

DISCOVERY OF VITAMINS

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Christiaan Eijkman

Born: August 11, 1858, Nijkerk

Died: November 5, 1930, Utrecht

Fields: Physiology

Invented: Vitamins

Awards: Nobel Prize for Physiology or Medicine



ABOUT INVENTION

Eijkman had been sent to Indonesia to study Beriberi, a disease of the peripheral nerves, but his discovery of the cause was accidental. Chickens in the laboratory fed with rice from military rations, soon came down with beriberi. When the birds' diet was switched back to unpolished rice, the birds recovered. He suspected the disease was caused by an unknown bacteria.

A study by his friend Adolphe Vorderman confirmed the link between polished rice and the disease. Eventually it was determined the missing compound that was causing Beriberi was vitamin B1, thiamine. Chemist Casimir Funk shortened the term "vital amine" to coin a new word, **vitamin**. For his contributions to the discovery of vitamins, Eijkman won the 1929 Nobel Prize for Medicine, sharing the prize with Sir Frederick Hopkins. Funk, perhaps unfairly, was never given full credit for his work.

Vitamins

A vitamin is an organic compound required as a nutrient in tiny amounts by an organism.

Vitamins have diverse biochemical functions.



List of vitamins

Vitamin generic descriptor name ^[1]	Vitamin chemical name(s) (list not complete) ^[2]	Solubility ^[3]	Recommended dietary allowances (male, age 19–70) ^[20]	Deficiency disease	Upper Intake Level (UL/day) ^[20]	Overdose disease
Vitamin A	Retinol, retinal, various retinoids, and four carotenoids)	Fat	900 µg	Night-blindness and Keratomalacia ^[21]	3,000 µg	Hypervitaminosis A
Vitamin B₁	Thiamine	Water	1.2 mg	Beriberi, Wernicke-Korsakoff syndrome	N/D ^[22]	Drowsiness or muscle relaxation with large doses. ^[23]
Vitamin B₂	Riboflavin	Water	1.3 mg	Ariboflavinosis	N/D	
Vitamin B₃	Niacin, niacinamide	Water	16.0 mg	Pellagra	35.0 mg	Liver damage (doses > 2g/day) ^[24] and other problems
Vitamin B₅	Pantothenic acid	Water	5.0 mg ^[25]	Paresthesia	N/D	Diarrhea; possibly nausea and heartburn. ^[26]
Vitamin B₆	Pyridoxine, pyridoxamine, pyridoxal	Water	1.3–1.7 mg	Anemia ^[27] peripheral neuropathy.	100 mg	Impairment of proprioception, nerve damage (doses > 100 mg/day)
Vitamin B₇	Biotin	Water	30.0 µg	Dermatitis, enteritis	N/D	
Vitamin B₉	Folic acid, folinic acid	Water	400 µg	Deficiency during pregnancy is associated with birth defects, such as neural tube defects	1,000 µg	May mask symptoms of vitamin B ₁₂ deficiency; other effects.
Vitamin B₁₂	Cyanocobalamin, hydroxycobalamin, methylcobalamin	Water	2.4 µg	Megaloblastic anemia ^[28]	N/D	No known toxicity ^[28]
Vitamin C	Ascorbic acid	Water	90.0 mg	Scurvy	2,000 mg	Vitamin C megadosage
Vitamin D	Ergocalciferol, cholecalciferol	Fat	5.0 µg–10 µg ^[29]	Rickets and Osteomalacia	50 µg	Hypervitaminosis D
Vitamin E	Tocopherols, tocotrienols	Fat	15.0 mg	Deficiency is very rare; mild hemolytic anemia in newborn infants. ^[30]	1,000 mg	Increased congestive heart failure seen in one large randomized study. ^[31]
Vitamin K	phylloquinone, menaquinones	Fat	120 µg	Bleeding diathesis	N/D	Increases coagulation in patients taking warfarin. ^[32]
Vitamin K	menadiuonae brylljodnuoue'	Eat	130 hg	Bleedinq dnatresia	N/D	mafeau' bsl jucieaeae coagulation in patients tekinq
Vitamin E	tocotrienols tocobrieols'	Eat	12'0 mg	infants' bsl meholytic anemia in newborn Deficiency is said rare' mlg	1'000 mg	one jake randomized stnqly' bsl jucieaeae coagulative meay tekine seen in