



## What to Look for in a Multiple Vitamin & Mineral Supplement

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### ASK THE DOCTOR

Answers to Your Health Questions

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#### Q Can I meet all my nutritional needs through diet alone?

**A.** While a health-promoting diet is an essential component of good health, so too is proper nutritional supplementation. While some experts say that you can theoretically meet all of your nutritional needs through diet alone, the reality is that most Americans do not. Beyond this argument is the difference in how some experts view "optimum" nutrition. If an expert believes optimum nutrition simply means no obvious signs of nutrient deficiency, their answer to whether supplementation is necessary is going to be different from an expert who thinks of optimum nutrition as the level that will allow a person to function at the highest degree possible with vitality, energy, and enthusiasm. What it comes down to then, is an argument of philosophy.

Do you believe that health is simply a matter of not being sick? Or, do you believe health is much more than this? The World Health Organization defines health as "a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity." This definition of health provides a positive range of health well beyond the absence of sickness. It is the goal of optimal health that drives people to take nutritional supplements.

#### Q. Is there evidence that nutritional deficiency is common in America?

**A.** Yes. Especially in the young and in the elderly. In addition, many Americans consume a diet inadequate in nutritional value yet not to a

point where obvious nutrient deficiencies are apparent. The term "subclinical" or marginal deficiency is often used to describe this concept. A subclinical deficiency indicates a deficiency of a particular vitamin or mineral that is not severe enough to produce a classic deficiency sign or symptom. Complicating the matter is the fact in many instances the only clue of a subclinical nutrient deficiency may be fatigue, lethargy, difficulty in concentration, a lack of well-being, or some other vague symptom. Diagnosis of subclinical deficiencies is an extremely difficult process that involves detailed dietary or laboratory analysis.



Is there evidence to support the contention that subclinical vitamin and mineral deficiencies exist? Definitely yes. During recent years, the U.S. government has sponsored a number of comprehensive studies (HANES I and II, Ten State Nutrition Survey, USDA nationwide food consumption studies, etc.) to determine the nutritional status of the population. These studies have revealed marginal nutrient deficiencies exist in a substantial portion of the U.S. population (approximately 50%) and that for some selected nutrients in certain age groups, more than 80% of the group consumed less than the RDA.<sup>1</sup>

These studies indicate the chances of consuming a diet meeting the recommended dietary allowance (RDA) for all nutrients is extremely unlikely for most Americans. In other words, while it is theoretically possible that a healthy individual can get all the nutrition they need from foods, the fact is most Americans do not even come close to meeting all their nutritional needs through diet alone. In an effort to increase their intake of

essential nutrients, many Americans look to vitamin and mineral supplements.

**Q. Are the RDAs enough?**

**A** Recommended Dietary Allowances (RDAs) for vitamins and minerals have been prepared by the Food and Nutrition Board of the National Research Council since 1941.<sup>2</sup> These guidelines were originally developed to reduce the rates of severe nutritional deficiency diseases such as scurvy (deficiency of vitamin C), pellagra (deficiency of niacin), and beriberi (deficiency of vitamin B1). Another critical point is that the RDAs were designed to serve as the basis for evaluating the adequacy of diets of groups of people, not individuals. Individuals simply vary too widely in their nutritional requirements. As stated by the Food and Nutrition Board, "Individuals with special nutritional needs are not covered by the RDAs."



A tremendous amount of scientific research indicates that the "optimal" level for many nutrients may be much higher than their current RDA. The RDAs focus only on the prevention of nutritional deficiencies in population groups, do

not define "optimal" intake for an individual.

Another factor the RDAs do not adequately take into consideration are environmental and lifestyle factors which can destroy vitamins and bind minerals. For example, even the Food and Nutrition Board acknowledges that smokers require at least twice as much vitamin C compared to non-smokers. But, what about other nutrients, and smoking? And, what about the effects of alcohol consumption, food additives, heavy metals (lead, mercury, etc.), carbon monoxide, and other chemicals associated with our modern society that are known to interfere with nutrient function? Dealing with hazards of modern living may be another reason many people take supplements. While the RDAs have

done a good job at defining nutrient intake levels to prevent nutritional deficiencies, they do not define the optimum intake of nutrients.

**Q. Why are so many Americans using nutritional supplements?**

**A.** I think most people realize that they cannot rely on dietary intake alone to meet all of their nutritional needs. Current estimates are that more than 70% of Americans now regularly take vitamin or mineral supplements. It seems that taking vitamin and mineral supplements has become a way of life for most Americans.

