

What Vitamins Should I Be Taking

Vitamin B12 is the most chemically complex of all vitamins, and is synthesized exclusively by certain archaea and bacteria. Natural food sources include meat, shellfish, liver, fish, poultry, eggs, and dairy products. It is also added to many breakfast cereals through food fortification and is available in dietary supplement and pharmaceutical forms. Supplements are commonly taken orally but may be administered via intramuscular injection to treat deficiencies.

608585c00e Biotin is classified as a heterocyclic compound, with a sulfur-containing tetrahydrothiophene ring fused to a ureido group. A C5-carboxylic acid side chain is appended to the former ring. The ureido ring, containing the –N–CO–N– group, serves as the carbon dioxide carrier in carboxylation reactions. Biotin is a coenzyme for five carboxylase enzymes, which are involved in the catabolism of amino acids and fatty acids, synthesis of fatty acids, and gluconeogenesis. Biotinylation...

608585c00e Mild deficiencies may have few or absent symptoms. In moderate deficiencies, feeling tired, feeling faint, mouth ulcers, rapid breathing, upset stomach, pallor, hair loss, decreased ability to think and joint pain and the beginning of neurological symptoms, including abnormal sensations such as, numbness and tingling, and tinnitus may occur. Severe deficiencies may include symptoms of reduced heart function, suppression of bone marrow, as well as more various severe neurological symptoms possibly including sensory loss, abnormal balance and reflexes, memory and consciousness impairment, smell and taste problems, depression, irritability, confusion, and psychosis. If left untreated, some of these changes can become permanent. Onset of deficiency may take years to develop. In exclusively breastfed infants of vegan mothers, undetected and untreated deficiency can lead to poor growth, poor development, and difficulties with movement.

608585c00e == Classifications... == 608585c00e The name biotin, borrowed from the German Biotin, derives from the Ancient Greek word βίος (bíos; 'life') and the suffix "-in" (a suffix used in chemistry usually to indicate 'forming').

608585c00e == Chemical description == 608585c00e

Vitamin K Vitamin K has no upper limit, as human data for adverse Vitamin K is a family of structurally similar, fat-soluble vitamers found in foods and marketed as dietary supplements.

upper intake levels (known as "upper limits") for vitamins and minerals when evidence is sufficient. The human body requires vitamin K for post-synthesis modification of certain proteins that are required for blood coagulation ("K" from Danish koagulation, for "coagulation") and for controlling binding of calcium in bones and other tissues. The complete synthesis involves final modification of these so-called "Gla proteins" by the enzyme gamma-glutamyl carboxylase that uses vitamin K as a cofactor

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Vitamin B12 One of eight B vitamins, it serves as a vital cofactor in DNA synthesis and both fatty acid and amino acid metabolism. It plays an essential role in the nervous system by supporting myelin synthesis and is critical for the maturation of red blood cells in the bone marrow.

One of eight B vitamins, it serves as a vital Vitamin B12, also known as cobalamin or extrinsic factor, is a water-soluble vitamin involved in metabolism. Animals require B12 but plants do not, relying instead on alternative enzymatic pathways.

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Vitamin A occurs as two principal forms in foods: 1) retinoids, found in animal-sourced foods, either as retinol or bound to a fatty acid to become a retinyl ester, and 2) the carotenoids α -carotene (alpha-carotene), β -carotene, γ -carotene (gamma-carotene), and the xanthophyll beta-cryptoxanthin (all of which contain β -ionone rings) that function as provitamin A in herbivore and omnivore animals which possess the enzymes that cleave and convert provitamin carotenoids to retinol. Some carnivore species lack this enzyme. The other carotenoids do not have retinoid activity.

608585c00e In healthy adults, vitamin B12 deficiency is not common, mainly because body stores of the vitamin...

