

# Vitamin A Fact Sheet for Consumers



Vitamin A is found in a variety of foods, including green, orange, and yellow vegetables, such as broccoli, carrots, and squash.

## What is vitamin A and what does it do?

Vitamin A is a fat-soluble vitamin that is naturally present in many foods. Vitamin A is important for normal vision, the immune system, and reproduction. Vitamin A also helps the heart, lungs, kidneys, and other organs work properly.

There are two different types of vitamin A. The first type, preformed vitamin A, is found in meat, poultry, fish, and dairy products. The second type, provitamin A, is found in fruits, vegetables, and other plant-based products. The most common type of provitamin A in foods and dietary supplements is beta-carotene.

## How much vitamin A do I need?

The amount of vitamin A you need depends on your age and reproductive status. Recommended intakes for vitamin A for people aged 14 years and older range between 700 and 900 micrograms (mcg) of retinol activity equivalents (RAE) per day. Recommended intakes for women who are nursing range between 1,200 and 1,300 RAE. Lower values are recommended for infants and children younger than 14.

However, the vitamin A content of foods and dietary supplements is given on product labels in international units (IU), not mcg RAE. Converting between IU and mcg RAE is not easy. A varied diet with 900 mcg RAE of vitamin A, for example, provides between 3,000 and 36,000 IU of vitamin A depending on the foods consumed. See our Health Professional Fact Sheet on Vitamin A for more details.

For adults and children aged 4 years and older, the U.S. Food and Drug Administration has established a vitamin A Daily Value (DV) of 5,000 IU from a varied diet of both plant and animal foods. DVs are not recommended intakes; they don't vary by age and sex, for example. But trying to reach 100% of the DV each day, on average, is useful to help you get enough vitamin A. For more information on DVs, see our Frequently Asked Questions page.

## What foods provide vitamin A?

Vitamin A is found naturally in many foods and is added to some foods, such as milk and cereal. You can get recommended amounts of vitamin A by eating a variety of foods, including the following:

- Beef liver and other organ meats (but these foods are also high in cholesterol, so limit the amount you eat).
- Some types of fish, such as salmon.
- Green leafy vegetables and other green, orange, and yellow vegetables, such as broccoli, carrots, and squash.
- Fruits, including cantaloupe, apricots, and mangos.
- Dairy products, which are among the major sources of vitamin A for Americans.
- Fortified breakfast cereals.

## What kinds of vitamin A dietary supplements are available?

Vitamin A is available in dietary supplements, usually in the form of retinyl acetate or retinyl palmitate (preformed vitamin A), beta-carotene (provitamin A), or a combination of preformed and provitamin A. Most multivitamin-mineral supplements contain vitamin A. Dietary supplements that contain only vitamin A are also available.

## Am I getting enough vitamin A?

Most people in the United States get enough vitamin A from the foods they eat, and vitamin A deficiency is rare. However, certain groups of people are more likely than others to have trouble getting enough vitamin A:

- Premature infants, who often have low levels of vitamin A in their first year.
- Infants, young children, pregnant women, and breastfeeding women in developing countries.
- People with cystic fibrosis.

## What happens if I don't get enough vitamin A?

Vitamin A deficiency is rare in the United States, although it is common in many developing countries. The most common symptom of vitamin A deficiency in young children and pregnant women is an eye condition called xerophthalmia. Xerophthalmia is the inability to see in low light, and it can lead to blindness if it isn't treated.

## What are some effects of vitamin A on health?

Scientists are studying vitamin A to understand how it affects health. Here are some examples of what this research has shown.

### Cancer

People who eat a lot of *foods* containing beta-carotene might have a lower risk of certain kinds of cancer, such as lung cancer or prostate cancer. But studies to date have not shown that vitamin A or beta-carotene *supplements* can help prevent cancer or lower the chances of dying from this disease. In fact, studies show that smokers who take high doses of beta-carotene supplements have an *increased* risk of lung cancer.

### Age-Related Macular Degeneration

Age-related macular degeneration (AMD), or the loss of central vision as people age, is one of the most common causes of vision loss in older people. Among people with AMD who are at high risk for developing advanced AMD, a supplement containing antioxidants, zinc, and copper with or without beta-carotene has shown promise for slowing down the rate of vision loss.

