GESA
Gastroenterological Society of Australia

Information about

Iron Deficiency

Why do you need iron?

All body cells need iron to help them function effectively. Most iron in the body is found in red blood cells. Iron is a key part of haemoglobin, the red pigment in your blood that carries oxygen from your lungs around your body. There is also iron in myoglobin, which moves oxygen around within the muscles.

Iron is essential in the body for:

- making red blood cells
- supporting a healthy immune system to help fight infection
- giving you good mental function
- giving you muscle strength
- giving you energy.

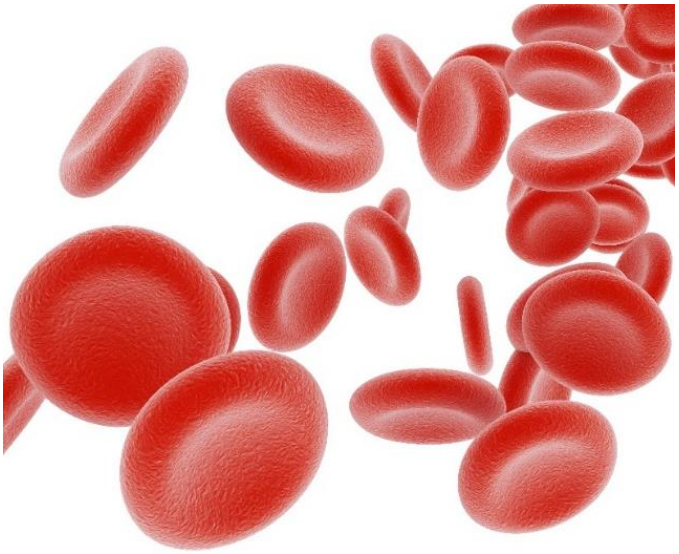
In healthy people, small amounts of iron are lost each day through shed skin and other cells. Iron is also lost whenever you bleed. Your body cannot make iron. This means your iron needs must be supplied by the food you eat and the iron that's recycled from red blood cells when they die. To keep iron in balance, you need to absorb some iron each day from the food you eat.

Keeping the right amount of iron stored in your body is a balancing act: too little iron can interfere with your vital functions and lead to anaemia; too much iron can lead to toxicity. The right amount of iron keeps you healthy and energetic. Iron deficiency (not enough iron) is a much more common problem than iron overload (too much iron).

What is iron deficiency?

Iron deficiency is when the amount of iron in your body becomes too low, which happens when your body's iron needs are not met by the iron you get from your diet, or you lose too much iron over time.

Iron deficiency is the most common nutritional disorder in the world.



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Iron deficiency anaemia is when your body eventually has such low iron stores that it cannot create normal amounts of haemoglobin (the oxygen carrying component of red blood cells) and therefore makes less red bloods cells (anaemia).

The facts

- Iron deficiency is common
- You can have iron deficiency without having anaemia
- If you have anaemia, it usually means you have more severe and longer-lasting iron deficiency
- Iron deficiency can and should be fixed
- Your doctor should try to find the reason for your iron deficiency
- Iron deficiency may be a sign of a serious disease
- You should never take iron supplements without first talking to your doctor to find out whether you do have iron deficiency
- Eat many different types of iron-rich foods, including plant-based foods
- See a dietitian for personalised advice on getting the iron you need from your diet

Don't confuse the terms iron deficiency, iron deficiency anaemia, and anaemia: they are not the same thing. Iron deficiency is only one cause of anaemia, and anaemia is not present in the early stages of iron deficiency.

What causes iron deficiency?

Iron deficiency occurs when your body's iron needs are not met by the supply of iron. This can either be because not enough iron is coming in or because it's being lost at a faster rate than it can be replaced.

The common causes of iron deficiency are:

- blood loss
- not enough iron-rich foods in your diet
- poor absorption of iron
- using more iron than usual during times of growth or exercise.

Blood loss

Blood loss = iron loss.

