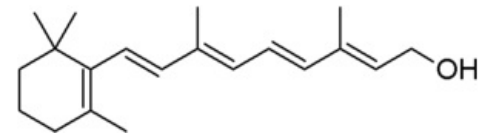


# Vitamin A

## Role

- Good vision: It is a component of retinal pigments, which helps especially in low lighting.
- Reproduction, cell division and gene expression.
- Participates in bone and tooth development.
- Maintains mucous membranes of the mouth , nose, throat and lungs, by keeping them moist.
- Maintains healthy skin.
- Antioxidant, which may protect against cancer. Beta-carotene is an antioxidant.
- Supports immune function.



Vitamin A structure

## Source

Vitamin A primarily comes from animal sources: eggs, meat, fortified milk, cheese, cream, liver, kidney, cod, and halibut fish oil. Beta-carotene comes from colourful fruits and vegetables, such as carrots, pumpkin, winter squash, dark green leafy vegetables and apricots. Usually the more intense the colour of the fruit or vegetable, the more beta-carotene it contains.

## Excess

This can either be acute or chronic and can present with a number of symptoms. Acute toxicity causes dry, itchy skin, headache, nausea, loss of appetite and blurred vision. Severe toxicity can result in growth retardation, enlargement of the liver and spleen, loss of hair, bone pain, increased pressure in the skull and skin changes. Increased amounts of beta-carotene can turn the skin yellow or orange.

## Deficiency

This is usually associated with strict diet restriction or excessive alcohol intake.

- **Mild:** night blindness, diarrhea, reduced resistance to infection, impaired vision.
- **Severe:** inflammation of the eyes, keratinisation of the skin and eyes and blindness in children.



Vitamin A deficiency (WHO 1995)

## Links

### Related articles

- [Fat Soluble Vitamins](#)
- [Water Soluble Vitamins](#)

### External links

1. Cystic Fibrosis (<http://cysticfibrosis.about.com/od/cysticfibrosis101/f/vitamins.htm>)
2. Medicinenet (<http://www.medicinenet.com/script/main/art.asp?articlekey=10736>)
3. [1] (<http://www.ext.colostate.edu/pubs/foodnut/09315.html>)
4. [2] (<http://www.nlm.nih.gov/medlineplus/ency/article/002399.htm>)
5. Vitamin A (<http://ods.od.nih.gov/factsheets/vitamina>)
6. Mayo Clinic ([http://www.mayoclinic.com/health/vitamin-a/NS\\_patient-vitamina](http://www.mayoclinic.com/health/vitamin-a/NS_patient-vitamina))
7. Vitamin D (<http://ods.od.nih.gov/factsheets/vitaminD>)
8. Vitamin D (<http://health.nytimes.com/health/guides/nutrition/vitamin-d/overview.html>)
9. Vitamins Supplements (<http://www.webmd.com/vitamins-supplements/ingredientmono-954-VITAMIN%20E.aspx?activeIngredientId=954&activeIngredientName=VITAMIN%20E>)

## Bibliography

- BENCKO, Vladimir, et al. *Hygiene and epidemiology : selected chapters*. 2. edition. Prague. 2008. ISBN 80-246-0793-X.