Association*, Kristina Penniston and Sherry A. Tanumihardjo.

Vitamin A consumption by many Americans is quite high, in part due to consumption of fortified foods and vitamin supplements. Most multivitamin supplements provide two or more times the most recent Recommended Dietary Allowance (RDA) for vitamin A. The RDA for a nutrient is the average daily intake over time that is necessary for maintaining good nutrition for most healthy people in the US. Why do supplements include so much? Supplement manufacturers express the contents of their supplements in terms of the Daily Value (DV), a standardized term which appears on food and nutrition supplement labels and was designed to help consumers gauge whether a product contains “a lot or a little of a specific nutrient.” A general rule of thumb has been that 100% of the DV is fairly safe.

DV, as printed on food labels, is based on 1968 RDAs. The current RDA for vitamin A, which has been progressively lowered since 1968, is 700 µg for adult women and 900 µg for adult men. The RDA for vitamin A is much lower for children. The DV, however, is 5,000 IU (1,500 µg). Both the RDA and DV refer to the total amount of vitamin A consumed in either of two forms, preformed vitamin A or retinol, and carotenoids. Multivitamins usually contain primarily preformed vitamin A. Excess preformed vitamin A has been linked to birth defects and other symptoms of vitamin A toxicity. Preformed vitamin A is found in foods of animal origin such as liver, fish oil, eggs, and vitamin A fortified foods. Vitamin A is also created in the body from carotenoids found in plant based foods. Carotenoids are found in red, yellow, orange, and many dark green leafy vegetables. There is little risk of toxicity from consuming carotenoids.

It is time to reexamine food and supplement fortification policies and people’s intake, especially in light of recent studies that suggest an increase in hip fracture rates with intakes of 1,500-2,000 µg retinol per day, which is approximately 200% the current RDA (but only 100% of the DV) for adults. While more research is clearly needed to understand the reason for this effect on bone, the data thus far appear compelling.

Recommendations and intake. In lowering the RDAs for vitamin A in 2001, the Institute of Medicine moved the U.S. recommendations closer to those of other nations. Because of the disconnect between the RDA and the DV as shown on food labels, consumers and health practitioners alike may be confused about the actual recommendations. The consumer who measures his/her daily intake of vitamin A by the % DV appearing on food labels could easily consume more than the RDA and possibly come close to the upper limit of 3,000 µg (10,000 IU)/day for adults. People who routinely take multivitamins – approximately 50% of the US population, and more in certain subgroups -- are at risk of consuming more preformed vitamin A than is recommended. While some major vitamin manufacturers now provide 20-25% of the vitamin A as β-carotene, a carotenoid, preformed vitamin A is most common. An individual who consumes even one multivitamin per day in addition to consuming foods fortified with preformed vitamin A will easily exceed 1,500 µg per day. Using commonly consumed foods, **Table 1** shows how easy it can be to get too much vitamin A. The 2,520 µg vitamin A shown in the table as the daily total would exceed 4,000 µg if two multivitamins were figured into the calculations.

Supplements. A recent article in the *Journal of the American Medical Association* (2002;287:3127-9), referenced widely on websites and in advertisements by vitamin supplement manufacturers, advocates that all adults should take a multivitamin daily and cautiously supports a dose of two daily multivitamins for the elderly, noting their high prevalence of low vitamin B12



Nutrition for Family Living February, 2003

and vitamin D intake. Many people, especially those who take more than one multivitamin per day, may not realize they are at risk for getting too much vitamin A.

