



Don't Just Pump Iron – Eat it!



Iron is an essential mineral your body needs daily in order to function. It helps the blood carry oxygen to the lungs and all parts of the body. The brain, muscles and immune system require iron to function properly.

Iron deficiency is a decrease in the total amount of iron in the body. This can be due to not eating enough iron-rich foods and/or inadequate absorption in the intestines. Fatigue, irritability, weakness, headaches, and poor concentration are common symptoms of iron deficiency [i].

It is estimated that more than 1.2 billion people worldwide experience iron deficiency [ii]. Children, adolescents, women of child bearing age, endurance athletes, and older adults are particularly susceptible [ii, iii]. A vegan or vegetarian diet can also increase risk of a deficiency.

There are two types of iron in food: heme and non-heme. Heme iron can be found in animal foods such as red meat (eg. beef liver), seafood (eg. salmon, tuna), poultry (dark meat), shellfish (eg. oysters) and egg yolks. Sources of non-heme iron are found within plant-based foods. These include legumes, whole grains, nuts/seeds, dried fruits, broccoli, asparagus, and leafy greens. Animal foods and iron-fortified cereals also contain non-heme iron.

Heme iron is more efficiently absorbed by the body than non-heme iron.

Studies show that certain nutrients in foods can enhance the absorption of non-heme iron [iv]. These *enhancers* are found in Vitamin C-rich fruits and vegetables (eg. citrus and other fruits, sprouted beans, leafy greens, bell peppers, cauliflower), lactic acid fermented foods (eg. sauerkraut, pickles, yogurt, sourdough bread) and heme iron foods. Other nutrients in foods can inhibit the absorption of both heme and non-heme foods. These *inhibitors* include oxalic acid (found in raw spinach, swiss chard, beans, nuts, chocolate), phytates (found in wheat bran, legumes, whole grains), tannins (found in teas, coffee, red wine), and calcium (found in milk, spinach, cabbage, soya beans). Proteins casein and whey (found in dairy), egg whites and soy may also inhibit iron. Antacids can also reduce iron absorption.

To prevent iron deficiency, choose a diet that includes a daily variety of iron-rich foods. When grocery shopping, look for bread products, cereals and pastas that list “enriched” or “iron fortified” on the package label. Eat foods containing Vitamin C with iron-rich meals or in the presence of foods containing inhibitors. Like a superhero, Vitamin C has the power to block inhibitors.

Tips to get the most iron from foods:

- Cook with a cast iron pan
- Consume foods with inhibitors (tea, coffee, chocolate) in between meals instead of with meals
- Consume heme with nonheme foods (eg. chicken with vegetables)
- Squeeze lemon or lime over leafy greens or other plant-based foods
- Consume the liquid in which Vitamin C containing fruits/vegetables are cooked to retain their Vitamin C
- Include fermented foods in your diet

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- ii. Camaschella C. Iron deficiency. *Blood*. 2019;133(1):30-39. doi:10.1182/blood-2018-05-815944
- iii. Neidlein, S., Wirth, R. & Pourhassan, M. Iron deficiency, fatigue and muscle strength and function in older hospitalized patients. *Eur J Clin Nutr*. 2021; **75**: 456–463. doi:10.1038/s41430-020-00742-z
- iv. Ems T, St Lucia K, Huecker MR. Biochemistry, Iron Absorption. *StatPearls [Internet]*. Last Updated April 21, 2022. Accessed February 22, 2023. <https://www.ncbi.nlm.nih.gov/books/NBK448204/>

