



## Vegetarian Nutrition

a dietetic practice group of the  
**eat right.** Academy of Nutrition and Dietetics

### RD Resources for Consumers:

# Iron in Vegetarian Diets

## Iron Overview

Iron is a mineral that is naturally present in many foods, added to certain food products, and available as a dietary supplement. It is an essential mineral needed by all living organisms. Iron's primary role is to help red blood cells supply oxygen to our muscles for energy. It is also involved in other body processes such as helping to build our immune system and DNA synthesis. Iron is recycled and is not readily lost by the body. There are few exceptions such as menstruation, excessive bleeding, or pregnancy.

## Iron Deficiency

Iron deficiency is the most common nutrient deficiency globally. It occurs most often in young children, pregnant women, and menstruating women who lose iron through their monthly periods. Iron status is easily assessed through blood tests administered by a physician.

Low iron levels can result in anemia. Symptoms of iron-deficiency anemia are fatigue, a fast heartbeat, and shortness of breath during physical activity.

Pica, which is a desire to eat non-food items such as dirt or clay, may cause anemia or be a symptom of anemia.

## Dietary Iron

There are two types of iron in food: heme and non-heme.

Much of the iron in meat is heme iron, which is more easily absorbed from food and used by your body. Plant foods contain only non-heme iron. Although plant foods are high in iron, it is often attached to compounds that

reduce its absorption. These compounds are called phytates and are found in whole grains and dried beans.

Compounds in coffee and tea also reduce iron absorption, as do calcium supplements.

Vitamin C can counter the effects of some of these compounds. Eating vitamin C-rich foods and iron-rich foods at the same time can increase iron absorption. Good sources of vitamin C include oranges, grapefruits, strawberries, green leafy vegetables (kale, collard greens, Swiss chard), broccoli, Brussels sprouts, bell peppers (yellow, red, and green), and cauliflower.

## Iron and Vegetarians

Vegetarian (including vegan) men and women tend to have less iron stored in their bodies than people who eat meat. Vegetarian men rarely have anemia, but some vegetarian women may be at risk for anemia.

There is not a separate iron daily requirement for vegetarians. However, because iron isn't absorbed as well from plant foods, the Food and Nutrition Board recommends that vegetarians get as much as 1.8 times the recommended dietary allowance for iron just to be safe. Doing the following to increase iron absorption will be more effective than increasing the amount of iron in your diet:

- Include vitamin C-rich foods in meals
- Drink coffee and tea between meals rather than with them
- Take calcium supplements between meals

If you think you might have low iron, ask your doctor to test for it. Iron supplements are the treatment for anemia for both vegetarians and meat-eaters.

## Iron and Chronic Disease

Everyone has iron storage in his or her body. Vegetarians tend to have lower stores than people who eat meat. Their lower stores may be beneficial as too much iron in the body may contribute to diabetes and possibly premature death. High amounts of iron in the diet may also contribute to colon cancer. The research in these areas is mixed and more evidence is needed before conclusions can be drawn.

There is also an uncommon disease called hemochromatosis in which someone absorbs iron very easily. This disease is genetic and people of Northern European descent are at the highest risk. The excess iron builds up and can lead to liver damage and many other problems. For this reason, it is a good idea for men, especially, to have their iron levels tested at some point to make sure they are not absorbing too much iron.

Because very high iron levels may raise disease risk, it's a good idea to avoid high doses of iron from supplements. Limit intake from pills to no more than 20 milligrams per day without a doctor's approval. Iron supplements can also cause constipation.

## Athletes

Iron deficiency can reduce athletic performance. For athletes with low iron, but who don't have anemia, iron supplements can improve performance.

People who take part in regular, intense endurance exercise, especially running, need more iron. The average requirement may be 30% to 70% higher in athletes due to the loss of very small amounts of iron that occurs with intense exercise.

The American College of Sports Medicine recommends that vegetarian athletes should try to get more iron than the RDA. They should also be tested occasionally for low iron levels, especially teens and pregnant

## Iron Content of Selected Foods

Food	Serving	Prep	Iron (mg)
<b>Vegetables</b>			
Spinach	1/2 C chopped	boiled	3.2
Swiss chard	1/2 C chopped	boiled	2.0
<b>Grains</b>			
Oatmeal	1/2 C	cooked	1.0
Rice (white, long-grain, enriched)	1/2 C	cooked	1.4
<b>Soy Products &amp; Legumes</b>			
Tempeh	3 oz	cooked	1.5
Soy milk	1 C		1.0 - 1.5
<b>Nuts</b>			
Almonds	1/4 C	roasted	1.3
Pistachios	1/4 C	dry roasted	1.2
<b>Fruits</b>			
Dried figs	1/2 C		1.5
Raisins	1/2 C		1.4
<b>Enriched Cereals</b>			
Grape nuts	1/2 C		16
Total- whole grain	1/2 C		8.0
<b>Other</b>			
Molasses	2 T		3.8

women. Because athletes consume more calories, they naturally get more iron in their diets. The key point for vegetarian athletes is to monitor iron levels and be aware of the signs of iron deficiency.

## Conclusion

Despite lower levels of iron storage, vegetarian men appear to have adequate iron status. Their lower storage amounts may be associated with a reduced risk for chronic disease. Women should focus on including vitamin C-rich foods with meals. If you suspect you have low iron, ask your doctor to test for it. Iron deficiency is treated with iron supplements.

**A registered dietitian nutritionist can help you develop a healthy vegetarian eating plan that meets your needs. To find an RDN in your area, visit <http://www.eatright.org/find-an-expert>**