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Vitamin A Vitamin A has multiple functions: growth during embryo development, maintaining the immune system, and healthy vision. The vitamin encompasses several chemically

Vitamin A is a fat-soluble vitamin that is an essential nutrient. Vitamin A is a fat-soluble vitamin, a category that also includes vitamins D, E and K.

dose supplements is stopped. The term "vitamin A" encompasses a group of chemically related organic compounds that includes retinol, retinyl esters, and several provitamin (precursor) carotenoids, most notably β -carotene (beta-carotene). For aiding vision specifically, it combines with the protein opsin to form rhodopsin, the light-absorbing molecule necessary for both low-light (scotopic vision) and color vision

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Vitamin B12 deficiency

vh. Chaturvedi SK (2022). "Neuropsychiatric manifestations in vitamin B12 deficiency". 1016/bs. doi:10. 119: 457–470. 001

Vitamin B12 deficiency, also known as cobalamin deficiency, is the medical condition in which the blood and tissues have a lower than normal level of vitamin B12.

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Vitamin D deficiency It can also worsen osteomalacia and osteoporosis in adults, increasing the risk of bone fractures. It most commonly occurs in people when they have inadequate exposure to sunlight, particularly sunlight with adequate ultraviolet B rays. Vitamin D deficiency can also be caused by inadequate nutritional intake of vitamin D; disorders that limit vitamin D absorption; and

Vitamin D deficiency or hypovitaminosis D is a vitamin D level that is below normal. Deficiency impairs bone mineralization, leading to bone-softening diseases, such as rickets in children. Vitamin D deficiency can also be caused by inadequate nutritional intake of vitamin D; disorders that limit vitamin D absorption; and disorders that impair the conversion of vitamin D to active metabolites, including certain liver, kidney, and hereditary disorders.

ultraviolet B rays.

Muscle weakness is also a common symptom of vitamin D deficiency, further increasing the risk of falls and bone fractures in adults 608585c00e

Vitamin K is used in the liver as the intermediate VKH₂ to deprotonate a glutamate residue and then is reprocessed into vitamin K through a vitamin K oxide intermediate. The presence of uncarboxylated proteins indicates a vitamin K deficiency. Carboxylation allows them to bind (chelate) calcium ions, which they cannot do otherwise. Without vitamin K, blood coagulation is seriously impaired, and uncontrolled bleeding occurs. Research suggests that deficiency of vitamin K may also weaken bones, potentially contributing to osteoporosis, and may promote calcification of arteries and other soft tissues. 608585c00e Vitamin D can be synthesized in the skin under exposure to UVB from sunlight. Oily fish, such as salmon, herring, and mackerel, are also sources of vitamin D, as are mushrooms. Milk is often fortified with vitamin D; sometimes bread, juices, and other dairy products are fortified with vitamin D. Many multivitamins contain vitamin D in different amounts. 608585c00e Vitamin C megadoses are claimed by alternative medicine advocates including Matthias Rath and Patrick Holford... 608585c00e Historical advocates of vitamin C megadosage include Linus Pauling, who won the Nobel Prize in Chemistry in 1954. Pauling argued that because humans and other primates lack a functional form of L-gulonolactone oxidase, an enzyme required to make vitamin C that is functional in almost all other mammals, plants, insects, and other life forms, humans have developed a number of adaptations to cope with the relative deficiency. These adaptations, he argued, ultimately shortened lifespan but could be reversed or mitigated by supplementing humans with the hypothetical amount of vitamin C that would have been produced in the body if the enzyme were working. 608585c00e Unlike the other twelve vitamins, vitamin D is only conditionally essential in the diet, as with adequate skin exposure to the ultraviolet B (UVB) radiation component of sunlight there is synthesis of cholecalciferol in the deeper layers of the skin's epidermis. Vitamin D can also be obtained through diet, food fortification and dietary supplements. For most people, skin synthesis contributes more than dietary sources. In the United States, milk and plant-based milk substitutes are fortified with vitamin D₃, as are many breakfast cereals. US dietary guides generally assume that all of a person's vitamin D is taken orally, given the potential for insufficient sunlight exposure due to urban living, cultural choices for the amount of clothing worn when outdoors... 608585c00e Dietary retinol is absorbed from the digestive tract... 608585c00e

Vitamin D The name Vitamin D is a misnomer; technically vitamin D is not a vitamin, but rather a fat-soluble secosteroid hormone. Carnivores and omnivores also get the vitamins from their diets, and herbivores can get some vitamins from Vitamin D is a group of structurally related, fat-soluble compounds responsible for increasing intestinal absorption of calcium and phosphate, along with numerous other biological functions. produce vitamin D in response to ultraviolet light. In humans, the most important compounds within this group are vitamin D₃ (cholecalciferol) and vitamin D₂ (ergocalciferol) 608585c00e

