

VITAMIN & MINERAL FACTS

Vitamins

Vitamins are organic compounds that are necessary for normal growth and maintenance of life. As we are unable to synthesize vitamins, we must rely on foods and food supplements to maintain adequate amounts in our body.

Thirteen essential vitamins have been isolated and these are divided into two categories, water-soluble and fat-soluble vitamins. The water-soluble vitamins include Vitamin C and the group of B-Vitamins. These water-soluble are not stored by the body and can be readily depleted. The fat-soluble vitamins A, D, and E remain in the body for longer periods of time.

Minerals

Although minerals make up only a small fraction of total body weight (4-5%), they are essential for human metabolism. Minerals act as the catalysts for many biochemical reactions within the human body. They are involved in responses of the nervous system and muscles, the absorption and secretions of the body's fluids, and maintain a delicate water balance within the body. The bones and teeth of our body have high mineral contents which accounts for their hardness and rigidity. Minerals, like vitamins, must also be supplied by dietary means as we are unable to synthesize them in our body.

Vitamin & Mineral	Nutritional Benefit and Function	Relationships & Interactions
Vitamin A (1-5, 7) 3	<ul style="list-style-type: none"> Essential for the health of the skin Necessary for the proper functioning of the immune system Important for good vision Needed for maintenance & growth of teeth, nails, bones, and hair In BETA-CAROTENE form: Antioxidant, free radical fighter 	<ul style="list-style-type: none"> Works synergistically with Vitamins C and E Occurs with Vitamin D in fish oils
Vitamin C (1-5, 7, 8)	<ul style="list-style-type: none"> Contributes to the health of teeth & gums Necessary for the proper functioning of the immune system Required for production of collagen Antioxidant, free radical fighter 	<ul style="list-style-type: none"> Enhances the absorption of Iron Enhances effectiveness of B-12, Folic Acid, B-6 Works with Vitamin E
Vitamin D (1-5,7)	<ul style="list-style-type: none"> Necessary for the formation of strong teeth and bones 	<ul style="list-style-type: none"> Occurs naturally with Vitamin A in fish oils Regulates metabolism of Calcium & Phosphorus

Vitamin E (1-5, 7, 9)	<ul style="list-style-type: none"> • Antioxidant, free radical fighter • Necessary for the proper functioning of the immune system • Prolongs life of red blood cells • Involved in metabolism of polyunsaturated fatty acids. • <u>Vitamin E Video</u> 	<ul style="list-style-type: none"> • Works synergistically with Selenium and Vitamin A • Inorganic Iron can destroy Vitamin E when taken together
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Thiamine (B-1)
(1-5, 7)

- Necessary for carbohydrate metabolism
- Necessary for good muscle coordination
- Maintains normal appetite, digestion & nerve activity
- Involved in normal energy production

- Interacts with other B-Vitamins

Riboflavin (B-2) (1-5,7)	<ul style="list-style-type: none"> • Helps maintain healthy skin & Eyes • Involved in converting fats, proteins and carbohydrates into energy 	<ul style="list-style-type: none"> • Interacts with other B-Vitamins
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Niacin
(1-5, 7)

- Involved in metabolism of fats, carbohydrates and protein
- Involved in normal stomach fluid & bile secretions

- Interacts with other B-Vitamins

Pyridoxine (B-6) (1-5, 7, 10)	<ul style="list-style-type: none"> • Involved in carbohydrate, fat & protein metabolism • Needed for production of antibodies and red blood cells 	<ul style="list-style-type: none"> • Interacts with other B-Vitamins & Vitamin C • Involved in metabolism of polyunsaturated fatty acids
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Folic Acid
(1-5, 7)

- Helps maintain healthy blood
- Involved in the formation of red blood cells
- Essential for synthesis of genetic material and the metabolism of amino acids

- Interacts with other B-Vitamins & Vitamin C

<p>Pantothenic Acid (1-5, 7)</p>	<ul style="list-style-type: none"> Involved in formation of hormones and vital compounds which regulate nervous system Essential for the release of energy from carbohydrates 	<ul style="list-style-type: none"> Interacts with other B-Vitamins
<p>Biotin (1-5, 7)</p>	<ul style="list-style-type: none"> Involved in the normal metabolism of carbohydrates, fats & proteins Needed for maintenance of skin, hair, sex glands & bone marrow 	<ul style="list-style-type: none"> Works with Vitamins B-2, B-6, A & D for skin maintenance
<p>Cobalamin (B-12) (1-5, 7)</p>	<ul style="list-style-type: none"> Required for the development of normal red blood cells Necessary for normal functioning of skin cells, nervous system & intestines 	<ul style="list-style-type: none"> Interacts with other B-Vitamins Enhances utilization of Vitamin A & Beta Carotene
<p>Calcium (1-3, 6)</p>	<ul style="list-style-type: none"> Most abundant mineral in the human body Essential for strong bones & teeth Essential for muscle contraction & heartbeat Plays an important nutritional role in preventing osteoporosis (fragile bones) 	<ul style="list-style-type: none"> Phosphorus Magnesium Vitamin D aids in Calcium absorption
<p>Magnesium (1-3, 6, 15)</p>	<ul style="list-style-type: none"> Is found in bones and teeth Helps to maintain muscle contractions Activates enzymatic reactions related to metabolism and energy production 	<ul style="list-style-type: none"> Calcium Vitamin D Phosphorus
<p>Phosphorus (1-2, 6)</p>	<ul style="list-style-type: none"> Aids Calcium in forming bones & teeth Needed for metabolic processes of all cells 	<ul style="list-style-type: none"> Calcium
<p>Iron (1-3, 6)</p>	<ul style="list-style-type: none"> Essential for transport of oxygen through the blood 	<ul style="list-style-type: none"> Some inorganic Iron can destroy Vitamin E Vitamin c enhances Iron uptake

Zinc
(1-3, 6, 13)

- Necessary for the proper functioning of the immune system
- Involved in many enzymatic reactions including carbohydrate metabolism and the synthesis of protein and genetic material
- Involved in normal function of the prostate
- Balances with Copper

Potassium
(1-3, 5, 6)

- Works with Sodium to maintain proper muscle function
- Plays a role in the normal activity of the heart, muscles, and nervous system
- Balances with Sodium

Iodine
(1-3, 6)

- Involved in production of thyroid hormones
- Necessary for proper growth

Chromium
(1-3, 6)

- Involved in the conversion of blood sugar into energy

Manganese
(1-3, 6)

- Involved in metabolism of fats and proteins
- Involved in normal energy production
- Necessary for the synthesis of cartilage

Selenium
(1-3, 12, 17, 19)

- A component of the antioxidant enzyme glutathione peroxidase
- Necessary for the proper functioning of the immune system
- Antioxidant, free radical fighter
- Synergistic action with Vitamin E

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