

Vitamins: What They Are, How They Work, Why You Need Them

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It's no secret that vitamins and other nutritional supplements are part of a very lucrative, billion dollar industry. In fact, as reported by The Vitamins and Nutrition Center, "Americans spend almost \$2 billion on vitamin and mineral supplements each year."¹ If nothing else, this is a clarion call, shouting loud and clear in a language everyone understands – the US dollar – that Americans not only want to be healthy, but that they want to stay that way. This trend also demonstrates that they want to take some personal responsibility when it comes to their health and wellbeing. I think that's an admirable goal, especially in the face of the enormous pressure that mega-industry, chemical-pushing monster companies place on consumers (doctors and patients alike) to pop the latest "miracle pill." Phen Fen was one of those. So was Vioxx. Both of them proved more dangerous than healthful and were pulled from the market. And in the meantime, if you're like me, you've been shaking your head in disbelief and continuing your daily vitamin C and antioxidant supplements.

It probably seems like common sense that vitamins are good for people. They're fairly ubiquitous in our present culture; they are now even sold at those dollar stores you see popping up everywhere. That doesn't mean, however, that you know what vitamins actually are or how they work. And probably, few have told you why you need them or how to recognize the best vitamins from those of poor quality. Interested? Then read on...

What They Are

In the simplest of terms, vitamins are organic substances that are essential for our normal health and development. Distinct from carbohydrates, fats, and proteins, vitamins are widely diverse in chemical structure and composition.

There are at least 13 different vitamins that we know are essential for human health and they are usually separated into two groups: water-soluble, and fat-soluble. What that means is that some vitamins dissolve in water, but others only dissolve in fats. That's why some vitamins (the fat-soluble kind) should be taken with a meal, while others (the water-soluble vitamins) can be taken otherwise. Additionally, the body can store fat-soluble vitamins in the liver and fatty tissue, but since most excess water-soluble vitamins are excreted in the urine, they need to be consumed more often.

Which Is Which?	
Water-Soluble	Fat-Soluble
Vitamin B1	Vitamin A
Vitamin B2	Vitamin E
Vitamin B3	Vitamin D
Vitamin B5	Vitamin K
Vitamin B6	
Vitamin B12	
Vitamin C	
Folic Acid	
Biotin	

To date, there is not uniform agreement concerning our vitamin requirements. Differences in opinion arise mainly from the different ways by which requirements can be determined and from the scanty data available for the requirements for some of the vitamins.² Patrick Holford,

Founder of the Institute for Optimum Nutrition, suggests that the “Recommended Daily Allowances” (RDA) are set by governments in order to prevent vitamin deficiency diseases like scurvy and rickets, but that they are “certainly not designed to ensure optimal health, and there is a big difference between a lack of illness and the presence of wellness.”³ The RDAs do not take into account an individual’s circumstances (e.g., if you smoke, drink alcohol, live in a polluted city, are premenstrual or menopausal, exercise frequently), nor do they even consider the question of what would promote optimal health.

Why Call it a Vitamin?

When Dr. Casimir Funk put forth his theory that certain food substances were vital to life, he coined the term *vitamins*, referring to them as “vital amines,” or nitrogen compounds. It later turned out that not all of them were amines. By the time Dr. Funk summed up his theories in a book published in 1922, *The Vitamins*, he had dropped the *e*. The term *vitamin* has been part of our vocabulary ever since.

(From: *Foods That Harm, Foods That Heal*, Reader’s Digest, ©1997, pg. 365.)

How They Work

In general, vitamins are molecules that your body requires in order to carry out certain metabolic actions. More specifically, proteins, carbohydrates, and fats combine with other substances to produce energy and build tissues. The chemical reactions that make all this possible are catalyzed, or accelerated, by enzymes produced from specific vitamins, and they take place in specific parts of the body.

Perhaps most importantly, you should understand that vitamins don’t act on the body like drugs. For example, you’ll rarely get the nearly instant results that you do if you take caffeine or a sleeping pill. Vitamins are the raw materials that your body uses to repair itself; you can’t really use vitamins to force your body to do something it wasn’t going to in the first place.

As noted online at iVillage.com, “more important than *feeling* effects is that vitamins work together” in a synergistic manner.⁴ Most vitamins work best when they are taken with other vitamins. Their concerted efforts in the body are what help produce optimal health, though a noticeable change may take several weeks to be readily apparent. Exceptions to this, of course, would include those people who are so deficient in a specific vitamin that when they are given the needed nutrient, their bodies respond nearly instantly. If you are fortunate, however, you won’t need to experience that.

Consult the table below to find out more about how your body uses the 13 essential vitamins.

