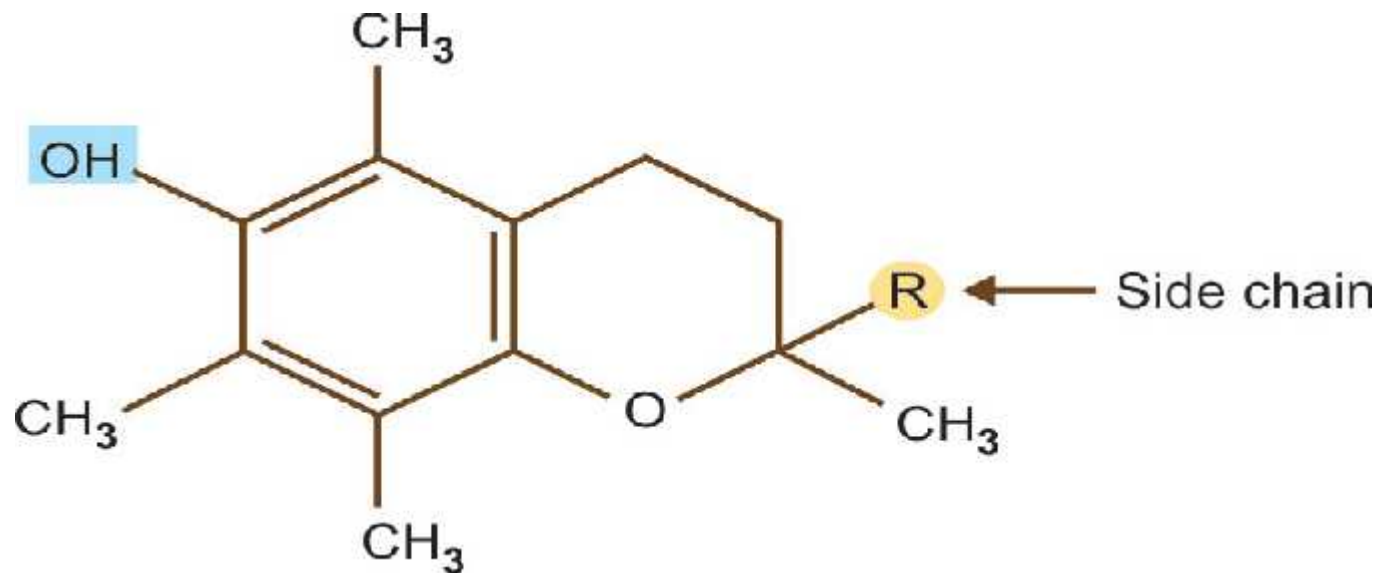


Vitamin E

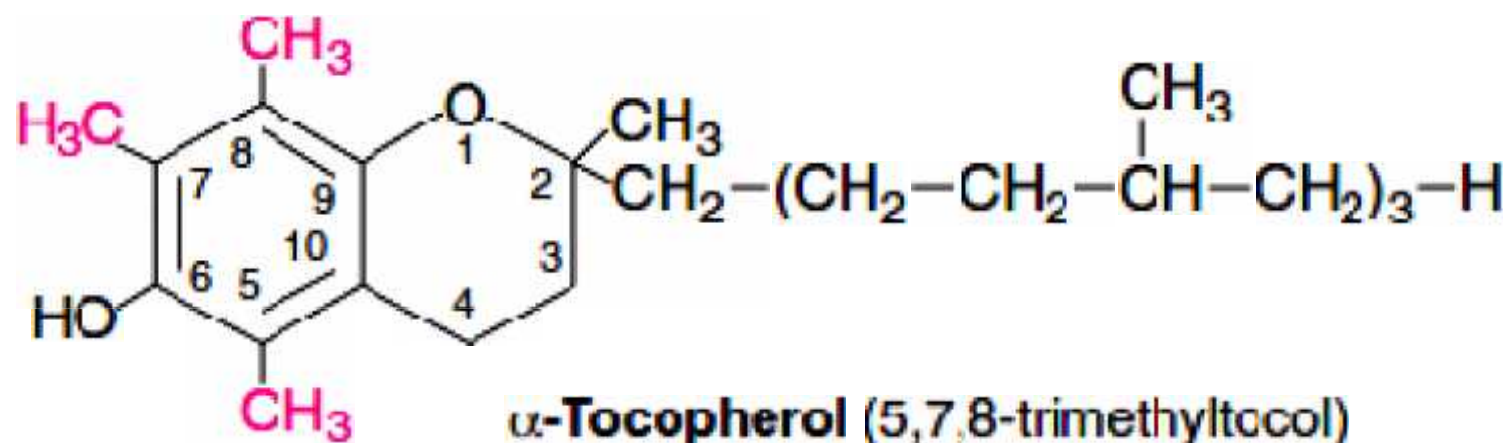
Vitamin E (Tocopherol)

Structure

Vitamin E consists of eight naturally occurring tocopherols, of which α -tocopherol is the most active form



- Vitamin E contains a tocol nucleus. (6 hydroxy chromane). α , β , γ , δ tocopherols are the different forms of tocopherols differ from each other in the number or position of methyl groups on the chromane ring of tocol nucleus.
- - α - tocopherol $\rightarrow$ 5, 7, 8 trimethyl tocol
 - β - tocopherol $\rightarrow$ 5, 8 dimethyl tocol
 - γ - tocopherol $\rightarrow$ 7, 8 dimethyl tocol
 - δ - tocopherol $\rightarrow$ 8 methyl tocol.



