WHY WE NEED VITAMINS AND NUTRIENTS

By Billie J. Sahley, Ph.D.
Diplomate, American Academy of Pain Management

Each year $725 billion is spent on the treatment of disease. This represents a cost of $1,723 for every man, woman, and child in the nation. Roger Williams, the famous nutritional biochemist, long ago stated that unbalanced or inadequate nutrition is a major cause of human disease. A vast accumulation of research data verifies this view, suggesting that increased amounts of specific nutrients and amino acids may be helpful in protecting against such prevalent illnesses as heart disease, cancer and chronic pain.

Despite the strength of the evidence, sweeping statements seem to appear with startling regularity to the effect that Americans get all the nutrients they need from their diets and that there is no need for most people to take nutritional supplements.

Early in 1989, the National Research Council provided the most recent of these documents, a 1,300 page report entitled "Diet and Health Implications for Reducing Chronic Disease Risk." Although it was announced as "the most comprehensive scientific analysis to date of the potential health risks and benefits stemming from diet," many important studies from the past two years were not included. These studies have added significantly to the increasing knowledge about how supplements may help prevent some major health problems including cardiovascular disease, periodontal disease, cancer, cataracts, and birth defects.

In addition to these deletions, press release and Executive Summary of the report distorted the findings of the report itself. Generalities based on this misinformation appeared in major newspapers throughout the country.

For the record, the National Research Council is not affiliated with the federal government and its findings do not represent an official United States Government position. The various studies of the N.R.C. are funded by either private or government grants. Specifically, the "Diet and Health" report was not funded by a government agency. In other words, the U.S. did not say no to vitamin pills.

Furthermore, although the press release states that the public should "avoid taking dietary supplements, especially in excess of the RDA ...." the full report states that "there is no evidence that the public is harming itself by the use of low levels of supplements."

More importantly, the report acknowledges circumstances in which supplementation may be merited, and identifies the following groups as having special needs:

- Women with excessive menstrual bleeding may need to take iron supplements.
- Women who are pregnant or breastfeeding need more of certain nutrients, especially folic acid, and calcium.
- People with very low calorie intakes frequently consume diets that do not meet their needs for all nutrients.
- Some vegetarians may not be receiving adequate calcium, iron, zinc, and vitamin B-12.
- Newborns are commonly given, under the direction of a physician, a single dose of vitamin K to prevent abnormal bleeding.
- Certain disorders or diseases and some medications may interfere with nutrient intake, digestion, absorption, metabolism, or excretion and thus change requirements.

A recent U.S.D.A. survey involving the food intake of 21,500 people over three days showed that not a single person consumed one hundred percent of the R.D.A. for the ten nutrients surveyed.

These are conservative recommendations made to segments of the population that are obviously at nutritional risk. However, some groups of health professionals continue to reassure the general public about the nutritional quality of the usual diet, in spite of the fact that no dietary survey to date has shown that all recommended nutrient intakes are being consumed in this manner.
The truth is that poor dietary habits are the norm, not the exception. Most people do not eat right and even those who do may be lacking in some nutrients. For example, the N.R.C. advised that individuals eat five or more servings a day of fruits and vegetables, especially green and yellow vegetables and citrus fruits. However, a recent evaluation of data from N.H.A.N.E.S. II (Second National Health and Nutrition Examination Survey) by the National Cancer Institute showed that from fifteen to twenty-five percent of the population ate no fruit or vegetable on the survey day while only about one in five reported consuming any food in the groups considered cancer protective.

N.H.A.N.E.S. II also showed that elderly people often fail to obtain R.D.A. levels of nutrients in their diets. Many did not eat even two-thirds of the R.D.A. for calcium, iron, vitamin A, and vitamin C. In addition, the elderly take at least fifty percent of the total medications consumed in the United States, and ninety out of one hundred of the most prescribed drugs can interfere with nutrient metabolism. This means that many older people don't absorb the nutrients they do eat.

The USDA National Food Consumption Survey involved the food intake of 21,500 people over three survey days. A detailed study of this survey showed that only three percent of the populace ate the recommended number of servings from the four food groups on each of the three survey days. Seventy percent of the women and fifty percent of the men ate less than the R.D.A. of calcium, iron, and magnesium. Over forty percent of the women ate less than the R.D.A. of vitamins A, C, B-6, B-12 and thiamine. Substantial numbers of people obtained less than 70 percent of the R.D.A. for several nutrients.

