

High Vitamin B 12 Level

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. e5a364205f The other essential nutrients are minerals, essential fatty acids, essential amino acids, and choline. e5a364205f == List of B vitamins == e5a364205f Dietary supplements containing all eight are referred to as a vitamin B complex. Individual B vitamins are referred to by B-number or by chemical name, such as B1 for thiamine, B2 for riboflavin, and B3 for niacin, while some are more commonly recognized by name than by number, such as pantothenic acid (B5), biotin (B7), and folate (B9). B vitamins are present in protein-rich foods, such as fish, poultry, meat, dairy products, and eggs; they are also found in leafy green vegetables, beans, and peas. Fortified foods, such as breakfast cereals, baked products, and infant formulas, may contain B vitamins. e5a364205f

Vitamin B12 deficiency 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 e5a364205f 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 e5a364205f

Major health organizations list thirteen vitamins: e5a364205f 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... e5a364205f Chemically, the vitamin K family comprises 2-methyl-1,4-naphthoquinone derivatives... e5a364205f

Vitamin A The term "vitamin A" encompasses a group of chemically related organic compounds that Vitamin A is a fat-soluble vitamin that is an essential nutrient. Vitamin A is a fat-soluble vitamin that is an essential nutrient. 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. Vitamin A has multiple functions: growth during embryo development, maintaining the immune system, and healthy vision. 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) e5a364205f

Dietary retinol is absorbed from the digestive tract... e5a364205f

Vitamin K Vitamin K is a family of structurally similar, fat-soluble vitamers found in foods and marketed as dietary supplements. 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. 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 human body requires vitamin K Vitamin K is a family of structurally similar, fat-soluble vitamers found in foods and marketed as dietary supplements e5a364205f

An excess of vitamin D causes abnormally high blood concentrations of calcium, which can cause overcalcification of soft tissues, including arteries and kidneys. Symptoms appear several months after excessive doses of vitamin D are administered. A mutation of the CYP24A1 gene can lead to a reduction in the degradation of vitamin D and thus to vitamin toxicity without high oral intake (see Vitamin D § Excess). Symptoms of vitamin D toxicity may include the following: e5a364205f

Vitamin B3 NAD is required for human life and people are unable to make it within their bodies without either vitamin B3 or tryptophan. All three forms of vitamin B3 are converted within the body to nicotinamide adenine dinucleotide (NAD). Nicotinamide riboside was identified as a form of vitamin B3 in 2004. Vitamin B3, colloquially referred to as niacin, is a vitamin family that includes three forms, or vitamers: nicotinic acid (niacin), nicotinamide (niacinamide) Vitamin B3, colloquially referred to as niacin, is a vitamin family that includes three forms, or vitamers: nicotinic acid (niacin), nicotinamide (niacinamide), and nicotinamide riboside e5a364205f

Some writers include choline as a vitamin. e5a364205f

B vitamins They are a chemically diverse B vitamins are a class of water-soluble vitamins that play important roles in cell metabolism and synthesis of red blood cells. B vitamins are a class of water-soluble vitamins that play important roles in cell metabolism and synthesis of red blood cells. They are a chemically diverse class of compounds e5a364205f

In healthy adults, vitamin B12 deficiency is not common, mainly because body stores of the vitamin... e5a364205f

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. These essential nutrients cannot be synthesized in the organism in sufficient quantities for survival, and therefore must be obtained through consumption. 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. (thiamine) Vitamin B2 (riboflavin) Vitamin B3 (niacin) Vitamin B5 (pantothenic acid) Vitamin B6 (pyridoxine) Vitamin B7 (biotin) Vitamin B9 (folic acid 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 e5a364205f

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. e5a364205f 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. e5a364205f == Signs and symptoms == e5a364205f

Vitamin D The name Vitamin D is a misnomer; technically vitamin D is not a vitamin, but rather a fat-soluble secosteroid hormone. In humans, the most important compounds

within this group are vitamin D3 (cholecalciferol) and vitamin D2 (ergocalciferol). The name Vitamin D is a misnomer; technically vitamin D is not a vitamin, but rather 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. group are vitamin D3 (cholecalciferol) and vitamin D2 (ergocalciferol)
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Vitamin D toxicity The normal range for blood concentration of 25-hydroxyvitamin D in adults is 20 to 50 nanograms per milliliter (ng/mL). Blood levels necessary to cause adverse effects in adults are thought to be greater than about 150 ng/mL, leading the Endocrine Society to suggest an upper limit for safety of 100 ng/mL. vitamin D and thus to vitamin toxicity without high oral intake (see Vitamin D § Excess). Symptoms of vitamin D toxicity may include the following: Dehydration Vitamin D toxicity, or hypervitaminosis D, is the toxic state of an excess of vitamin D e5a364205f

Plants synthesize pyridoxine as a means of protection from the UV-B radiation found in sunlight and for the role it plays in the synthesis of chlorophyll. Animals cannot synthesize any of the various forms of the vitamin, and hence must obtain it via diet, either of plants, or of other animals. There is some absorption of the vitamin produced by intestinal bacteria, but this is not sufficient to meet dietary needs. For adult humans, recommendations from various countries' food regulatory agencies are in the range of 1.0 to 2.0 milligrams (mg) per day. These same agencies also recognize ill effects from intakes that are too high, and so set safe upper limits, ranging from as low as 12 mg/day to as high as 100 mg/day depending on the country. Beef, pork, fowl and fish are generally good sources; dairy, eggs, mollusks and... e5a364205f

Vitamin B6 Its active form, pyridoxal 5'-phosphate, serves as a coenzyme in more than 140 enzyme reactions in amino acid, glucose, and lipid metabolism. The term essential nutrient refers to a group of six chemically similar compounds, i. e. Vitamin B6 is one of the B vitamins, and is an essential nutrient for humans. , "vitamers", which can be interconverted in biological systems. The term essential nutrient refers to a group of six chemically similar Vitamin B6 is one of the B vitamins, and is an essential nutrient for humans e5a364205f

Vitamin B12 One of eight B vitamins, it serves as a vital cofactor in DNA synthesis and both fatty acid and amino acid metabolism. Vitamin B12, also known as cobalamin or extrinsic factor, is a water-soluble vitamin involved in 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 e5a364205f

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. e5a364205f 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... e5a364205f Niacin (the nutrient) can be manufactured by plants and animals from the amino acid tryptophan. Niacin is obtained in the diet from a variety of whole and processed foods, with highest contents in fortified packaged foods, meat, poultry, red fish such as tuna and salmon, lesser amounts in nuts, legumes and seeds. Niacin as a dietary supplement is used to treat pellagra, a disease caused by niacin deficiency. Signs and symptoms of pellagra include skin and mouth lesions, anemia, headaches, and tiredness. Many countries mandate its addition to wheat

flour or other food grains, thereby reducing the risk of pellagra. e5a364205f The amide nicotinamide is a component of the coenzymes nicotinamide adenine dinucleotide (NAD... e5a364205f Each B vitamin is either a cofactor (generally a coenzyme) for key metabolic processes or is a precursor needed to make one. e5a364205f 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... e5a364205f

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