NUTRIENTS

Vitamins: Vitamin E

What is it?

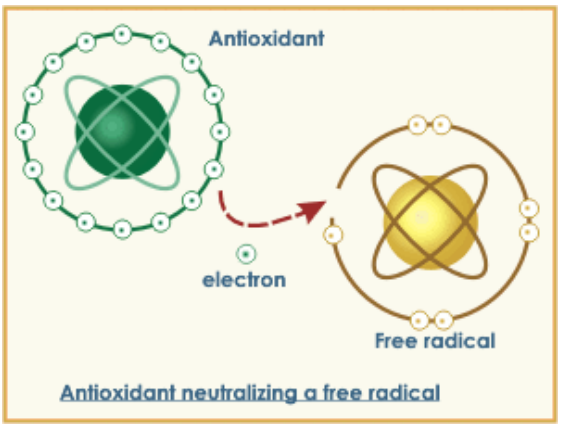
Vitamin E is a fat-soluble vitamin that exists in different forms and describes two families of compounds,

- tocopherols - alpha-tocopherol, beta-, gamma- & delta- tocopherol
- tocotrienols - which are related but much less biologically active compounds

Functions - what does it do?

Vitamin E is the most important fat soluble vitamin in all the cells of the body. It forms part of all cell membrane structures and is therefore vital to the healthy functioning of the human body. It vital in protecting tissues and cells from oxidant damage, for the formation of red blood cells and the maintenance of a healthy immune system.

Antioxidant. Alpha-tocopherol is the most active form of vitamin E in humans, and is a powerful biological antioxidant. Antioxidants such as vitamin E act to protect your cells against the effects of free radicals, which are potentially damaging compounds produced as by-products of normal metabolism, as well as through exposure to toxins and pollutants (e.g. smoking).



Free radicals can cause cell damage that may contribute to the development of cardiovascular disease and cancers, and other diseases. This antioxidant function of vitamin E can be influenced by the nutritional status of other nutrients, including selenium, copper, zinc and magnesium. Thus Vitamin E and related nutrients may collectively be important in protecting against conditions related to oxidative stress, such as aging, air pollution, arthritis, cancer, cardiovascular disease, cataracts, diabetes and infection.

Requirements - How much do we need?

	Recommended Dietary Allowance* (mg/daya)	
Life-Stage (years)	**Males**	**Females**
0 - 0.5 (0 - 6 months)	4	4
0.5 - 1 (7 - 12 months)	5	5
1 - 3	6	6
4 - 8	7	7
9 - 13	11	11

14 - 18	15	15
Ages 19+	15	15
Life-Stage (years)	**Pregnancy**	**Lactation**
18 and younger	15	19
19 - 30	15	19
Ages 31 - 50	15	19

a1 mg alpha-tocopherol equivalents = 1.5 International units (IU)

*The Recommended Dietary Allowance (RDA) is the average daily dietary intake level that is sufficient to meet the nutrient requirements of nearly all (97-98%) healthy individuals in each life-stage and gender group.

Sources - Where is it found?

Vitamin E is only found in foods of plant origin. The richest sources of vitamin E are polyunsaturated vegetable oils (soy bean, corn, cottonseed and safflower), products made from these oils (such as margarines, shortening and mayonnaise), wheat germ, nuts and other grains. Meat, fish, animal fat and most fruit and vegetables contain little vitamin E; green leafy vegetables also supply substantial amounts of the vitamin. Cooking, storage and processing of foods, especially flour, reduces their vitamin E content. Because Vitamin E is insoluble in water, it is not lost when cooking in water, but can be lost by deep-fat frying - another good reason to prepare food healthily and to avoid or limit deep-fat frying.

Food Groups	Food Sources	Nutrient Density		
		High	Medium	Low
Fats, oils, and sweets	Plant oils (Soy bean, Corn, Cottonseed and Safflower), Margarine, Mayonnaise, Oil-based salad dressing			
Bread, cereals, rice and pasta	Wheat germ (whole grains), Some fortified breakfast cereals			
Meat, poultry, fish, dry beans, eggs, and nuts	Nuts, Seeds, Shrimp, Peanut butter			
Vegetables	Green leafy vegetables			
Low sources	Meat, fish, animal fat and most fruit and vegetables			

Deficiency - When you have too little

Symptoms of deficiency is uncommon in humans as vitamin E is widespread in foods. Vitamin E deficiency may be found where fat absorption and / or transport of the vitamin is impaired. It is also found in preterm infants.

Toxicity - When you have too much

Although vitamin E is a fat soluble vitamin, it is quite safe when taken at high doses (600 IU) for prolonged periods of time (up to five years). Persons taking anticoagulant (blood thinning) medication, should however be careful as vitamin E enhances bleeding time.

Large intakes of Vitamin E might interfere with the absorption of vitamin A and K. More importantly, intakes gretaer than 1200mg of alpha-tocopherol equivalents per day can interfere with the metabolism of vitamin K, thus increasing the anticoagulation (blood thinning) effects of drugs.

	Upper Limit+ (mg/daya)	
Life-Stage (years)	**Males**	**Females**
0 - 0.5 (0 - 6 months)	ND	ND
0.5 - 1 (7 - 12 months)	ND	ND
1 - 3	200	200
4 - 8	300	300
9 - 13	600	600
14 - 18	800	800
Ages 19+	1000	1000
Life-Stage (years)	**Pregnancy**	**Lactation**
18 and younger	800	800
Ages 19 +	1000	1000

a1 mg alpha-tocopherol equivalents = 1.5 IU

+Upper Limits (UL) = The maximum level of daily nutrient intake that is likely to pose no risk of adverse effects. Unless otherwise specified, the UL represents total intake from food, water, and supplements.

ND = Not determinable due to lack of data of adverse effects in this age group and concern with regard to lack of ability to handle excess amounts. Source of intake should be from food only to prevent high levels of intake.

For further, personalized and more detailed information, please contact a dietitian registered with the Health Professions Council of South Africa.*References from the scientific literature used to compile this document are available on request.*

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