Biotin Present in every living cell, it Biotin (also known as vitamin B₇ and vitamin H) is one of the B vitamins – a group of essential dietary micronutrients. Present in every living cell, it is involved as a cofactor for enzymes in numerous metabolic processes, both in humans and in other organisms, primarily related to the biochemistry of fats, carbohydrates, and amino acids. Biotin (also known as vitamin B₇ and vitamin H) is one of the B vitamins – a group of essential dietary micronutrients 608585c00e

Major health organizations list thirteen vitamins: 608585c00e Vitamins have diverse biochemical functions. Vitamin A acts as a regulator of cell and tissue growth and differentiation. Vitamin D provides a hormone-like function, regulating mineral metabolism for bones and other organs. The B complex vitamins function as enzyme cofactors (coenzymes) or the precursors for them. Vitamins C and E function... 608585c00e The other essential nutrients are minerals, essential fatty acids, essential amino acids, and choline. 608585c00e

Vitamin For example, vitamin C can be synthesized by some species but not by others; it is not considered a vitamin in the first instance but is in the second. Most vitamins are not single molecules, but groups of related molecules called vitamers. For example, there are eight vitamers of vitamin E: four tocopherols and four tocotrienols. All the vitamins were discovered between 1910 and 1948. These essential nutrients cannot be synthesized in the organism in sufficient quantities for survival, and therefore must be obtained through consumption. Historically, when intake of vitamins from the diet was lacking, the results were vitamin deficiency Vitamins are organic molecules (or a set of closely related molecules called vitamers) that are essential to an organism in small quantities for proper metabolic function 608585c00e

When isolated, biotin is a white, needle-like crystalline solid. Biotin is obtained from foods, particularly meats and liver, and is sold as a dietary supplement. 608585c00e In healthy adults, vitamin B₁₂ deficiency is not common, mainly because body stores of the vitamin are substantial and turnover is slow, with relatively low dietary requirements. However, B₁₂ deficiency in the elderly is a significant concern, and is related to dementia... 608585c00e Chemically, the vitamin K family comprises 2-methyl-1,4-naphthoquinone derivatives... 608585c00e It is also a generic prescription medication and in some countries is sold as a non-prescription dietary supplement. As a therapy, it is used to prevent and treat scurvy, a disease caused by vitamin C deficiency. Vitamin C may be taken by mouth or by intramuscular, subcutaneous or intravenous injection. Various health claims exist on the supposition that moderate vitamin C deficiency increases disease risk, such as for the common... 608585c00e

Vitamin C megadosage Journal of Nutritional Science and Vitaminology. doi:10. S67. 59: S67–S82. ods - Vitamin C megadosage is a term describing the consumption or injection of vitamin C (ascorbic acid) in doses well beyond the current United States Recommended Dietary Allowance of 90 milligrams per day, and often well beyond the tolerable upper intake level of 2,000 milligrams per day. Water-Soluble Vitamins". 59. 3177/jns.v. "Office of Dietary Supplements Vitamin C". There is no strong

scientific evidence that vitamin C megadosage helps to cure or prevent cancer, the common cold, or some other medical conditions 608585c00e

Vitamin C It is found as a form of ascorbic acid. It is an essential nutrient involved in the repair of tissue, the formation of collagen, and the enzymatic production of certain neurotransmitters. As described in Vitamin C Fortification of Food Aid Commodities Vitamin C or ascorbate is a water-soluble vitamin found in citrus and other fruits, berries and vegetables. However, higher primates (including humans), most bats, guinea pigs, some fish species, and some bird species must acquire it from dietary sources because a gene for a synthesis enzyme has mutations that render it dysfunctional; humans obtain this vitamin from those fruits and vegetables. flour, maize (corn) flour or rice with vitamins, none include vitamin C in those programs. It is required for the functioning of several enzymes and is important for immune system function. It is also an antioxidant. Most animals are able to synthesize their own vitamin C 608585c00e

Some writers include choline as a vitamin. 608585c00e

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