Vitamins

NOW® Guide to Vitamins

Live Happy. Live Healthy. Live NOW.

The Health Benefits of Vitamins

Vitamins

As the debate surrounding the importance of vitamins continues, we often forget one simple truth – vitamins are absolutely essential for our survival. Vitamins are organic compounds that are required in small amounts by all living organisms. They cannot be synthesized by our bodies, so they must be obtained from the diet, either from food or through supplementation. Vitamins are necessary for growth, healthy metabolism, cellular function, and countless processes within the body. Without them our physical being and health would quickly deteriorate.

There are thirteen vitamins deemed essential for human health – vitamins A, C, D, E, K and B complex vitamins, which include thiamin (B-1), riboflavin (B-2), niacin (B-3), pantothenic acid (B-5), pyridoxine (B-6), biotin, cobalamin (B-12), and folate (folic acid). These vitamins are classified in two different categories: water-soluble and fat-soluble.

Most water-soluble vitamins, such as the B vitamins, must be obtained on a daily basis since they're quickly excreted and have limited storage in our bodies. Fat-soluble vitamins such as vitamin D can be stored in fatty tissues and do not require daily replenishment.

While a healthy, balanced diet may provide these essential vitamins in quantities sufficient to support good health, this is contingent on a diet comprised of nutritious whole foods grown in balanced soils. Today's highly processed and refined foods typically don't contain adequate levels of vitamins and other nutrients, which makes supplementation advisable to bridge the nutrition gaps in our diet.

NOW® offers the full complement of essential vitamins as well as a comprehensive selection of multivitamins for every stage of life.

Vitamin A

Vitamin A is actually a group of fat-soluble retinoids and carotenoids. There are two types of vitamin A found in our diet – preformed vitamin A retinoids (e.g., retinol and its esterified form, retinyl ester) and provitamin A carotenoids (e.g., beta carotene). Vitamin A is important for numerous bodily functions including normal visual function, immune system health, healthy bones and teeth, and healthy skin.* Our bodies need vitamin A to utilize protein.* Vitamin A is also an antioxidant that protects against free radical damage.*

Beta carotene belongs to a group of organic pigments that are found in plants and fruits. Once ingested, beta carotene can be converted to vitamin A in the liver. Beta carotene is only converted to vitamin A as needed by the body, making it a safe source, even at high doses.

B Vitamins (B Complex)

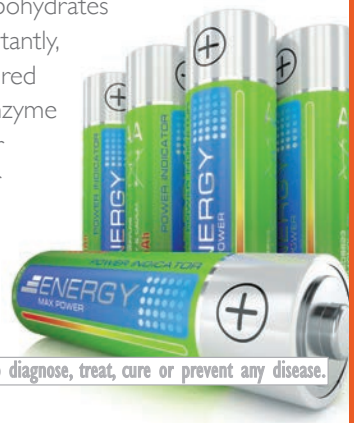
This family of water-soluble vitamins is important for the health of many different organs and body systems.* B vitamins serve as coenzymes, which are biochemical cofactors that are necessary for a wide range of chemical reactions in the body.* The "coenzyme" form of a B vitamin is the biologically active form in the human body. B vitamins are extremely important for nervous system and neurological health, but their roles as coenzymes make them important for overall health and well-being.*

Vitamin B-1, also known as thiamin, plays a central role in the generation of energy from carbohydrates.* It is involved in RNA and DNA production, as well as healthy nervous system function.* It's also involved in the production of hydrochloric acid, an important component of healthy digestion.* The biologically active coenzyme form of vitamin B-1 is thiamin co-carboxylase.

Vitamin B-2 (Riboflavin) is important for circulatory and immune health, and is especially important for developing fetuses during pregnancy.* It's involved in the metabolism of proteins, carbohydrates, and fats.* One biologically active coenzyme form of vitamin B-2 is riboflavin-5-phosphate.

Niacin (Vitamin B-3) Vitamin B-3 is also known as niacin, niacinamide and nicotinic acid. It too plays a role in the metabolism of proteins, carbohydrates and fats, and is involved in the production of hydrochloric acid.* The niacin (nicotinic acid) form helps to support healthy circulation and can help to maintain cholesterol levels already within the normal range.* One biologically active coenzyme form of vitamin B-3 is NAD (nicotinamide adenine dinucleotide).

Pantothenic Acid (Vitamin B-5) is extremely important for healthy cognitive function due to its role in the production of neurotransmitters.* Like other B vitamins it's involved in the metabolism of fats, proteins, and carbohydrates for energy.* Most importantly, pantothenic acid is required for the synthesis of coenzyme A, which is necessary for a broad range of cellular functions.* Another form of vitamin B-5 is pantethine.



*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease.

B Vitamins (B Complex) (continued)

Vitamin B-6 (Pyridoxine) is involved in cardiovascular and immune system health, and helps to balance sodium and potassium levels.* Pyridoxine also plays a role in the production of the neurotransmitters dopamine, serotonin, epinephrine, and norepinephrine.* The biologically active coenzyme form of vitamin B-6 is P-5-P.

Biotin (Vitamin B-7) is necessary for normal growth and body function.* It's a key regulatory element in gluconeogenesis (the generation of glucose from carbon sources), fatty acid synthesis, and in the metabolism of some amino acids.* Alongside its role in energy production, biotin enhances the synthesis of certain proteins and promotes normal immunity.* Biotin is probably best known for its role in skin health, and to a lesser extent, for hair and nail health.*

Vitamin B-12 (Cobalamin) is perhaps the most well-known of the B vitamins. It is vitally important for the growth and health of the nervous system, and for cellular growth and longevity.* It's involved in digestion and the absorption of foods, and its role in the metabolism of homocysteine makes it important for cardiovascular function.* Like other B vitamins, it's also involved in the metabolism of fats and carbohydrates.* The biologically active coenzyme forms of vitamin B-12 are dibencozide and methylcobalamin.