**Q. What do I really need to take?**

**A.** At the very least, I believe that virtually everyone needs to take a high quality multiple vitamin and mineral supplement. Taking a high quality multiple vitamin and mineral supplement serves as a foundation upon which to build great health. Dr. Roger Williams, one of the premier biochemists of our time, states that healthy people should use multiple vitamin and mineral supplements as an "insurance formula" against possible deficiency. This does not mean that a deficiency will occur in the absence of the vitamin and mineral supplement, any more than not having fire insurance means that your house is not going to burn down. But given the enormous potential for individual differences from person to person, and the varied mechanisms of vitamin and mineral actions, supplementation with a multiple formula seems to make sense.

To find a multiple vitamin and mineral formula that meets these criteria, read labels carefully. Be aware that you will not be able to find a formula that can provide all of these nutrients at these levels in one single pill. Usually it will require at least three to six tablets to meet these levels. While many one-a-day supplements provide good levels of vitamins, they tend to be insufficient in the levels of minerals.

**Q. Are minerals important?**

**A.** Absolutely. The key functions of vitamins and minerals in the human body revolve around their serving the role as essential components in enzymes and coenzymes. Enzymes are molecules involved in speeding up chemical reactions necessary for human bodily function. Coenzymes are

molecules that help the enzymes in their chemical reactions.

Enzymes and coenzymes work to either join molecules or split them by making or breaking the chemical bonds that join molecules. One of the key concepts in nutritional medicine is to supply the necessary support or nutrients to allow the enzymes of a particular tissue to work at its optimum levels.

Most enzymes are composed of a protein along with an essential mineral and possibly a vitamin. If an enzyme is lacking the essential mineral or vitamin, it cannot function properly. By providing the necessary mineral through diet or a nutritional formula, the enzyme is then able to perform its vital function. For example, zinc is necessary for the enzyme that activates vitamin A in the visual process. Without zinc in the enzyme, vitamin A cannot be converted to the active form. This deficiency can result in what is known as night-blindness. By supplying the enzyme with zinc, we are performing "enzymatic therapy" and allowing the enzyme to perform its vital function.

In addition to their role in enzymes, minerals are also needed for proper composition of bone, blood, and the maintenance of normal cell function. The minerals are classified into two categories: major and minor. What determines if a mineral is a major or minor one depends upon the level, not the necessity. If a mineral is required at a level greater than 100 mg per day it is considered a major mineral. The major minerals include calcium, phosphorus, potassium, sodium, chloride, magnesium, and sulfur. The minor, or trace minerals, include boron, chromium, copper, iodine, iron, manganese, molybdenum, selenium, silicon, vanadium, and zinc.

You may experience higher energy levels, improved brain function, fewer colds or infections, and other health benefits, or you may feel nothing. But, just because you may not feel anything after taking a multiple doesn't mean that the higher nutrient levels you are ingesting are not being used by your body. For example, there is evidence that people taking nutritional supplements may have a lowered risk for heart disease and cancer.<sup>4,5</sup> It is unlikely that a person would feel any

benefit of supplementation in these instances. Nonetheless, they are definitely realizing the benefits in the long-term.

The entire human body functions more optimally when it has a steady supply of high quality nutrition. Two body systems that are particularly sensitive to the ill effects of nutrient deficiency are the brain and immune system. To highlight the potential benefit of taking a multivitamin-mineral supplement in an attempt to improve brain and immune function, results from two important clinical studies are described below.

In the first study it was demonstrated that supplementing the diet with a multiple vitamin-mineral formula can increase non-verbal intelligence in children.<sup>6</sup> In other words, taking a multiple vitamin and mineral formula made kids smarter. This study demonstrated the essential role of many vitamins and minerals in brain function. Nutrients especially important to proper brain and nervous system function include thiamin, niacin, vitamin B<sub>6</sub>, vitamin B<sub>12</sub>, copper, iodine, iron, magnesium, manganese, potassium, and zinc. A deficiency of any of these essential nutrients will result in impaired brain and nervous system function.

The study was performed on 90 children ages 12 and 13. The children were divided into three groups. One group took no tablet, one group took a typical multiple vitamin-mineral tablet, and the last group took a tablet that looked and tasted just like the multiple yet contained no vitamins or minerals.

The results of this well-controlled study demonstrated that the group taking the supplement, but not the placebo group or the remaining 30 who took no tablet, had a significant increase in non-verbal intelligence. It is a well-accepted fact that a deficiency of a number of vitamin and minerals will result in impaired mental performance. Apparently many of the children were suffering from "subclinical" vitamin and mineral deficiencies to an extent that hampered nerve cell function and impaired mental performance. In other

words, low levels of nutrients in the diet will not allow the brain to function properly. By providing the brain the proper nutrients, through either diet or supplementation, it requires to function at its optimal level, these nutritional deficiencies can be reversed and/or prevented.

Now let's take a look at the effect of a multiple vitamin and mineral supplement improving immune function in the elderly.

