

Selenium Fact Sheet for Consumers



Many foods have selenium, including seafood, meat, poultry, eggs, and dairy and grain products.

What is selenium and what does it do?

Selenium is a nutrient that the body needs to stay healthy. Selenium is important for reproduction, thyroid gland function, DNA production, and protecting the body from damage caused by free radicals and from infection.

How much selenium do I need?

The amount of selenium that you need each day depends on your age. Average daily recommended amounts are listed below in micrograms (mcg).

Life Stage	Recommended Amount
Birth to 6 months	15 mcg
Infants 7–12 months	20 mcg
Children 1–3 years	20 mcg
Children 4–8 years	30 mcg
Children 9–13 years	40 mcg
Teens 14–18 years	55 mcg
Adults 19–50 years	55 mcg
Adults 51–70 years	55 mcg
Adults 71 years and older	55 mcg
Pregnant teens and women	60 mcg
Breastfeeding teens and women	70 mcg

What foods provide selenium?

Selenium is found naturally in many foods. The amount of selenium in plant foods depends on the amount of selenium in the soil where they were grown. The amount of selenium in animal products depends on the selenium content of the foods that the animals ate. You can get recommended amounts of selenium by eating a variety of foods, including the following:

- Seafood
- Meat, poultry, eggs, and dairy products
- Breads, cereals, and other grain products

What kinds of selenium dietary supplements are available?

Selenium is available in many multivitamin-mineral supplements and other dietary supplements. It can be present in several different forms, including selenomethionine and sodium selenate.

Am I getting enough selenium?

Most Americans get enough selenium from their diet because they eat food grown or raised in many different areas, including areas with soil that is rich in selenium.

Certain groups of people are more likely than others to have trouble getting enough selenium:

- People undergoing kidney dialysis
- People living with HIV
- People who eat only local foods grown in soils that are low in selenium

What happens if I don't get enough selenium?

Selenium deficiency is very rare in the United States and Canada. Selenium deficiency can cause Keshan disease (a type of heart disease) and male infertility. It might also cause Kashin-Beck disease, a type of arthritis that produces pain, swelling, and loss of motion in your joints.

What are some effects of selenium on health?

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

Cancer

Studies suggest that people who consume lower amounts of selenium could have an increased risk of developing cancers of the colon and rectum, prostate, lung, bladder, skin, esophagus, and stomach. But whether selenium supplements reduce cancer risk is not clear. More research is needed to understand the effects of selenium from food and dietary supplements on cancer risk.

Cardiovascular disease

Scientists are studying whether selenium helps reduce the risk of cardiovascular disease. Some studies show that people with lower blood levels of selenium have a higher risk of heart disease, but other studies do not. More studies are needed to better understand how selenium in food and dietary supplements affects heart health.

Cognitive decline

Blood selenium levels decrease as people age, and scientists are studying whether low selenium levels contribute to a decline in brain function in the elderly. Some studies suggest that people with lower blood selenium levels are more likely to have poorer mental function. But a study of elderly people in the United States found no link between selenium levels and memory. More research is needed to find out whether selenium dietary supplements might help reduce the risk of or treat cognitive decline in elderly people.

Thyroid disease

The thyroid gland has high amounts of selenium that play an important role in thyroid function. Studies suggest that people—especially women—who have low blood levels of selenium (and iodine) might develop problems with their thyroid. But whether selenium dietary supplements can help treat or reduce the risk of thyroid disease is not clear. More research is needed to understand the effects of selenium on thyroid disease.

Can selenium be harmful?

Yes, if you get too much. Brazil nuts, for example, contain very high amounts of selenium (68–91 mcg per nut) and can cause you to go over the upper limit if you eat too many. Getting too much selenium over time can cause the following:

- Garlic breath
- Nausea
- Diarrhea
- Skin rashes
- Irritability
- Metallic taste in the mouth
- Brittle hair or nails
- Loss of hair or nails
- Discolored teeth
- Nervous system problems

Extremely high intakes of selenium can cause severe problems, including difficulty breathing, tremors, kidney failure, heart attacks, and heart failure.

The upper limits for selenium from foods and dietary supplements are listed below.

Ages	Upper Limit
Birth to 6 months	45 mcg
Infants 7–12 months	60 mcg
Children 1–3 years	90 mcg
Children 4–8 years	150 mcg
Children 9–13 years	280 mcg
Teens 14–18 years	400 mcg
Adults	400 mcg

Are there any interactions with selenium that I should know about?

Yes, some of the medications you take may interact with selenium. For example, cisplatin, a chemotherapy drug used to treat cancer, can lower selenium levels, but the effect this has on the body is not clear.

Tell your doctor, pharmacist, and other health care providers about any dietary supplements and prescription or over-the-counter medicines you take. They can tell you if the dietary supplements might interact with your medicines or if the

medicines might interfere with how your body absorbs, uses, or breaks down nutrients.

Selenium 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 selenium?

For general information on selenium:

- Office of Dietary Supplements Health Professional Fact Sheet on Selenium
- Selenium and Selenium in diet, MedlinePlus®

For more information on food sources of selenium:

- U.S. Department of Agriculture's (USDA) National Nutrient Database
- Nutrients List for selenium (listed by food or by selenium 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

Updated: February 17, 2016