

list of vitamins and their functions pdf

list of vitamins and their functions pdf is a valuable resource for students, healthcare professionals, nutritionists, and anyone interested in understanding the vital role vitamins play in maintaining optimal health. A comprehensive PDF document that outlines the various vitamins and their respective functions serves as an easy reference tool, helping individuals make informed dietary choices and recognize the importance of micronutrients in their daily lives. In this article, we will explore the different types of vitamins, their functions, sources, and the significance of having a well-organized list of vitamins and their functions in PDF format.

Understanding Vitamins and Their Importance

Vitamins are organic compounds required in small amounts to sustain life. They facilitate various biochemical processes, support immune function, promote growth and development, and help maintain overall health. Since the human body cannot produce most vitamins in sufficient quantities, they must be obtained through diet or supplements.

A well-structured list of vitamins and their functions in PDF format can serve as a quick educational resource, aiding in the identification of essential vitamins and their dietary sources. It also helps in understanding deficiency symptoms and the importance of maintaining balanced vitamin intake.

Categories of Vitamins

Vitamins are generally classified into water-soluble and fat-soluble categories based on their solubility and storage in the body.

Water-Soluble Vitamins

- Vitamin B complex (includes B1, B2, B3, B5, B6, B7, B9, B12)
- Vitamin C (Ascorbic acid)

Fat-Soluble Vitamins

- Vitamin A (Retinol)
- Vitamin D (Calciferol)
- Vitamin E (Tocopherol)
- Vitamin K (Phylloquinone and Menaquinones)

Each category has unique functions, sources, and implications for health.

List of Vitamins and Their Functions

Below, we provide detailed information about each vitamin, including their primary functions, sources, deficiency symptoms, and recommended daily allowances (RDAs).

Vitamin A (Retinol)

- **Functions:** Essential for vision, immune function, cell growth, and development. It maintains healthy skin and mucous membranes.
- **Sources:** Carrots, sweet potatoes, spinach, liver, eggs, and dairy products.
- **Deficiency Symptoms:** Night blindness, dry skin, increased susceptibility to infections.
- **RDA:** 900 mcg for men, 700 mcg for women.

Vitamin D (Calciferol)

- **Functions:** Regulates calcium and phosphorus absorption, promotes bone health, and supports immune function.
- **Sources:** Sunlight exposure, fortified dairy products, fatty fish like salmon and mackerel, egg yolks.
- **Deficiency Symptoms:** Rickets in children, osteomalacia in adults, increased fracture risk.
- **RDA:** 600 IU for adults up to 70 years, 800 IU for those over 70.

Vitamin E (Tocopherol)

- **Functions:** Acts as an antioxidant, protecting cells from oxidative damage, supports immune function, and skin health.
- **Sources:** Nuts, seeds, vegetable oils, spinach, broccoli.
- **Deficiency Symptoms:** Nerve and muscle damage, vision problems, weakened immune response.

- **RDA:** 15 mg for adults.

Vitamin K (Phylloquinone and Menaquinones)

- **Functions:** Critical for blood clotting and bone metabolism.
- **Sources:** Leafy green vegetables, broccoli, Brussels sprouts, fish, meat, eggs.
- **Deficiency Symptoms:** Bleeding tendencies, easy bruising, osteoporosis.
- **RDA:** 120 mcg for men, 90 mcg for women.

Vitamin B1 (Thiamine)

- **Functions:** Converts carbohydrates into energy, supports nerve function.
- **Sources:** Whole grains, pork, seeds, nuts, legumes.
- **Deficiency Symptoms:** Beriberi, weakness, fatigue, nerve damage.
- **RDA:** 1.2 mg for men, 1.1 mg for women.

Vitamin B2 (Riboflavin)

- **Functions:** Energy production, cellular function, fat metabolism.
- **Sources:** Milk, eggs, green leafy vegetables, lean meats, nuts.
- **Deficiency Symptoms:** Sore throat, redness and swelling of the lining of the mouth and throat, anemia.
- **RDA:** 1.3 mg for men, 1.1 mg for women.

Vitamin B3 (Niacin)

- **Functions:** Supports metabolism, DNA repair, skin health, and nervous system.
- **Sources:** Poultry, fish, whole grains, nuts, seeds.
- **Deficiency Symptoms:** Pellagra (dermatitis, diarrhea, dementia), fatigue.
- **RDA:** 16 mg for men, 14 mg for women.

Vitamin B5 (Pantothenic Acid)

- **Functions:** Involved in fatty acid synthesis, energy production, and hormone synthesis.
- **Sources:** Chicken, beef, potatoes, oats, tomatoes.
- **Deficiency Symptoms:** Fatigue, depression, irritability, numbness.
- **RDA:** 5 mg for adults.

Vitamin B6 (Pyridoxine)

- **Functions:** Amino acid metabolism, red blood cell production, neurotransmitter synthesis.
- **Sources:** Fish, poultry, potatoes, bananas, fortified cereals.
- **Deficiency Symptoms:** Anemia, depression, confusion, dermatitis.
- **RDA:** 1.3-1.7 mg for adults.

Vitamin B7 (Biotin)

- **Functions:** Supports carbohydrate, fat, and protein metabolism.

- **Sources:** Eggs, nuts, seeds, sweet potatoes, spinach.
- **Deficiency Symptoms:** Hair loss, skin rashes, neurological symptoms.
- **RDA:** 30 mcg for adults.

Vitamin B9 (Folate/Folic Acid)

- **Functions:** DNA synthesis, cell division, crucial during pregnancy for fetal development.
- **Sources:** Leafy greens, legumes, citrus fruits, fortified grains.
- **Deficiency Symptoms:** Megaloblastic anemia, neural tube defects in infants.
- **RDA:** 400 mcg for adults; 600 mcg during pregnancy.

Vitamin B12 (Cobalamin)

- **Functions:** Red blood cell formation, neurological function, DNA synthesis.
- **Sources:** Animal products like meat, dairy, eggs, fortified cereals.
- **Deficiency Symptoms:** Pernicious anemia, nerve damage, cognitive disturbances.
- **RDA:** 2.4 mcg for adults.

Vitamin C (Ascorbic Acid)

- **Functions:** Antioxidant, collagen synthesis, immune support, enhances iron absorption.
- **Sources:** Citrus fruits, strawberries, bell peppers, broccoli, Brussels sprouts.
- **Deficiency Symptoms:** Scurvy, fatigue, gum disease, poor wound healing.

- **RDA:** 90 mg for men, 75 mg for women.