First of all, aging is associated with decreased immune system function. Recent evidence supports the hypothesis that many of the age-related defects in immune function are due to nutrient deficiency. The elderly are at the highest risk of nutritional deficiency and it is a well-accepted fact that nutrient deficiency is still the major cause of impaired immune function throughout the world.

The effect of a multiple vitamin and mineral supplement on immune function in the elderly was examined in a double-blind study that lasted for 12 months.<sup>7</sup> The results indicated that the elderly subjects receiving the nutritional supplement demonstrated improvements in many immune system functions and had significantly fewer infections compared to the placebo group.

This study highlights the essential role nutrition plays in maintaining a healthy immune system. Nutrients especially important to proper immune function include vitamin B<sub>6</sub>, vitamin C, and zinc. These nutrients are required for the manufacture of antibodies, thymus gland hormones, and other important immune system components. A deficiency of these or virtually any other nutrient will result in impaired immune system function.

As the immune system is responsible for protecting against infection as well as cancer, the first step in enhancing immune function is proper nutrition. The closer an individual's essential nutrient intake is to being optimal, the better chance he or she has that the immune system will function in an optimal manner—another good reason to take a high quality, multiple vitamin and mineral formula.



**Q Do men and women have different nutritional needs?**

**A** Yes. For example, most women require higher calcium, iron, and vitamin B<sub>6</sub> levels than men, while men tend to require higher zinc and magnesium levels. Also, men rarely need to supplement their diet with iron.

There are many subtle differences in nutritional requirements not only in men and women, but also based upon a person's age. In my clinical practice, I utilize formulas that I developed to meet the different nutritional needs of different ages and gender. These formulas contain not only gender and age-specific levels for vitamins and minerals, but also appropriate digestive factors and herbal extracts based on gender and/or age.

**Q .How can I learn more about nutritional supplements?**

**A** There are some excellent books on the subject. In addition to my book, *Encyclopedia of Nutritional Supplements* (Prima 1996), here are several other books that I think are quite good (listed in alphabetical order by author):

*The Doctor's Vitamin and Mineral Encyclopedia.* Sheldon Saul Hendler, M.D., Ph.D. (Fireside 1991)

*The Vitamin Revolution.* Michael Janson, M.D. (Arcadia Press, 1996)

*The Real Vitamin & Mineral Book* Shari Lieberman and Nancy Bruning (Avery 1996)

*The Essential Guide to Vitamins and Minerals.* Elizabeth Sourer, M.A., R.D. (Harper Collins, 1992)

*Healing Through Nutrition.* Melvyn Werbach, M.D. (Harper Collins, 1993)

*Dr Whitaker's Guide to Natural Healing.* Julian Whitaker, M.D. (Prima, 1994)

**Q. What do you mean by a high quality multiple vitamin and mineral supplement?**

**A.** One that provides high levels of all vitamins and minerals. The following recommendations provide an optimum intake range in selecting a high quality multiple.

<b>Vitamins:</b>	<b>Range for Adults</b>
Vitamin A (retinol)	5,000 IU
Women of childbearing age should not take more than 2,500 IU of retinol daily due to the possible risk of birth defects if becoming pregnant is a possibility.	
Vitamin A (from beta-carotene)	5,000-25,000 IU
Vitamin D	100-400 IU
Elderly people in nursing homes living in northern latitudes should supplement at the high range.	
Vitamin E (d-alpha tocopherol)	100-800 IU
It may be more cost effective to take vitamin E separately.	
Vitamin K (phytonadione)	60-300 mcg
Vitamin C (ascorbic acid)	100-1,000 mg
It may be easier to take vitamin C separately.	
Vitamin B <sub>1</sub> (thiamin)	10-100 mg
Vitamin B <sub>2</sub> (riboflavin)	10-50 mg
Niacin	10-100 mg
Niacinamide	10-30 mg
Vitamin B <sub>6</sub> (pyridoxine)	25-100 mg
Biotin	100-300 mcg
Pantothenic acid	25-100 mg
Folic acid	400 mcg
Vitamin	400 mcg
Choline	10-100 mg
Inositol	10-100 mg

**Minerals:**

Boron	1-6 mg
Calcium	250-1,250 mg
Taking a separate calcium supplement may be necessary when trying to achieve higher dosage levels in women at risk or suffering from osteoporosis.	
Chromium	200-400 mcg
For diabetes and weight loss, dosages of 600 mcg can be used.	
Copper	1-2 mg
Iodine	50-150 mcg
Iron	15-30 mg
Men and postmenopausal women rarely need supplemental iron.	
Magnesium	250-500 mg
When magnesium therapy is indicated, take a separate	

magnesium supplement.

Manganese	10-15 mg
Molybdenum	10-25 mcg
Potassium	200-500 mg
Selenium	100-200 mcg
Silica	1-25 mg
Vanadium	50-100 mcg

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