Only 12 percent of everybody surveyed ate 100 percent of the following seven nutrients - protein, calcium, iron, vitamin A, thiamine, riboflavin, and vitamin C. The nutrients surveyed also included vitamin B-6, vitamin B-12 and magnesium. Not a single person consumed 100 percent of the R.D.A. for all ten nutrients. In effect, this survey describes 12,500 people whose diets need improvement and supplementation, and implicates millions more.

According to the Washington, D.C. based Council for Responsible Nutrition, supplement users are generally healthy, reasonable people who use supplements safely and rationally and who also adopt other healthy habits. Several studies demonstrate that individuals taking supplements tend to have better diets than the general population. For instance, N.H.A.N.E.S. II showed that people who took supplements had a higher mean intake of nutrients from diet alone than those who did not take supplements. This would indicate that those who become interested in nutrition use supplements as one means of improving their nutrient intake.

In a survey of vegetarians and non-vegetarians conducted by Freeland-Graves, those individuals of both groups who took supplements also had the most nutrient rich diets. (1986) This was also true of teenagers who used supplements regularly (Bowering and Clancy, 1986) and of elderly Bostonians doing likewise. (McGandy, 1986)

Surveys have also shown that many health professionals are supplement users. An interesting survey of 1,742 nurses showed that thirty-eight percent took multiple vitamins: twenty-three percent, vitamin C; fifteen percent, vitamin E; and four percent vitamin A. Twenty percent of those taking vitamin C took a gram or more daily while many of those who took a multiple also took additional C and E. (Willett, 1981)

A thought provoking survey of 665 dietitians was conducted in Washington state. It showed that nearly sixty percent of the dietitians used some nutritional supplement, either daily or occasionally. All the pregnant or lactating women in the survey took supplements. (Worthington-Roberts, 1984)

To discount supplementation as an option and to focus solely on efforts to change dietary habits is to leave many populations and individuals at nutritional risk, when a modest supplement could be beneficial in protecting their health. (Annette Dickinson, Benefits of Nutritional Supplements, 1984)

The current advice of conservative nutritionists is that multivitamin/multimineral supplements should not be taken in excess of the R.D.A. amount. If this is a concern, consider the suggestion of Warren D. Kumler, Ph.D. in his paper "Biochemical Individuality and the Case for Supplemental Vitamins." Along with an R.D.A. formula, Dr. Kumler recommends taking large but safe doses of each vitamin and mineral, one at a time, for several weeks to determine its benefits through personal experience.

Results of supplement use in recent studies may also influence individual supplement programs. The use of multivitamin supplements by pregnant women
as well as women considering pregnancy is reinforced by the work of Dr. Richard Smithells in England and Dr. Joseph Mulinare in the U.S. Since the mid 1970's, Dr. Smithells of the University of Leeds has conducted a series of studies which imply a relationship between vitamin use and a reduced risk of a specific birth defect known as neural tube defect.

In 1980, Dr. Smithells found that women who took vitamins about the time of conception reduced their babies' risk of neural tube defect seven times. At the Federal Centers for Disease Control in Atlanta, Joseph Mulinare, epidemiologist and pediatrician, compared the mothers of 347 children with neural tube defects with mothers of 2,829 normal babies, interviewing both groups about their vitamin usage around the time of conception. The mothers of children without these birth defects were more likely to have taken a multivitamin at least three times a week during the three months before conception as well as the first three months of pregnancy. Dr. Mulinare has estimated that a woman who takes a multivitamin has fifty to sixty percent less chance of having a baby with a neural tube defect. In Hungary, a double-blind study involving 20,000 women is being sponsored by the World Health Organization to test the effect of a multivitamin/multimineral preparation in preventing neural tube defects in a woman's first pregnancy.

In an unrelated study, a group of 213 pregnant lower income women were given vitamin and mineral tablets. Those who failed to take the supplements had a high incidence of risk factors, more problems during pregnancy, and a higher rate of premature deliveries, spontaneous abortions, and low birth weight infants. A multivitamin/multimineral supplement would appear to be a prudent step toward ensuring a healthy pregnancy.

