

**FAT - SOLUBLE VITAMINS:
VITAMIN E**

Patient Resource

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Other names for vitamin E

tocotrienols
 α -tocopherol
 γ -tocopherol



Sources of Vitamin E

Plant Products

Fruits

- avocados
- papaya
- peaches
- tomatoes
- olives
- kiwifruit

Nuts & Seeds

- peanuts
- hazelnuts
- cashews
- almonds
- sunflower seeds
- pistachios

Oils

- vegetable oils
- olive oil
- wheat germ oil
- sunflower oil
- safflower oil
- soybean oil
- corn oil
- canola oil

Vegetables

- green leafy vegetables
- chard
- spinach
- broccoli
- carrots

Animal Products



Animal Sources

- milk fat
- egg yolk

Other Sources

- wheat germ
- margarine
- mayonnaise

NOTE:

Vitamin E is best absorbed when eaten with healthy fats.

Visit

<https://www.anniweek.com/product-page/healthy-fat-foods-reference-card>

for a Healthy Fat Foods reference card



Functions of Vitamin E

- strong antioxidant
- membrane protection
- red blood cell health
- anti-inflammatory
- cell signaling
- gene expression



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Dietary Reference Intakes

The need for vitamin E is partly dependent upon the amount of poly-unsaturated fatty acids or PUFAs consumed. PUFAs are a class of fatty acids that include important essential compounds that the body can't produce on its own. Omega-3 is one example of a PUFA. In other words, this relationship between vitamin E and dietary PUFAs exists because the requirement for vitamin E increases or decreases as the degree of unsaturated fatty acids in body tissues rises or falls. The good news is that good sources of PUFAs also tend to be adequate sources of vitamin E.

Recommended Dietary Amounts of Vitamin E (as α -TE)		
Infants	EAR	RDA
0-6 months		4
6-12 months		5
Child	EAR	RDA
1-3 years	5	6
4-8 years	6	7
Adolescents	EAR	RDA
9-13 years	9	11
Teens & Adults	EAR	RDA
14-70 years	12	15
Pregnancy & Lactation	EAR	RDA
Pregnant	12	15
Lactating	16	19

Helpful Terms to Know

- **Adequate Intake (AI):** recommended daily intake of a nutrient; established by the Institutes of Medicine (IOM) to meet or to exceed the needed amount to maintain adequate nutrition for most people in a particular stage of life or gender group; established when not enough evidence is available to determine the RDA
- **Estimated Average Requirement (EAR):** computed using an allowance for adequate liver stores; children and adolescent requirements are adjusted using metabolic body weight
- **Recommended Dietary Allowance (RDA):** covers the needs of 97-98% of individuals in a group; the average amount of a nutrient a healthy person should consume daily. Vary by gender, age, and whether a woman is pregnant or breastfeeding. Developed by the Food and Nutrition Board at the IOM of the National Academies.
- **α -TE:** alpha-tocopherol equivalents
- **IU:** International units; in this case an outdated form of measurement for this vitamin but still sometimes found on labels. Consult your dietitian or other accredited health care professional for proper conversion of IU to α -TE units.



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Deficiency

Symptoms of deficiency vary greatly.

Generally, symptoms of a lack of vitamin E can be organized into the following categories:

- neuromuscular
- vascular
- reproductive systems

Symptoms of deficiency

- Loss of deep tendon reflexes
- Impaired sensation
- Changes in balance
- Changes in coordination
- Muscle weakness
- Visual disturbance

Symptoms of Toxicity

- Increased bleeding
- Gastrointestinal distress
- Nausea
- Diarrhea
- Flatulence

In cases of vitamin E intake where intake is high, vitamin E can interfere with the metabolism of other fat-soluble vitamins (A,D,or K), or vitamins and minerals with which it interacts (i.e. vitamin C, selenium).

Upper Limits (UL) of Vitamin E (in mg/day)	
Infants	
0-12 months	Not determinable due to lack of evidence
Children	
1-3 years	200
4-8 years	300
Adolescents	
9-13 years	600
14-18 years	800
Adults	
19-50 years	1000
Pregnant Women	
14-18 years	800
19-50 years	1000
Lactating Women	
14-50 years	1000

Helpful Terms to Know

Upper Limit (UL): also known as the Tolerable upper intake level; largest daily intake of a nutrient that is considered safe for most people; exceeding this limit is not recommended and may cause harm to the body; Set by the Food and Nutrition Board at the National Academies of Sciences, Engineering, and Medicine.

Supplementation & Treatment

Absorption of vitamin E varies dramatically according to research, so individualized approaches when it comes to nutritional therapy and vitamin supplementation are suggested. Although cosmetic products may contain some small amounts of this vitamin, oral intake (through the diet) is recommended and research has shown this is the most effective method of intake for consumption of this nutrient by the body.

Note: Synthetic forms of vitamin E may be listed on supplement labels as “DL-” or “dl- α -tocopherol”.

