

The Fat-Soluble Vitamins:

A, D, E, and K



Vitamin A

Role: Promotes vision, participates in protein synthesis and cell differentiation. Supports reproduction and regulating growth.

Deficiency: Infectious diseases such as the measles virus, night blindness, blindness (xerophthalmia), and keratinization.

Toxicity: Bone defects and birth defects.

Foods: Food derived from animals-liver, fish liver oils, milk products, butter, and eggs.

Colors of Vitamin A Foods: Dark leafy greens (not celery or cabbage) and rich yellow or deep orange fruits and vegetables.



Vitamin E

Role: Vitamin E is a fat-soluble antioxidant. It protects vulnerable components of the cells and their membranes from destruction.

Deficiency: Deficiency is rare; deficiency is usually associated with diseases of fat malabsorption such as cystic fibrosis.

Toxicity: High doses of vitamin E may interfere with the blood clotting action of vitamin K and enhance the effects of drugs used to oppose blood clotting, causing hemorrhage.

Foods: Most of the vitamin E in our diets comes from vegetable oils and products made from them such as margarine and salad dressing. Heat and oxidation destroy vitamin E.



Vitamin D

Role: The active form of Vitamin D is actually a hormone. Vitamin D supports bone making and bone growth. Vitamin D assists in the absorption of calcium and phosphorous.

Protects against cognitive decline, and slows the progression of Parkinson's disease. Signals cells of the immune system to defend against infectious diseases.

Deficiency: Rickets, Osteomalacia, Osteoporosis.

Toxicity: Increases the concentration of blood calcium (hypercalcemia), Excess blood calcium precipitates in soft tissue, forming stones, especially in the kidneys. Calcification may harden the blood vessels and is especially dangerous in the major arteries of the brain, heart, and lungs, where it can cause death.

Foods/Sources: Milk, egg yolks, oily fish (salmon, mackerel) the sun.



Vitamin K

Role: Its primary role is blood clotting. Vitamin K participates in the metabolism of bone proteins, helps decrease bone turnover and protect against fractures.

Deficiency: Excessive bleeding

Toxicity: High doses of vitamin K can reduce the effectiveness of anticoagulant drugs used to prevent blood clotting.

Sources: Dark green, leafy vegetables, cabbage type vegetables; milk.