Food fortification. Food manufacturers are increasingly fortifying foods with vitamin A, presumably to enhance marketability in specific sections of the population. Some foods have long been vitamin A fortified, such as milk, margarine, and breakfast cereals. Recently, other foods have been fortified with relatively high amounts of vitamin A. These include cereal, energy bars, and candy. The decision as to which foods are fortified, the amount of fortification, and the form of vitamin A that is used is not regulated; rather, individual manufacturers are free to make these decisions. Recently, vitamins looking like candy (e.g., gumballs or gummy bears) have become available over-the-counter and are marketed for children. One such preparation contains 5,000 IU vitamin A (1,500 µg) in one gumball. This amounts to 3.8 and 2.5 times the RDA for a child 4-8 and 9-13 years old, respectively. Packaged colorfully with the image of a gumball machine on the front, the vitamins look like candy. Even though each gumball is individually wrapped, apparently to prevent the consumption of more than one at a time, young children may not understand the concept of “serving size” and consume more than one. Certain meal replacement bars have also become available with high amounts of vitamin A. A typical bar may contain 2,500 IU (750 µg) vitamin A in one bar, >100% the RDA for adult women.

Summary and implications. Research suggests a link between chronic intakes of vitamin A that exceed the RDA and hip fractures. Research also suggests that the elderly may require less vitamin A than younger adults due to higher circulating levels. Although vitamin A deficiency is a greater problem worldwide than toxicity, especially in developing nations, and evidence suggests that vitamin A depletion exists in the U.S. among disadvantaged populations, overconsumption of preformed vitamin A is undesirable. Nutrition educators need to promote the consumption of fruits and vegetables high in carotenoids as a safe way to get vitamin A.

TABLE 1

Food Item	Vitamin A	% Preformed	% DV	% RDA
Multivitamin, 1 pill	1,500 µg	80-100%	100%	214%
Margarine, 2 Tbsp.	210 µg	90%	14%	30%
Milk, skim, 16 ozs.	300 µg	100%	20%	43%
Breakfast cereal, 1 C	215 µg	100%	14%	31%
Cereal bar, 1 bar	225 µg	100%	15%	32%
Cheddar cheese, 1 oz.	70 µg	~96%	5%	10%
TOTAL:	2,520 µg	~96%	168%	360%

For more background information on dietary supplements and carotenoids please refer to:

“Dietary Supplements,” Susan Nitzke, North Central Regional Extension Publication No. 582, 2000.

“The colors of nature’s functional foods: CAROTENOIDS,” Nutrition for Family Newsletter, May 2002.



Nutrition for Family Living February, 2003

Report card on the quality of Americans' diets

Data from the Centers for Disease Control and Prevention's National Health and Nutrition Examination Survey (NHANES) shows that in 1999-2000, Americans' diets still needed improvement.

The Healthy Eating Index (HEI) is a measure of the quality of people's diets. Ten components are given a score of 1-10, with 10 representing the closest to "ideal" intake. The components give an overall picture of the type and quantity of foods people eat and their compliance with dietary recommendations. Five components measure compliance with the recommended number of servings from each of the pyramid groups, three components measure total fat, saturated fat and cholesterol intake, and one represents variety in the diet.

Notable findings include:

- 74% of diets needed improvement (HEI score between 51 and 80). Only 10% of the population had a good diet (HEI score greater than 80) and 16% had a poor diet (HEI score less than 51).
- People had the best mean scores for cholesterol and variety (both 7.7 out of 10). 69% of people met recommendations for cholesterol. 55% met recommendations for variety.
- Fewer than half the people met recommendations for the other 8 components.
- Lowest scores were for fruit and milk: only 17% of people consumed the recommended number of servings of fruit, and only 30% met recommendations for milk.
- Females had slightly higher HEI scores than males, and children younger than age 11 had slightly higher scores than any other age group. Compared with younger adults, older adults (over age 51) had higher scores.
- Mexican Americans had the highest average score (64.5), and non-Hispanic whites had higher scores (64.2) than non-Hispanic blacks (61.1).
- HEI scores generally increased with level of education and income. No subgroup of the population had average scores greater than 80, which would represent a good diet.

The HEI is a useful measure for understanding the types of changes necessary to improve people's diets, and to track trends over time. Educators can use this information to make sure their nutrition messages target needed areas.

For more information, check out the full report at: <http://www.usda.gov/cnpp/Pubs/HEI/HEI99-00report.pdf>

For a summary, see Nutrition Insights, USDA Center for Nutrition Policy and Promotion, December 2002, at: <http://www.usda.gov/cnpp/insights.htm>