It is thought that folic acid may be the key nutrient supplied by the supplements. Essential to the formation of DNA, folic acid is found in fresh raw green vegetables, scarce in many diets. Folic acid has also been shown to help reverse abnormal development in cervical cells in women taking the pill. (Butterworth, et al., 1982) The late Paavo Airola ardently urged women taking oral contraceptives to use vitamin and mineral supplements. His fully cited recommendations are found in Every Woman's Book. (Health Plus, 1979)

The National Cancer Institute (N.C.I.) has suggested that liberal intakes, generally higher than the R.D.A., of several nutrients may be indicated for protection against cancer. Studies now underway include vitamin A, retinoids, beta-carotene, vitamin C, selenium, vitamin E, folic acid, and vitamins B-6 and B-12. Watson and Leonard suggest that "a conservative recommendation for cancer prevention" would be to ensure an intake of 12,500 I.U. vitamin A, 200-800 I.U. vitamin E, 1,000 mg. vitamin C, and 50-200 mcg. selenium. (Watson and Leonard, 1986) Particularly compelling is a study by Wald who found that women with low serum vitamin E levels had five times the risk of developing breast cancer, compared to women with high serum vitamin E levels. (Wald, 1984) It is also useful in the prevention of cardiovascular disease, periodontal disease, and senile cataract. High dietary intakes of vitamin C have been associated with elevated levels of HDL cholesterol (high density lipoproteins, the cholesterol fraction believed to be protective against heart disease), (Jacques, 1987; Dallal, 1988), while another controlled study demonstrated elevated HDL levels in high cholesterol patients taking vitamin E supplements. (Cloarec, 1987)

At least seven studies published in 1987 and 1988, have shown that vitamin E reduces the possibility of blood clotting and consequent blocking of the arteries (platelet aggregation and adhesion). Vitamin E has also been found to be beneficial in reducing the free radical damage that occurs after bypass surgery. (Cavarocchi, 1986) The most recent findings on vitamin E were presented at the New York Academy of Science Conference, October, 1988. These support the hypothesis that vitamin E protects LDL (low density lipoprotein) cholesterol against oxidation. Oxidation of LDL has been identified as an early trigger leading to atherosclerotic plaques. (Esterbauer, 1988; Fruchart, 1988)

It seems worth quoting Wilfred Shute, the Canadian cardiologist, who stated on the jacket of his book Vitamin E for Ailing & Healthy Hearts when it was published in 1969, "I hope this book will be the means of making available to all sufferers from heart disease the help they deserve - a proved successful treatment." At that time, Dr. Shute had been treating heart patients with vitamin E for about 30 years.

At some point in their lives, an estimated 75 percent of all individuals will encounter periodontal disease. A disease which accounts for 50 percent of missing teeth in adults. This is also a concern for young people. According to the 1988 Surgeon
General's Report on Nutrition and Health, about 68 percent of teenagers and 39 percent of children aged six to eleven have clinical signs of early gum disease. A recent USDA. study showed that daily intake of 600 milligrams of vitamin C as compared to 60 milligrams (the R.D.A.) or less was associated with a significant reduction in early symptoms of periodontal disease. (Leggott, 1986) Two subsequent publications support these findings. (Buzina, 1986; Melnick, 1988)

Regarding senile cataract, two reports from the USDA. Human Nutrition Research Center on Aging at Tufts University suggest that elderly individuals with high plasma levels of vitamin C and carotenoids (beta-carotene) have a lower risk of cataracts. (Jacques, 1988,) In another study, people who took vitamins E and C were found to have a 50 percent reduced risk of cataracts compared to a matched control population. (Robertson, 1988)

Although the R.D.A. for calcium remains at 800 milligrams for adults, in 1984, the National Institutes of Health Consensus Conference on Osteoporosis recommended an increased level of calcium intake for women and men. They stated: "It seems likely that an increase in calcium intake to 1,000-1,500 milligrams per day beginning well before menopause will reduce the incidence of osteoporosis in postmenopausal women. Increased calcium intake may prevent age related bone loss in men as well... For those unable to take [the amount] of calcium by diet, supplementation with calcium tablets is recommended."

Incidentally, most people do not obtain even R.D.A. levels of calcium in their diets, let alone the levels believed to offer protection against osteoporosis. Zinc and magnesium are two more important minerals generally deficient in most diets.

For a number of years, it has the message from the nutrition specialists in the U.S. that people eat a diet of fresh whole foods, drink plenty of pure water, exercise regularly, and take a multivitamin / multinmineral capsule containing selenium and chromium, along with additional vitamins C and E and a calcium-magnesium supplement, augmented with a bone-builder tablet. There is a wealth of information available for those who want to know more. This investment in your health is the one that counts.