

Fat – Soluble Vitamins

Vitamin	Functions(s)	Deficiencies	Sources	Properties
A	Normal vision, protein synthesis & helps remodel bone	Night blindness, impaired tooth formation, & keratinized epithelial tissues	Animal sources & deep yellowish-orange color foods	Found in preformed (active) vitamin A & provitamin A
D	Bone growth with the assistance of calcium & phosphorus	Rickets, osteomalacia, osteoporosis, & calcium deficiency	Sun, fortified milk & fortified products	
E	Antioxidant	Rare	Found in many foods including polyunsaturated vegetable oils	Easily destroyed by heat & exposure to air
K	Clots blood	Hemorrhaging/ Bleeding	Bacteria in GI, liver, cabbage, & leafy green vegetables	

Water - Soluble Vitamins

Vitamin	Function(s)	Deficiencies	Sources	Properties
Thiamin (B1)	Energy to brain, heart & CNS	Beriberi	Pork, enriched grains, milk, legumes, & nuts	
Riboflavin (B2)	Growth, repair, & production of RBCs	Cheilosis, glossitis, & fatigue	Milk, enriched grains, eggs, poultry, fish, nuts & legumes	
Niacin (B3)	RNA & DNA synthesis & metabolism	Pellegra (4 Ds)	Meat, enriched grains, legumes, & yogurt	Amino acid tryptophan can convert to niacin
Pyridoxine (B6)	Brain function & production of RBCs	Irritability, depression, muscle weakness, & anemia	Meat, poultry, fish, bananas, & white & sweet potatoes	
Cobalamin (B12)	Builds tissues & develops RBCs	Pernicious anemia & sore tongue (found in vegans)	Animal foods only or fortified foods	Lack of intrinsic/ extrinsic factors
Folate (Folic acid)	Helps form DNA, RNA & RBCs	Megaloblastic aneam & spina bifida	Dark green leafy vegetables & orange juice	If taking contraceptives need more
Vitamin C (Ascorbic acid)	Synthesis of protein collagen, antioxidant, & wound healing	Scurvy	Fruits, vegetables & fortified foods	Smokers and women on oral contraceptives need more