



Maintaining Healthy Iron Levels



Why do we need iron?

Iron is essential for life.

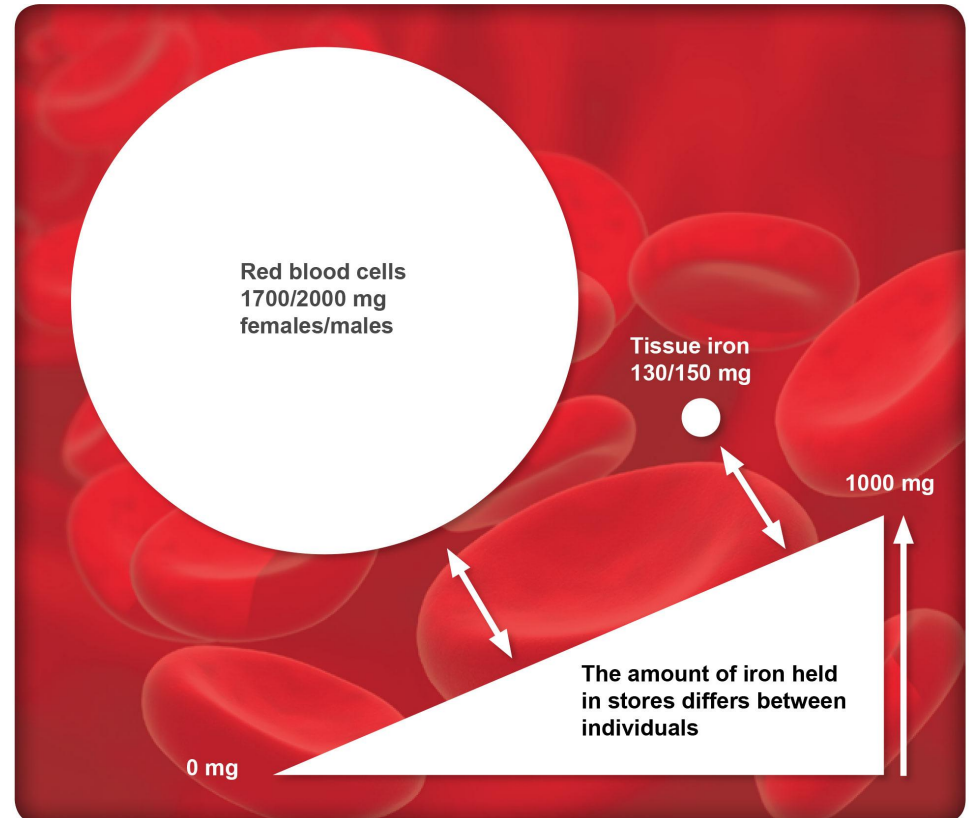
We need iron to:

- make red blood cells
- help provide energy in our tissues
- provide iron stores that can be used when needed.

A healthy adult has:

- about **1700–2000mg** of iron in their red blood cells. (It is needed to make haemoglobin, the protein that carries oxygen around the body.)
- about **130-150mg** of iron in their body tissue in enzymes. (It is essential for handling energy. Tissue iron is needed for physical and mental activity.)
- up to **1000mg** of iron held in reserves as stored iron. (This iron is used anywhere in the body as required.)

A healthy adult has:



How much iron do we need each day?

Everyone loses small amounts of iron each day. We replace this “lost” iron with iron from foods.

Our iron needs vary, depending on a variety of factors, including age and gender.



Daily iron needs

- Men and women need about 0.5–1mg of iron each day to replace losses from skin and other tissues.
- Women need another 0.5–2mg of iron each day to replace iron lost in menstrual periods.
- After giving a blood donation, a person will need an additional 2–2.5mg of iron each day for about the next 3 months to replace the iron stores used to make new red blood cells.
- Women in pregnancy, and teenagers who are growing rapidly, also need extra iron. An additional 1.5–2.5mg of iron is needed daily at these times.

