

## Anaemia

Anaemia is a deficiency in the number or quality of red blood cells. The red blood cells carry oxygen around the body, using a particular protein called haemoglobin. Anaemia means that either the level of red blood cells or the level of haemoglobin is lower than normal.

When a person is anaemic, their heart has to work harder to pump the quantity of blood needed to get adequate oxygen around their body. During heavy exercise, the cells may not be able to carry enough oxygen to meet the body's needs and the person can become exhausted.

Anaemia isn't a disease in itself, but a result of a malfunction somewhere in the body. This blood condition is common, particularly in females. Some estimates suggest that around one in five menstruating women and half of all pregnant women are anaemic.

### Red blood cells explained

Blood cells are produced in the bone marrow. You need certain nutrients in your diet to make and maintain red blood cells. Each red blood cell contains a protein called haemoglobin. This protein gives red blood cells their characteristic colour.

Oxygen molecules attach themselves to haemoglobin. The body's cells need oxygen to live and perform their various duties.

The bone marrow needs enough dietary iron and some vitamins to manufacture haemoglobin. If you don't have enough iron in your diet, the body will draw on the small reserves of iron stored in your liver. Once this reservoir is depleted, the red blood cells will not be able to carry oxygen around the body effectively.

### Causes of anaemia

Anaemia can have many causes, including:

- **Dietary deficiency** – lack of iron, vitamin B12 or folic acid in the diet.
- **Malabsorption** – where the body is not able to use the nutrients in the diet, caused by conditions such as coeliac disease.
- **Inherited disorders** – such as thalassaemia or sickle cell disease.
- **Autoimmune disorders** – such as autoimmune haemolytic anaemia, where the immune cells attack the red blood cells and decrease their life span.
- **Chronic diseases** – such as rheumatoid arthritis and tuberculosis.
- **Hormone disorders** – such as hypothyroidism.
- **Bone marrow disorders** – such as cancer or infection.
- **Blood loss** – due to trauma, surgery, cancer, peptic ulcer, heavy menstruation, bowel cancer or frequent blood donations.
- **Drugs and medications** – including alcohol, antibiotics, anti-inflammatory drugs or anti-coagulant medications.
- **Infection** – such as malaria and septicaemia, which reduce the life span of red blood cells.
- Periods of rapid growth or high energy requirements – such as puberty or pregnancy.

### Symptoms of anaemia

Depending on the severity, the symptoms of anaemia may include:

- Pale skin
- Fatigue

- Weakness
- Tiring easily
- Breathlessness
- Drop in blood pressure when standing from a sitting or lying position (orthostatic hypotension) – this may happen after acute blood loss, like a heavy period
- Frequent headaches
- Racing heart or palpitations
- Becoming irritated easily
- Concentration difficulties
- Cracked or reddened tongue
- Loss of appetite
- Strange food cravings.

## Groups at high risk

Certain people are at increased risk of anaemia, including:

- Menstruating women
- Pregnant and breastfeeding women
- Babies, especially if premature
- Children going through puberty
- Vegetarians
- People with cancer, stomach ulcers and some chronic diseases
- People on fad diets
- Athletes.

## Diagnosis of anaemia

Depending on the cause, anaemia is diagnosed using a number of tests including:

- **Medical history** – including any chronic illnesses and regular medications
- Physical examination
- **Blood tests** – including complete blood count and blood iron levels, vitamin B12, folate and kidney function tests
- **Urine tests** – for detecting blood in the urine
- Gastroscopy or colonoscopy
- Bone marrow biopsy
- **Faecal occult blood test** – examining a stool sample for the presence of blood.

## Treatment for anaemia

Treatment depends on the cause and severity, but may include:

- **Vitamin and mineral supplements** – in the case of deficiency.
- **Iron injections** – if the person is very low on iron.
- **Vitamin B12 (by injection)** – required for pernicious anaemia.
- **Antibiotics** – if infection is the cause.
- **Altering the dose or regimen of regular medications** – such as anti-inflammatory drugs, if necessary.
- **Blood transfusions** – if required.
- **Oxygen therapy** – if required.
- **Surgery to prevent abnormal bleeding** – such as heavy menstruation.
- **Surgery to remove the spleen (splenectomy)** – in cases of severe haemolytic anaemia.

**Please note:** Take iron supplements only when advised by your doctor. The human body isn't very good at excreting iron and you could poison yourself if you take more than the recommended dose.

## Long-term outlook

The person's outlook (prognosis) depends on the cause of their anaemia. For example, if the anaemia is caused by dietary deficiencies, correcting the cause and the use of appropriate supplements for some weeks or months will resolve the condition. Relapses may occur, so changes to diet and, perhaps, regular supplements may be necessary.

In other cases, the anaemia may be permanent and lifelong treatment is needed. No matter what the cause, it is important to have a doctor regularly monitor your blood to make sure your red blood cell and haemoglobin levels are adequate and to adjust treatment if required.

## Prevention of anaemia

Some forms of anaemia can't be prevented because they are caused by a breakdown in the cell-making process. Anaemia caused by dietary deficiency can be prevented by making sure that certain food groups are consumed on a regular basis, including dairy foods, lean meats, nuts and legumes, fresh fruits and vegetables. Vegetarians who prefer not to eat any dairy foods (vegans) should consider taking vitamin and mineral supplements regularly.

## Where to get help

- Your doctor
- Dietitians Association of Australia Tel. 1800 812 942

## Things to remember

- Anaemia means that either the level of red blood cells or the level of haemoglobin is lower than normal, which deprives the body of adequate oxygen.
- Anaemia isn't a disease in itself, but a result of malfunction somewhere in the body.
- Anaemia can have many causes, including certain diseases or conditions and medications.
- Iron deficiency is the most common cause of anaemia.

**This page has been produced in consultation with, and approved by:**

Australian Centre for Blood Diseases

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