Why You Need Them

So, now that you have a basic understanding of what vitamins are and what they do, you know why they are so vital to your health and wellbeing. What you may *not* know, however, is that without a good multivitamin supplement, you are probably not getting the amounts of vitamins that your body really needs to run optimally. You may be thinking, “But what if I eat a really well-balanced diet?” While it’s always a good idea to choose foods that are high in nutritional value (such as raw, organic foods), the sad truth is that it is incredibly hard to eat a diet that meets even the RDA levels of vitamins, let alone those needed to produce optimum health. There are many reasons why this is the case. Take a look at these facts:^{5, 6, 7}

- Fewer than 29% of people eat 5 servings of fresh fruits and vegetables a day;
- 20% of people don't eat any fruits or vegetables at all;
- The RDAs are established to prevent common deficiency diseases in an “average person”: an adult under 60 years old who is in good health, has normal digestion, isn't overweight, leads a relatively stress-free life, has no medical problems, does not need any medication, and eats a good diet everyday of 2,000 calories per day;
- The October 2002 *Journal of the American Medical Association* reported a research study that stated categorically that every adult should take a multiple vitamin, since it is impossible to obtain all the nutrients needed in our daily food intake today;
- Processed foods – which account for the larger part of the average American's diet – have been depleted of nutrients; and
- Since 1963, the nutrient quality of the soil in which we grow all the food we eat has declined dramatically.

There is certainly something to say for organic foods, which when compared against non-organic foods, always come out on top where nutrient content and quality are concerned. Still, the majority of the foods that we eat tend to not only be non-organic, but are often highly processed and prepared in ways that destroy essential nutrients.

Patrick Holford suggests that “most people are being short-changed on health, due to inadequate intakes of vitamins and minerals.”⁸ In fact, since the 1980s scientific studies have shown that proper use of vitamins and nutritional supplements can boost immunity, increase IQ, reduce birth effects, improve childhood development, reduce colds, lessen PMS, improve bone density, balance moods, increase energy, and in short, promote a long and healthy life. Most people settle for “feeling alright” when they could – with the help of good quality vitamin supplements – feel great.

Are you one of them?

If so, you can do yourself a favor by finding and using a good multivitamin supplement. There are so many different kinds of these available – for suggestions on which will work best for you, consult a knowledgeable nutritionist, dietician or physician. In general, look for vitamins that are all-natural and which can be taken in dosages that *at least* meet the RDAs for vitamins. A good way to get full-spectrum vitamin support is to find and use a premium quality multivitamin supplement.

Chances are, with the right supplement in hand, you will be on your way to a healthier you. And being healthy is, of course, the cornerstone of a wonderful, long, and fulfilling life.

Vitamin	Also Known As	What it Does
Vitamin A	Retinol and Beta-carotene	Needed for healthy skin, protects against infections, antioxidant and immune booster, essential for night vision
Vitamin B1	Thiamine	Essential for energy production, brain function, and digestion; helps body make use of protein
Vitamin B2	Riboflavin	Helps convert fats, sugars, and protein into energy; helps repair and maintain healthy skin; helps regulate body acidity; important for hair, skin, and nails
Vitamin B3	Niacin	Essential for energy production, brain function and the skin; helps balance blood sugar and lower cholesterol levels; also involved in digestion
Vitamin B5	Pantothenic acid	Involved in energy production, controls fat metabolism; essential for brain and nerves; helps make anti-stress hormones; maintains healthy skin and hair
Vitamin B6	Pyridoxine	Essential for protein digestion and utilization, brain function, hormone production; helps balance sex hormones; natural anti-depressant and diuretic; helps control allergic reactions
Vitamin B12	Cyanocobalamin	Essential for making use of protein; helps blood carry oxygen; needed for synthesis of DNA; essential for nerves; helps deal with toxins
Biotin	-	Particularly important in childhood; helps your body use essential fats, assisting in promoting healthy skin, hair, and nerves
Vitamin C	Ascorbic acid	Strengthens immune system; fights infections; makes collagen, keeping bones, skin and joints firm and strong; antioxidant, protecting against cancer and heart disease; helps turn food into energy
Vitamin D	Ergocalciferol, cholecalciferol	Helps maintain strong and healthy bones by retaining calcium
Vitamin E	D-alpha tocopherol	Antioxidant, protecting cells from damage including against cancer; helps body use oxygen, preventing blood clots, thrombosis, atherosclerosis; improves wound healing and fertility
Folic Acid	-	Critical during pregnancy for development of brain and nerves; essential for brain and nerve function; needed for utilizing protein and for red blood cell formation
Vitamin K	Phylloquinone	Controls blood clotting

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- ¹ <http://www.vitamins-nutrition.org/vitamins/mineral-deficiencies.html>
- ² <http://www.vitamins-nutrition.org/vitamins/general-vitamin-information.html>
- ³ Holford, Patrick, *The Optimum Nutrition Bible*, ©1999, pg. 60.
- ⁴ <http://health.ivillage.com>, “Feeling the Effects of Vitamins”
- ⁵ <http://www.drlam.com/supplements/intro.cfm>
- ⁶ <http://www.preventionisbest.com/site/nutrientpoorfoods.html>
- ⁷ Mindell, Earl, *Earl Mindell's New Vitamin Bible*, ©2004, pp. 5 – 6.
- ⁸ Holford, Patrick, *The Optimum Nutrition Bible*, ©1999, pg. 61.