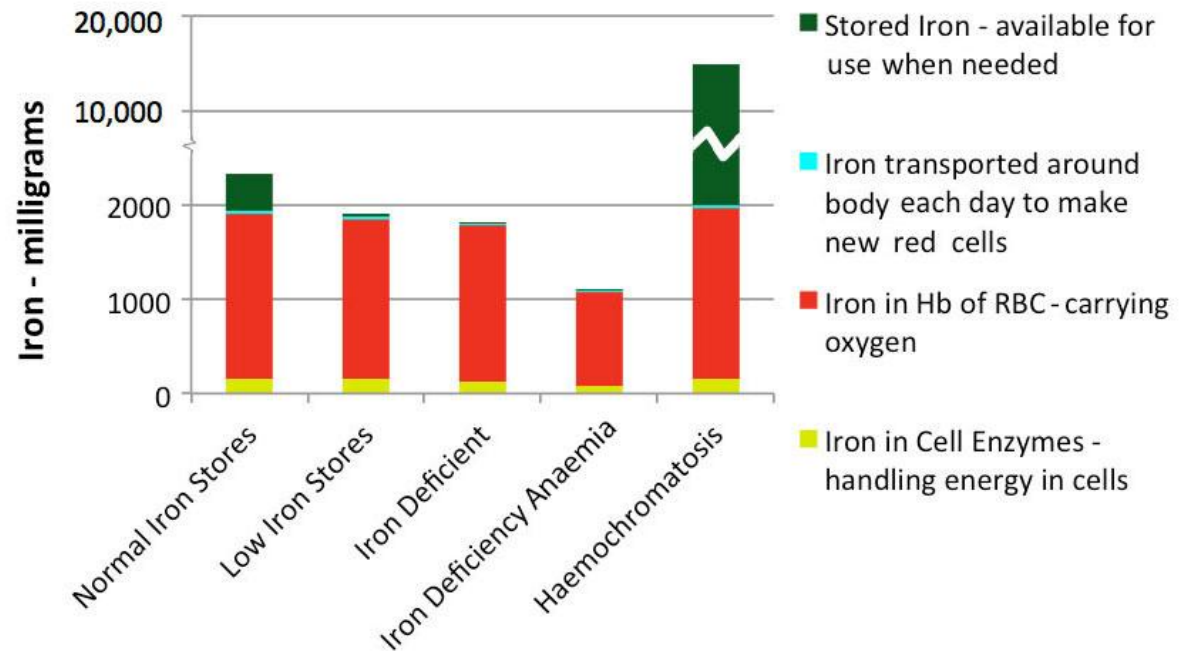
What happens if you don't get enough iron?

If you are not getting enough iron in your diet, your stored iron reserve will be slowly depleted. You will still feel normal because you will have enough iron to meet your daily needs and make red blood cells, but you won't have much iron in reserve.

If your iron stores have been used up, you may feel unusually tired. (You have an **iron deficiency**.)

If your iron stores fall further, there won't be enough iron to make red blood cells and **iron deficiency anaemia** will occur. If this happens, it's likely that you will need treatment.

Iron levels differ in the bodies of different people



How much iron does our body absorb from foods?

A healthy person with normal iron levels will absorb about 10% of the iron present in their food. This low level of iron uptake is a natural mechanism to avoid iron overload in the body.

Only about 2% of the iron present is absorbed from vegetables. More iron is absorbed from meats.

More iron is absorbed (up to a maximum of 25–35%) if:

- a person has lost blood for any reason
- the body has very low iron stores
- iron deficiency anaemia is present
- a blood donation has been given recently.

Normally, when the body has plenty of stored iron the amount of iron absorbed from food is reduced.

Iron and giving blood

A blood donation contains 470mL of blood. This contains about 220mg of iron.

After you give a blood donation, your body will absorb more iron from foods to build up your iron stores again.

More information about giving blood, including how often you can donate

www.nzblood.co.nz/assets/Give-Blood/PDFs/1071103.pdf

www.nzblood.co.nz/become-a-donor/what-to-expect-when-donating/

What foods contain iron?

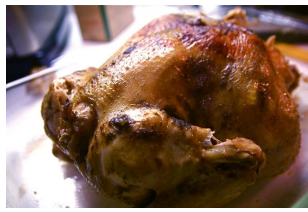
What foods contain iron?

The amount of iron obtained from different foods varies a lot, depending on the type of food.

- Red meats are the best source of iron.
- White meats (pork and chicken) contain moderate amounts of iron.
- Fish contain small amounts of iron.
- Some vegetables and cereals contain moderate amounts of iron but the iron is in a form that is not as easily absorbed as the iron in meats.
- Fruits contain very little iron.



