

FOOD CONSTITUENTS

VITAMINS

Vitamins exist in food as organic substances that are chemically highly diversified. These participate in chemical and biochemical reactions. These are essential for minute quantity in the human body for normal growth and maintenance. The vitamins are generally classified into two groups based on their solubility in fat or water.

FAT SOLUBLE VITAMINS

These are soluble in fat

Included in this group

- i. Vitamin A
- ii. Vitamin D
- iii. Vitamin E
- iv. Vitamin K

Vitamin A

- It is found abundantly in foods of animal origin like cod liver oil, beef liver, butter, cheese and eggs. In plant foods such as carrots, spinach, tomatoes, and peas, substances called carotenoids are found.
- β -carotene, one of carotenoids is a precursor of retinol. when food containing it is consumed, it is converted in to retinal having same function as Vitamin A.

Functions of Vitamin A

- Vitamin A is an anti-infective vitamin and essential for growth and metabolism of all body cells.
- It also aids the eyes to adjust to vision in dim light.

- It also helps to keep the skin smooth and provides resistance against infection to lining of mouth, nose and throat
- **Deficiency of vitamin A** in children causes **retarded growth** while in general, it is associated with **night blindness**
- Vitamin A and carotene are quite stable and unaffected by normal cooking. However, during frying and dehydration, some of it may be lost.

Vitamin D

- Natural form of Vitamin D, Cholecalciferol, vit D-3
- Structurally resembles with cholesterol
- Found in foods of animal origin such as fish liver oil, egg, butter, liver, and cheese.
- It is also produced by action of UV rays of the sun in human body.

Functions of Vitamin D

- Vitamin D helps the body in its utilization of Calcium and phosphorous.
- It is of critical importance for growing children
- Deficiency causes softening of bones, rickets in children and osteomalacia in adults
- Vit D is quite stable to processing

Vitamin E

- Vitamin E is present in many foods as tocopherols.
- Tocopherols act as antioxidants and as such protect fats and oils from becoming oxidized.
- It is found in foods such as oil seeds, vegetable oil, wheat (in the germ), egg, and milk.

Functions of Vitamin E

- This vitamin is essential to properly regulate reproductive function in humans.
- It is needed for maintenance of healthy immune system
- As an antioxidant, it also protects hormones from oxidation
- It also prevents degeneration of tissues

Vitamin K

- Vitamin K is found in three forms K1, K2, K3
- It is found in green vegetables such as cabbage, Kale, cauliflower and spinach
- It is also found in olive oil and soybeans, beef liver. some bacteria present in the intestine also synthesis this vitamin
- Vitamin K is the anti-haemorrhagic and is associated with normal clotting of blood.
- Its deficiency will cause liver damage and a haemorrhagic condition(the condition in which the blood does not clot readily after an injury and operation
- This vitamin is photo-reactive and its chemical behavior in foods is known little.