

Vitamins	Sources	Function(s)	At-Risk Groups	Deficiency	Toxicity	Memory Tips
A	Liver, fish oils, fortified milk, eggs	Vision, epithelial cell maturity, resistance to infection, antioxidant	Elderly, alcoholics, liver disease, urban poor, fat free diets	Night blindness is the earliest symptom. Xerophthalmia, Bitot spots, keratomalacia; squamous metaplasia	Skin disorders (staining of the skin (orange), hair loss, teratogenicity, hypercalcemia, increased intracranial pressure, hepatomegaly, headaches	A is in carrots and carrots affect eyesight. (so they say)
C	Citrus fruits, strawberries, broccoli, greens	Collagen synthesis, hormone function, neurotransmitter synthesis	Alcoholics, elderly men, urban poor, smokers, CKD, CA	Scurvy - 3 "H"s Hyperkeratosis: follicular papules Hemorrhage: impaired wound healing Hematologic: anemia, glossitis, Hemarthrosis/ bleeding  Severe: Intracerebral hemorrhage and death	G.I. upset, flatulence, or diarrhea. False negative results for some fecal occult blood tests and urine glucose.	Citrus helps with collagen. OR C makes you cute (collagen is in skin facial stuff)
D	Fortified milk, sunlight	Calcium regulation, cell	Elderly, shut-ins with low sun exposure	Rickets, osteomalacia	Hypercalcemia, kidney stones, soft tissue deposits	D is for daylight and dumbbells (bone strength)
E	Plant oils, wheat germ, asparagus, peanuts, margarine	Retarded cell aging, vascular and red cell wall integrity, antioxidant	Rare but can be seen in severe malabsorption, cholestatic liver disease, biliary atresia, or CF in children	Disturbances of gait, decreased vibration/proprioception (degenerative nerve changes), ophthalmoplegia, hemolytic anemia	Inhibition of vitamin K, myalgia, headache, weakness	E is for elderly cells (cell aging)
K	Liver, green leafy vegetables, broccoli, peas, green beans	Clotting	Rare but seen in malabsorption or decreased production by intestinal bacteria from chemo or antibiotics	Affects factors II, VII, IX, X Prolonged PT → bleeding	Anemia, jaundice, interferes with certain clotting medications like Warfarin.	Kale helps with Klotting.  Kale because its a green leafy veggie and then there is alliteration with the c in clotting.
B1 (Thiamine)	Pork, grains, dried beans, peas, brewer's yeast	Carbohydrate metabolism, nerve function	Alcoholics, poverty	Wet Beriberi → high output HF; mimicking cellulitis Dry Beriberi → peripheral nerve involvement, sensory neuropathy, Wernicke's Triad "AGO" = Ataxia, Global confusion, Ophthalmoplegia Korsakoff's dementia	No known toxicity	Ber1ber1
B2 (Riboflavin)	Milk, spinach, liver, grains	Energy	Dietary inadequacy and other causes of protein-calorie undernutrition	HOOG Head: seborrheic dermatitis Oral: lesions of mouth, magenta colored tongue, angular cheilitis, pharyngitis Ocular: photophobia, corneal lesions Genital: scrotal dermatitis	No known toxicity	2 affects the 2 cheeks, 2 lips, 2 eyes, and 2 balls.
B3 (Niacin)	Bran - tryptophan, salmon, chicken, liver, peanuts	Energy, fat metabolism, NAD/NADP	Poverty (diet high in corn), alcoholics	Triad of pellagra: "3 D's" Dermatitis, diarrhea, dementia  Advanced pellagra can result in death	Cutaneous flushing, G.I. upset, elevation of liver enzymes, hyperglycemia, and gout	B3 = triad (pellagra)
B5 (Pantothenic Acid)	Liver broccoli, eggs	Energy, fat metabolism	Alcoholics	Tingling, fatigue, headache	No known toxicity	Five = Fatigue and Fat metabolism
B6 (Pyridoxine)	Spinach, broccoli, bananas, salmon	Protein metabolism, neurotransmitter synthesis, hemoglobin	Isoniazid and oral contraceptive users as well as alcoholics	Peripheral neuropathy, headache, seizures Stomatitis (sore tongue); anemia	In extreme cases, sensory neuropathy	Six gives you Seizures and Stomatitis.
B9 (Folate)	Green leafy vegetables, orange juice, organ meats	DNA synthesis	Alcoholics; pregnant	Megaloblastic anemia; neural tube defect in baby of deficient mother	No known toxicity	9 affects the 9 months (pregnancy).
B12 (Cobalamin)	Animal foods	Folate metabolism; Nerve function	Elderly, vegans	Megaloblastic anemia; poor nerve function	No known toxicity	

To remember B vitamin names, use mnemonic "These Ribs Need Paprika" and "Python Fangs Cut"