Blood loss can occur from:

- heavy menstrual periods for women
- regular blood donations
- unexpectedly large blood loss during or after an operation
- gastrointestinal conditions or diseases (e.g. an ulcer, a colon polyp or bowel cancer).

Insufficient dietary iron

Although there is a plentiful supply of iron in Australian diets, many people develop iron deficiency from not eating enough iron-rich foods. It's important to eat a variety of foods every day.

Inadequate absorption of iron

The most common intestinal disorder that affects the absorption of iron is untreated coeliac disease. This can have no symptoms. Many patients with iron deficiency should have tests to check they don't have coeliac disease. Your doctor can advise you about this condition and whether you need these tests.

People who have inflammation in the bowel, such as inflammatory bowel disease (IBD), or those who have had gastric (stomach) surgery, including obesity surgery (banding or bypass), may also develop iron deficiency because of absorption problems.

Are you at risk of iron deficiency?

Iron deficiency can occur at any age, but some people are at higher risk than others:

- babies given cow's milk instead of breast milk or iron-fortified formula
- children and teenagers
- menstruating women, especially if they have heavy periods
- pregnant and breastfeeding women
- people over the age of 75 years
- vegetarians and vegans or people on other types of restricted diet
- endurance athletes.

With a balanced, healthy diet, vegetarians may not be at much higher risk of developing iron deficiency than people who eat meat.

Even if you are in a high-risk group for iron deficiency, you may still need to have other causes of iron deficiency ruled out. The tests recommended will depend on your individual situation, such as your age, sex, diet, family history and the severity of your iron deficiency.

What happens if you have iron deficiency?

Because iron is important for the healthy functioning of all cells in your body, it's not surprising that iron deficiency causes many problems.

Iron deficiency can cause:

- problems with memory, learning and concentration
- weakened immune function
- reduced aerobic sports performance
- fatigue
- for pregnant women, premature birth or a baby with low birth weight
- motor and mental function delay in infants, which can last into young adulthood

- anaemia.

What are the symptoms or signs of iron deficiency?

Iron deficiency develops gradually and may not cause any obvious symptoms until anaemia develops. Even patients with anaemia may have no symptoms. It's easy to mistake signs of iron deficiency for just being generally run-down.

Some symptoms or signs to watch out for are:

- fatigue – feeling tired, listless and weak
- pale skin
- hair loss
- breathlessness
- difficulty with aerobic exercise
- being prone to infections
- behavioural problems in children
- less ability to concentrate
- a drop in work or school performance
- lower libido.

How is iron deficiency diagnosed?

Talk to your doctor if you think you might have iron deficiency. Iron deficiency is confirmed or ruled out by simple blood tests. If you are iron deficient, your doctor will ask you about your diet, your health and any medicine you are taking. Other tests may be needed to find out what is causing your iron deficiency.

How is iron deficiency treated?

Treatment for iron deficiency includes adding iron-rich foods to your diet, taking oral iron supplements under your doctor's supervision, or having an intravenous iron infusion (through a drip) if the deficiency is severe or if you cannot take iron tablets.

It's usually hard to fix iron deficiency with just an iron-rich diet, although including lots of iron in your diet can help to stop iron deficiency from coming back.

However, iron deficiency can be easily fixed. Your doctor will advise you on the best treatment for you.

It is important to know the cause of your iron deficiency. You may need a referral to a specialist for further investigations. You might start replacement iron treatment even while a cause of your iron deficiency is being investigated.

Oral iron supplements

Oral iron tablets are often the first line treatment for iron deficiency. However, iron supplements should not be taken without medical supervision. Inappropriate or excessive intake of iron supplements can be harmful and interfere with your body's zinc and copper absorption. Talk to your doctor and get tested for iron deficiency first if you think you are low in iron and may need supplements.

Intravenous iron

In some cases, you may need to be given iron as an intravenous (drip) infusion. This enables rapid replacement of iron if you have severe deficiency or if you cannot tolerate oral iron supplements. If you need intravenous iron, your doctor will discuss this with you.

