

Vitamins, Minerals, & Supplements

Nutrients that are all necessary for life

Possibly the most widely used form of supplements

Approximately 3,400 different vitamin and mineral supplements on the market

Account for about \$4 billion annually

Who takes them? - Contrary to common beliefs, the people who take these supplements are most often the ones who don't need them. According to studies the people who take the supplements are the ones who are already getting high levels from foods, and are eating fruits and vegetables, than those not taking the supplements. In addition they tend to be white, women, elderly, have higher personal incomes, more education, nonsmokers (especially former smokers), and those that don't drink heavily. The reason these types of people tend to take them is because they usually have more of a concern about their personal health than those that don't. However this causes a problem, because they don't need them because they are already eating and exercising properly. So basically they are throwing their money away.

Who should take them? - The biggest reason anyone should ever use for taking a vitamin or mineral supplement is if their diet is limited or just plain poor. However there are some special circumstances where the supplements may be beneficial or sometimes necessary.

- B-12 for strict vegetarians who eliminate all animal products from their diet
- Folic acid for women of child bearing age who consume a limited amount of fruits, leafy vegetables, and legumes. (Decreases neural tube defects during pregnancy)
- Vitamin D for those with limited milk intake and sunlight exposure
- Calcium for those with lactose intolerance or allergies to dairy products
- Multivitamin and mineral supplement for those following severely restricted weight-loss diets
- Iron supplementation during pregnancy
- Iron, zinc, copper, calcium, vitamin B-6, folate, vitamin C, and vitamin D for pregnant women who do not eat an adequate diet or who are in high risk categories, such as women carrying more than one fetus, heavy smokers, or alcohol or drug abusers

In general the best way to insure that you don't have any deficiencies and are meeting the RDAs is to eat a variety of good foods. However for those people that know they do not eat properly a low dose multi-vitamin may be beneficial. But before undertaking this investment, really take a look at your diet.

Are there any side effects to taking excessive levels of vitamins? - YES THERE ARE! This is one instance were too much of a good thing can be bad. However, thankfully it is not very common. Estimated toxic doses for daily oral consumption of vitamins and minerals by adults are as low as five times the recommended intake for selenium, and are as high as 25 to 50 times the RDA for folic acid and vitamins C and E. The most frequently seen vitamin toxicity is from vitamin A, which can be caused by eating livers of carnivorous animals or large fish, however not always. More often than not, toxicities occur through supplementation. Another to be wary of is iron. Exceeding the RDA for iron can be very dangerous, because at a certain level it becomes poisonous to the body, however we can not live without it. It also especially dangerous for a child, and is one of the most common causes of pediatric poisoning deaths in the United States. Basically watch how much you are taking if you choose to supplement, because there are some very serious side effects. In addition, keep in mind that nutrient imbalances and toxicities are less likely to occur when nutrients are derived from foods. So seriously evaluate your diet before you decide to take a vitamin or mineral supplement, and ask yourself whether you really need it or not.

What is a Vitamin?

Vita comes from the Latin language meaning *necessary for life*. *Amine* was added because the first biochemist to discover the substance thought it was an amine. The "e" was dropped to make vitamin. Between 1912 and 1937 all our known vitamins were discovered with the exception of Vitamin B12 which was found in 1948.

Vitamins are organic, meaning they contain carbon, substances required in tiny amount to promote one or more specific and essential biochemical reactions within a living cell. Lack of the substance for a prolonged period of time causes a specific deficiency disease which is quickly cured when the substance is resupplied.

There are 13 known vitamins for humans. Four are fat-soluble (A, D, E & K) and nine are water-soluble (C and the eight B-Complex). All vitamins are catalysts (they initiate or speed up a chemical reaction but remain unchanged while performing the tasks.) Hence the

reason why they are needed in small amounts. Unlike fats, proteins, & carbohydrates, vitamins have no calorie value and supply no energy to the body. Most vitamins must be obtained from food because the human body cannot manufacture them. Expect for:

- Vitamin D can be made from sunlight on a cholesterol derivative located on your skin.
- Niacin can come from the amino acid tryptophan
- Vitamin K is made in the intestinal track by certain kinds of bacteria.

After eaten and absorbed, vitamins are distributed to the target tissues and enter the cells. Any surplus is used to maintain the optimum level in the blood and the rest is either stored (fat soluble) or excreted (most water soluble)

- Excess Vitamin A is stored in the liver to a max reserve of 500,000 IU
- Excess Vitamin D is stored in the liver
- Excess Vitamin E is stored in the fatty tissues with a normal pool of 5,000 IU
- Excess Vitamin K is stored in the liver

Vitamins & Minerals

- Vitamin A
- Vitamin B1 (Thiamin)
- Vitamin B2 (Riboflavin)
- Vitamin B3 (Niacin)
- Vitamin B6 (Pyridoxine)
- Vitamin B12 (Cobalamin)
- Vitamin C
- Vitamin D
- Vitamin E
- Vitamin K
- Calcium
- Folic Acid
- Iron
- Magnesium
- Potassium
- Selenium
- Zinc

Other Supplements

- Amino Acids
- Androstenedione
- Chromium
- Creatine
- Protein

U. S. RDA vs RDA

The RDA varies based on age and sex.

The U.S. RDA however is a single number that does not vary with age and sex. It is set by the Food and Drug Administration and is intended for use by food manufacturers when giving nutrition information about their products.