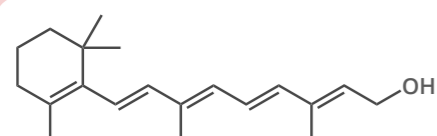


THE CHEMICAL STRUCTURES OF VITAMINS

Vitamins are the essential nutrients that our body needs in small amounts. More specifically, an organic compound is defined as a vitamin when it is required by an organism, but not synthesised by that organism in the required amounts (or at all). There are thirteen recognised vitamins.

VITAMIN A

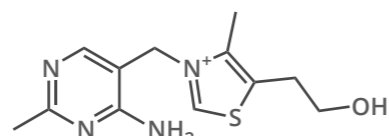


RETINOL

active form in mammalian tissues

Important for eyesight. Also strengthens immune system and keeps skin and linings of parts of the body healthy.

VITAMIN B1

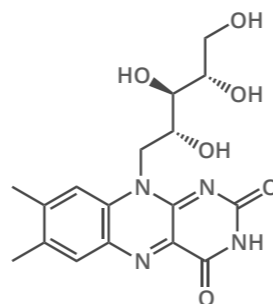


THIAMIN

can also occur in pyrophosphate ester form

Used to keep nerves & muscle tissue healthy. Also important for processing of carbohydrates and some proteins.

VITAMIN B2

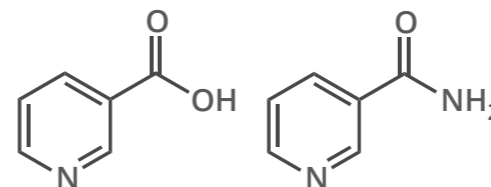


RIBOFLAVIN

excess turns urine bright yellow

Important for body growth, red blood cell production, and keeping the eyes healthy. Also helps processing of carbohydrates.

VITAMIN B3

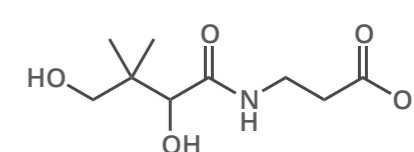


NICOTINIC ACID

niacin is collective name for these compounds

Helps with digestion and digestive system health. Also helps with the processing of carbohydrates.

VITAMIN B5

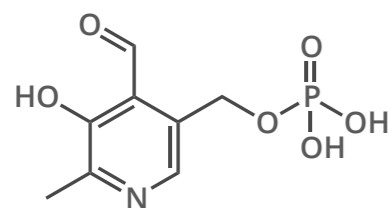


PANTOTHENIC ACID

also occurs in pyrophosphate ester form

Important for manufacturing red blood cells and maintaining a healthy digestive system. Also helps process carbohydrates.

VITAMIN B6

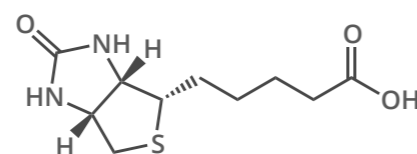


PYRIDOXAL PHOSPHATE

active form in mammalian tissues

Helps make some brain chemicals; needed for normal brain function. Also helps make red blood cells and immune system cells.

VITAMIN B7

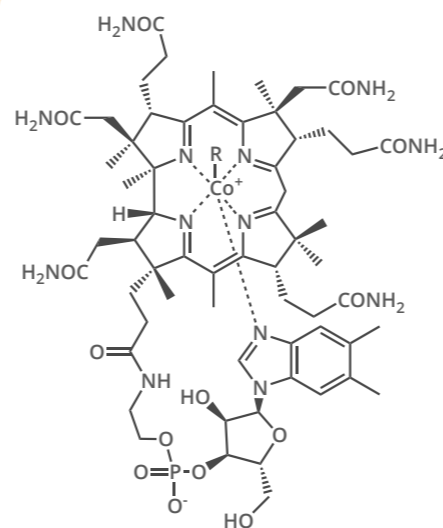


BIOTIN

produced by intestinal bacteria

Needed for metabolism of various compounds. Often recommended for strengthening hair, but evidence is variable.

VITAMIN B12

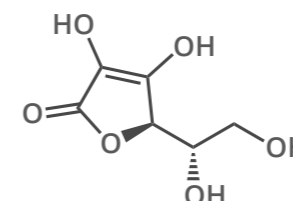


COBALAMIN

usually contains CN as the R group

Important for the nervous system, for making red blood cells, and helps in the production of DNA and RNA.

VITAMIN C

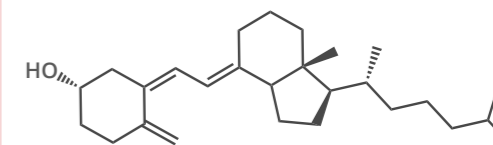


ASCORBIC ACID

deficiency can cause scurvy

Important for a healthy immune system; helps produce collagen, used to make skin and other tissues. Also helps wound healing.

VITAMIN D

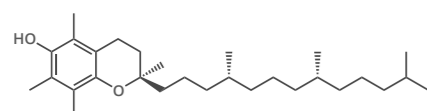


CHOLECALCIFEROL

natural form; different form used in supplements

Important for bone health and maintaining the immune system function. May also have a preventative role in cancers.

VITAMIN E

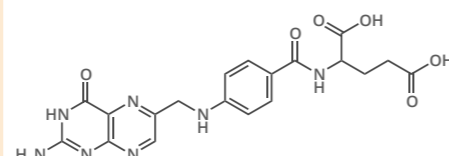


ALPHA-TOCOPHEROL

group includes tocopherols & tocotrienols

An antioxidant that helps prevent damage to cells and may have a preventative role in cancer. Also helps make red blood cells.

VITAMIN B9

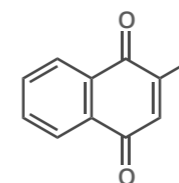


FOLIC ACID

found as tetrahydrofolate in food

Important for brain function & mental health. Aids production of DNA & RNA. Important when tissues are growing quickly.

VITAMIN K



MENADIONE

all K vitamins are menadione or derivatives

Helps blood clot properly, & plays a key role in bone health. Newborns receive vitamin K injections to prevent bleeding.

Key

Vitamins can be divided broadly into two classes.

- WATER-SOLUBLE VITAMINS**
These vitamins are not stored in the body. As such, generally, they are required more frequently than the fat-soluble vitamins.
- FAT-SOLUBLE VITAMINS**
These vitamins are stored in the liver and fatty tissues until required. As such, they can be harmful if too much is taken in.