Red Meat



White Meat



Fish



Vegetables

Some foods increase or reduce iron absorption.

Foods that increase iron absorption

- Vitamin C-rich foods such as oranges, tomatoes, kiwifruit and broccoli
- Meats eaten in the same meal, including white meats and fish, will increase iron absorbed from vegetables.

Foods that reduce iron absorption

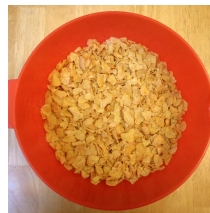
- Tea and coffee: it's a good idea to avoid drinking tea or coffee until 1–2 hours after an iron-rich meal if iron stores are low.
- Substances called phytates that are present in cereal foods (grains, bread and bakery products) and legumes (beans, peas and lentils), can reduce the amount of iron absorbed from a meal.
- (Vitamin C and meats will partly overcome the effects of phytates, tea and coffee.)



Broccoli



Fruit



Cereal



Legumes

How much food should I eat to get the iron I need?

High-iron foods – choose 1 serve a day

For example; one of the following:

- 100–150g (2½ slices) of lean roast beef or leg of lamb
- 1 small rump steak
- 100–150g of beef mince or trim lamb
- 1 slice of cooked liver
- 4 tbsp of liver pâté
- 120–150g (1 cup) of mussels.

Medium-iron foods – choose 1 serve a day

For example; one of the following:

- 100–150g (2 slices) of lean ham or lean pork
- 1 small chicken breast (skin removed)
- 1–2 chicken drumsticks
- 1 large fish fillet
- 60g ($\frac{1}{3}$ can) of tuna (drained)
- 135g ($\frac{3}{4}$ cup) of beans or lentils
- $\frac{3}{4}$ cup of tofu
- 1 cup of pasta (cooked).

Low-iron foods – choose 5 serves a day

For example; 5 of the following or other equivalent serves:

- 1 cup of breakfast cereal
- 1 slice of bread, or half a muffin or half a bread roll
- 1 cup of rice (cooked)
- 1 egg (medium)
- ½ cup of green vegetables
- 2 tbsp of dried fruit
- 1 tbsp of nuts
- 1 tbsp of peanut butter or tahini.

Vegetarians

Vegetarians should choose 4 serves of medium-iron foods and at least 6 serves of low-iron foods every day.

More information about how much iron we need, and iron-rich foods

www.nutritionfoundation.org.nz/nutrition-facts/minerals/iron

Iron-rich recipes for non-vegetarians

www.ironweek.co.nz/recipes

Iron-rich recipes for vegetarians

www.bbcgoodfood.com/recipes/collection/iron-rich-vegetarian

Iron – not enough

Anaemia

Anaemia occurs when the amount of haemoglobin in the blood is below the normal level. A lack of iron is one cause of anaemia.

The main symptoms are tiredness and lack of energy. In mild cases, there may be no symptoms. Anaemia can be diagnosed with simple blood tests.

Anaemia can make you more prone to illness and infection, because a lack of iron also affects the body's immune system.

Maintaining a healthy iron-rich diet will help to prevent iron-deficiency anaemia by balancing daily losses of iron with iron absorbed from food.

More information about anaemia

www.southerncross.co.nz/group/medical-library/iron-deficiency-anaemia

Iron – too much

Haemochromatosis

Iron is essential, but the body must handle it very carefully and keep it “locked up” in special molecules called chelates to prevent it escaping and injuring cells. Too much iron is harmful.

About one person in three hundred is at risk of absorbing excessive amounts of iron and developing haemochromatosis, a serious problem caused by iron overload despite having a normal diet. People with this condition must not take extra iron tablets of any type. A common symptom of haemochromatosis is tiredness!

Iron tablets warning

No one should take iron tablets unless blood tests for iron stores show that iron deficiency is present. Iron tablets should only be taken if recommended by a doctor, dietitian, or a nurse with training in iron treatment.

What about vitamin supplements?

Many vitamin supplements contain small amounts of iron. They are OK, especially for females in teenage years, but if taken for several years by adults, a doctor should check iron stores in case haemochromatosis is present.

Information for blood donors

www.nzblood.co.nz/assets/Give-Blood/PDFs/1071103.pdf

www.southerncross.co.nz/group/medical-library/haemochromatosis

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