### Measles

When children with vitamin A deficiency (which is rare in North America) get measles, the disease tends to be more severe. In these children, taking supplements with high doses of vitamin A can shorten the fever and diarrhea caused by measles. These supplements can also lower the risk of death in children with measles who live in developing countries where vitamin A deficiency is common.

## Can vitamin A be harmful?

Yes, high intakes of some forms of vitamin A can be harmful.

Getting too much preformed vitamin A (usually from supplements or certain medicines) can cause dizziness, nausea, headaches, coma, and even death. High intakes of preformed vitamin A in pregnant women can also cause birth defects in their babies. Women who might be pregnant should not take high doses of vitamin A supplements.

Consuming high amounts of beta-carotene or other forms of provitamin A can turn the skin yellow-orange, but this condition is harmless. High intakes of beta-carotene do not cause birth defects or the other more serious effects caused by getting too much preformed vitamin A.

The upper limits for preformed vitamin A in IU are listed below. These levels do not apply to people who are taking vitamin A for medical reasons under the care of a doctor. Upper limits for beta-carotene and other forms of provitamin A have not been established.

| Life Stage                | Upper Limit |
|---------------------------|-------------|
| Birth to 12 months        | 2,000 IU    |
| Children 1–3 years        | 2,000 IU    |
| Children 4–8 years        | 3,000 IU    |
| Children 9–13 years       | 5,667 IU    |
| Teens 14–18 years         | 9,333 IU    |
| Adults 19 years and older | 10,000 IU   |

## Are there any interactions with vitamin A that I should know about?

Yes, vitamin A supplements can interact or interfere with medicines you take. Here are several examples:

- Orlistat (Alli®, Xenical®), a weight-loss drug, can decrease the absorption of vitamin A, causing low blood levels in some people.
- Several synthetic forms of vitamin A are used in prescription medicines. Examples are the psoriasis treatment acitretin (Soriatane®) and bexarotene (Targretin®), used to treat the skin effects of T-cell lymphoma. Taking these medicines in combination with a vitamin A supplement can cause dangerously high levels of vitamin A in the blood.

Tell your doctor, pharmacist, and other health care providers about any dietary supplements and medicines you take. They can tell you if those dietary supplements might interact or interfere with your prescription or over-the-counter medicines or if the medicines might interfere with how your body absorbs, uses, or breaks down nutrients.

#### Vitamin A and healthful eating

People should get most of their nutrients from food, advises the federal government's *Dietary Guidelines for Americans*. Foods contain vitamins, minerals, dietary fiber and other substances that benefit health. In some cases, fortified foods and dietary supplements may provide nutrients that otherwise may be consumed in less-than-recommended amounts. For more information about building a healthy diet, refer to the *Dietary Guidelines for Americans* and the U.S. Department of Agriculture's MyPlate.

#### Where can I find out more about vitamin A?

##### For more information on vitamin A:

- Office of Dietary Supplements Health Professional Fact Sheet on Vitamin A
- Vitamin A, MedlinePlus®

##### For more information on food sources of vitamin A:

- U.S. Department of Agriculture's (USDA's) National Nutrient Database
- Nutrient list for vitamin A (listed by food or vitamin A content), USDA
- Nutrient list for beta-carotene (listed by food or beta-carotene content), USDA

##### For more advice on buying dietary supplements:

- Office of Dietary Supplements Frequently Asked Questions: Which brand(s) of dietary supplements should I purchase?

##### For information about building a healthy diet:

- MyPlate
- *Dietary Guidelines for Americans*

##### Disclaimer

This fact sheet by the Office of Dietary Supplements provides information that should not take the place of medical advice. We encourage you to talk to your healthcare providers (doctor, registered dietitian, pharmacist, etc.) about your interest in, questions about, or use of dietary supplements and what may be best for your overall health. Any mention in this publication of a specific brand name is not an endorsement of the product.



For more information on this and other supplements, please visit our Web site at: <http://ods.od.nih.gov> or e-mail us at [ods@nih.gov](mailto:ods@nih.gov)

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