An iron-rich diet

You need a diet rich in iron to stop your iron stores from running down. Although iron is found in many different foods, some sources of iron are better absorbed than others.

Haem iron

Haem iron is absorbed much more easily than non-haem iron. It is found in foods from animal sources, such as meat, fish and poultry. The redder the meat, the higher its iron content.

Although haem iron is easier to absorb, a diet high in haem iron from red meat can increase your risk of heart disease and bowel cancer. For this reason, the Australian Dietary Guidelines recommend limiting red meat to 455 grams a week, which is equivalent to approximately 2 small eye fillet steaks per week.

Non-haem iron

Non-haem iron is not as easily absorbed as haem iron. It is found mainly in plant foods, such as vegetables, grains and legumes.

Foods rich in iron

Food	Serving size	Iron content (mg)
Baked beans	1 cup	2.8
Tofu (firm)	170g	4.9
Lentils*	1 cup	4.4
Iron-fortified wheat cereal	2 biscuits (30g)	3.0–4.0
Soy beans*	1 cup	4.0
Pumpkin seeds	¼ cup	3.6
Milo©	1 tablespoon	2.9
Psyllium husk	1 tablespoon	2.4
Ovaltine©	1 tablespoon	2.3
Infant cereal	90g	2.0
Lean beef or lamb*	65g	1.4–2.0
Eggs*	2	1.6
Leafy green vegetables*	½ cup	1.5–2.1
Almonds, cashews, tahini	30g	1.2–1.5
Wholegrain bread	1 slice	1.2
Canned tuna	100g	1.3
Quinoa*	½ cup	1.0
Lean chicken*	80g	0.3–0.7
Lean pork*	65g	0.4

* Cooked. Serving sizes presented as per the Australian Dietary Guidelines.

It is important to eat a wide variety of foods every day. You can find more information at eatforhealth.gov.au, including these brochures:

Healthy eating for adults

Healthy eating for children

Healthy eating during your pregnancy

You can look up the iron levels of foods in the Australian Food Composition Database or read food labels to find out how much iron is in a food.

Tips for improving iron absorption:

- Eat iron-rich foods with other foods that are rich in vitamin C, like oranges, mandarins, grapefruit, melon, strawberries, kiwi fruit, tomatoes, capsicum or broccoli.
- Don't drink tea, coffee, cola or red wine for 30 minutes before or after meals.
- If you're not vegetarian, increase absorption of non-haem iron foods by eating them with meat, fish or poultry.
- If you're taking calcium supplements, take these at least 1 hour before or after meals, as they can interfere with iron absorption.

Recommended dietary intake of iron (mg each day)

Age	Male	Female	Pregnant	Breast-feeding
Breastfed infants 0–6 months*	0.2	0.2		
7–12 months	11	11		
1–3 years	9	9		
4–8 years	10	10		
9–13 years	8	8		
14–18 years	11	15	27	10
19–50 years	8	18	27	9
≥51 years	8	8		

* Bottle-fed infants need 5–10 times this amount.

Source: Australian National Health and Medical Research Council and the New Zealand Ministry of Health. Nutrient Reference Values for Australia and New Zealand including Recommended Dietary Intakes. 2006.

When to see a dietitian

See a dietitian if you would like more information on how much iron you need for your stage of life, are concerned about the amount of iron you're getting from your food or would like advice on how to get the right amount of iron into your diet.

Accredited practising dietitians (APDs) are university-trained nutrition experts. They can help you with personalised, easy-to-follow and evidence-based advice.

You can find a dietitian through the Dietitians Australia website: https://member.dietitiansaustralia.org.au/faapd

See your doctor if you think you have iron deficiency

If you think you have iron deficiency, go to your doctor to check it out. It is NOT recommended to take iron supplements without first finding out whether you do have iron deficiency and what the underlying cause is. Although iron deficiency may simply be from a problem with your diet, it can sometimes indicate a serious underlying disease.

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