α -**Tocopherol** (5,7,8-trimethyltolcol)

β -Tocopherol (5,8-dimethyltolcol)

γ -Tocopherol (7,8-dimethyltolcol)

Sources

The major dietary sources of vitamin E are fats and oils.

The richest sources are germ oil, corn oil, fish oil, eggs, lettuce and alfalfa.

Nutritional Requirements

A daily consumption of about:

10 mg (15 IU) of α -tocopherol for a man

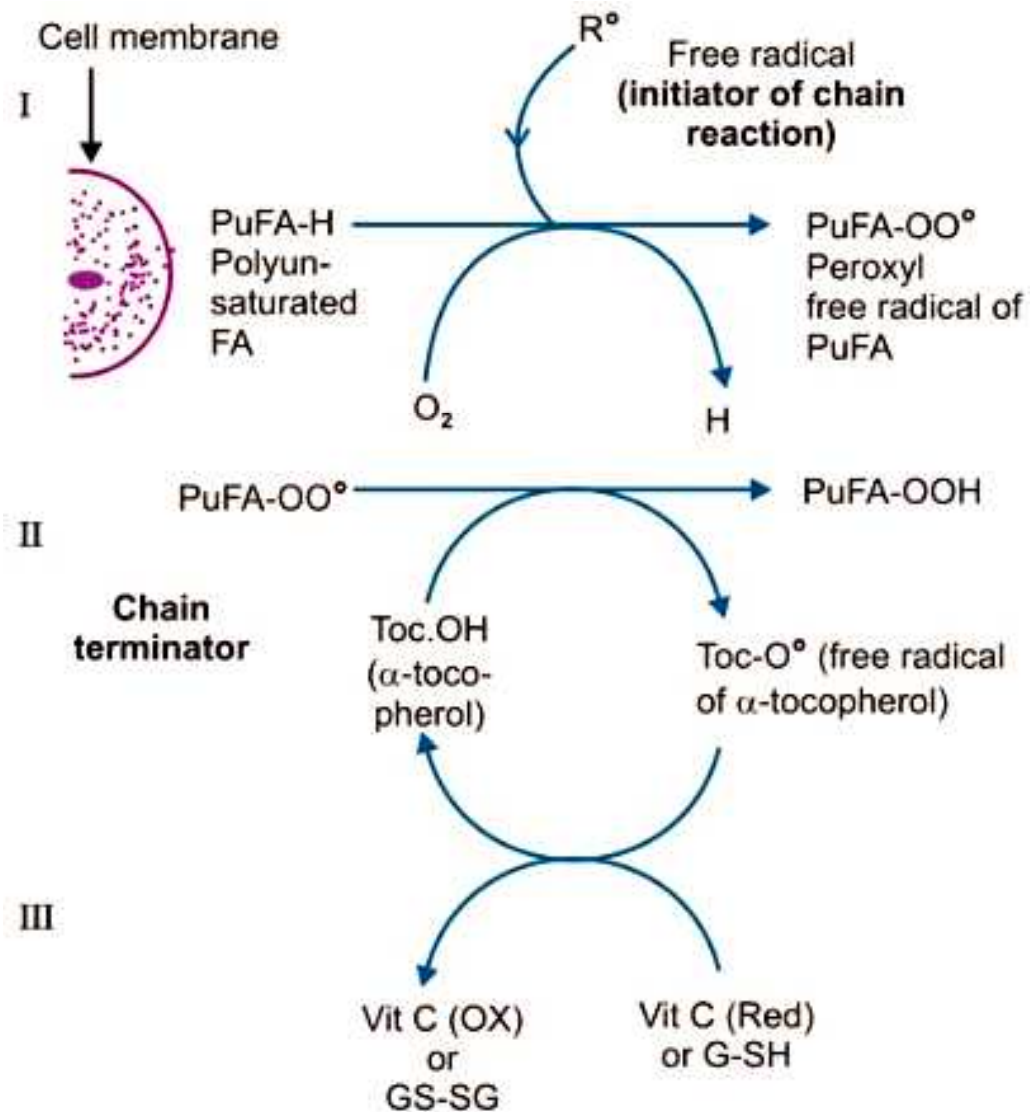
8 mg (12 IU) for α - woman is recommended.

One mg of α -tocopherol is equal to 1.5 IU.

Functions

- Vitamin E acts as a natural **antioxidant** by scavenging free radicals and molecular oxygen.
- Vitamin E is important for preventing peroxidation of polyunsaturated fatty acids in cell membranes.
- Protection of erythrocyte membrane from oxidant is the major role of vitamin E in humans. It protects the RBCs from hemolysis.

Role of vit E as antioxidant



- Vitamin E also helps to prevent oxidation of LDL.

Oxidized LDL may be more atherogenic than native LDL and thus vitamin E may protect against atherosclerotic coronary heart disease.

- Whether vitamin E affects human fertility is unknown.
- In animals, vitamin E is required for normal reproduction and prevents sterility.

Deficiency Manifestation

- The major symptom of vitamin E deficiency in human is **hemolytic anemia** due to an increased red blood cell fragility.
- Another symptom of vitamin E deficiency is **retro- lental fibroplasia (RLF)** observed in some premature infants of low birth weight. Children with this defect show **neuropathy**.

Hypervitaminosis E

- Unlike other fat soluble vitamins such as A and D, vitamin E does not seem to have toxic effects.