Folate (Folic Acid) is especially important for women of child-bearing age, and adequate maternal levels are crucial for the normal development of an unborn child due to its involvement in the formation of fetal nerve structures.* Folate is a coenzyme in the synthesis of DNA and RNA and is therefore necessary for the division and replication of cells.* The biologically active coenzyme form of folic acid is 5-methyl-tetrahydrofolate.

Choline, while not technically a B vitamin, is typically classified as a related compound. This essential nutrient is involved in the metabolism of cholesterol and fat, which in turn supports liver health, and is required for proper nerve impulse transmission in the form of acetylcholine.* Like folate, choline is especially important during pregnancy.*

In 2016 the U.S. Food and Drug Administration (FDA) announced the establishment of a new Daily Value for choline, confirming its role as an essential nutrient with a reference daily intake of 550 mg.

Inositol is loosely considered a member of the B vitamin family but it is not an essential nutrient. It too is involved in the metabolism of fat and cholesterol, and it can support normal fat metabolism in the liver.* Inositol is involved in molecular signaling pathways.*

Para-Aminobenzoic Acid (PABA) is sometimes referred to as Vitamin B_x, but like choline and inositol it isn't a true B-complex vitamin. PABA helps keep skin looking healthy and is often found in skin care products.* It's involved in protein metabolism and the formation of red blood cells.*

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Vitamin C

Vitamin C, also known as ascorbic acid and ascorbate, is a water-soluble vitamin that's absolutely essential for humans and some animals and must be obtained from the diet. A well-known antioxidant nutrient, vitamin C supports the immune system and is involved in tissue growth and repair due to its role in the formation of collagen, the body's main structural protein.* It's an electron donor for the creation of important enzymes, and is a cofactor in the production of numerous essential biochemicals.* Vitamin C is also involved in the synthesis of the amino acid carnitine as well as various neurotransmitters.*

Vitamin D

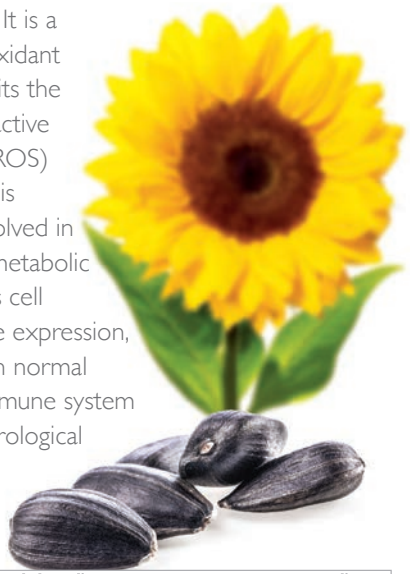
Vitamin D is known as a fat-soluble vitamin, but is actually a group of fat-soluble secosteroids of which two, ergocalciferol and cholecalciferol, are important for humans. In the human body cholecalciferol can be synthesized from cholesterol in sun-exposed skin, hence its nickname "The Sunshine Vitamin." Ergocalciferol can only be synthesized from plant sterols (phytosterols), but is beneficial for humans in

dietary and supplemental form, as is cholecalciferol. Cholecalciferol and ergocalciferol are both converted in the liver to the vitamin D metabolites that are measured in serum to determine a person's vitamin D status, 25-hydroxycholecalciferol and 25-hydroxyergocalciferol respectively; which in turn are precursors of the active forms of vitamin D.

Vitamin D enhances the intestinal absorption and metabolism of the dietary minerals calcium, magnesium, phosphate, and zinc and therefore plays an important role in skeletal health.* Vitamin D is critical for the maintenance of normal bone mineral density.* Vitamin D also supports healthy immune system function, and recent research has shown that vitamin D may play a role in normal cardiovascular function as well.*

Vitamin E

Vitamin E is *alpha*-tocopherol, one of a group of eight fat-soluble compounds - four tocopherols and four tocotrienols. It is a well-known antioxidant vitamin that inhibits the production of reactive oxygen species (ROS) formed when fat is oxidized.* It's involved in a wide range of metabolic processes such as cell signaling and gene expression, and plays a role in normal blood clotting, immune system function, and neurological function.*



Vitamin K

Vitamin K is a group of fat-soluble vitamins: vitamin K-1 (phylloquinone) and vitamin K-2 (menaquinones). K-1 is found in a wide variety of green leafy vegetables due to its role in photosynthesis, and is converted to K-2 by microbial fermentation. K-2 is produced by bacteria, including some of the probiotic bacteria found in the human intestinal tract. Vitamin K is important for a number of metabolic processes in the body. It's necessary for the proper clotting of blood as well as for the proper transport of calcium throughout the body.* Research shows that vitamin K is therefore important for bone health.* Vitamin K-2 in particular has also been shown to play a pivotal role in vascular elasticity.* MK-7 is a highly biologically active form of vitamin K-2 derived from non-GMO natto (Japanese fermented soy food).

Multivitamins

In addition to our full line of essential vitamins, NOW offers a variety of multivitamin products, with formulations tailored to meet the specific nutrition needs of women, men, and children, as well as a comprehensive prenatal formula that includes vital DHA.

The NOW Difference

With NOW you get great quality, value and selection. Our vitamin and multivitamin products are available in several different delivery forms - including vegetable capsules, gelatin capsules, tablets, chewables, softgels, powders, and liquids - and we offer a wide range of strengths to suit individual needs. Combine our superior quality and selection with our affordable prices and the choice for your vitamin needs is easy.

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