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# Diets Suitable for People with Anaemia

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## Diet and anaemia

There are various factors that can cause anaemia. Sometimes a lack of iron or certain vitamins such as folic acid and vitamin B12 can result in anaemia. Anaemia means:

- You have fewer red blood cells than normal; OR
- You have less haemoglobin than normal in each red blood cell.

In either case, a reduced amount of oxygen is carried around in the bloodstream. This can leave you with symptoms of tiredness, irritability, faintness and shortness of breath. Other symptoms may develop, depending on the cause of the anaemia.

## Iron-deficiency anaemia

Not eating foods with enough iron is sometimes the cause of **iron-deficiency anaemia**. Some people who have a poor diet with just enough iron to get by, may slip into anaemia if other factors develop. For example, a barely adequate diet combined with a growth spurt in children, or with a pregnancy or with heavy periods may lead to anaemia. A restricted diet such as a vegan or limited vegetarian diet sometimes does not contain enough iron.

### The role of iron

The main role of iron is to carry oxygen around the body. It is a major component of a chemical called haemoglobin that carries oxygen from the lungs to all parts of the body. Iron is stored mainly in our liver and muscles.

Iron is found in many foods and is present in two forms: haem and non-haem. Haem iron is better absorbed by the body and is found in animal products such as meat (including poultry) and fish. Non-haem iron is found mainly in plant sources such as beans, pulses and green leafy vegetables. It is also added to many foods such as bread, cereals and flour.

### Keeping the balance of iron in the body

In order to maintain the balance of iron in the body, we must match the iron we absorb with the iron that we lose. Iron is lost stools (faeces), urine, skin, sweat, hair and nails. In women, it is also lost during menstruation, which is why women need more iron in their diet. We need enough iron from our diet to maintain adequate iron levels in the long term. However, the amount we absorb cannot meet our daily iron needs, so the body conserves and recycles iron to ensure there is enough.

If we do not get enough iron, the amount of iron available gradually decreases. Our iron stores are then used to top up the iron needed. If this continues over time, our stores get used up and iron-deficiency anaemia occurs.

### Sources of iron in the diet

The amount of iron we need depends on our age and sex. The best sources of iron come from animal products - mainly red meat. However, we get a good proportion of iron from non-animal sources too.

Iron sources include:

- Red meat and offal - eg, beef, lamb, pork, kidneys, liver, heart, black pudding (note pregnant women should avoid liver).
- Fish and shellfish - eg, sardines, pilchards, crab, anchovies, shrimps, mussels.
- Eggs.

- Cereal and cereal products - eg, bread, Rice Krispies®, corn flakes, Weetabix®, Ready Brek®, Special K®, Shreddies®, bran flakes, Cheerios®, oatcakes, rye crispreads.
- Nuts and seeds - eg, hazelnuts, macadamia nuts, peanuts, pecans, walnuts, sesame seeds, sunflower seeds, pine nuts.
- Green leafy vegetables - eg, broccoli, spinach, watercress, kale.
- Beans and pulses - eg, baked beans, peas, lentils, chickpeas, black-eyed beans, kidney beans.
- Dried fruit - eg, raisins, apricots, prunes, currants, figs.
- Miscellaneous - eg, plain (dark) chocolate, cocoa powder, mango chutney, cherries in syrup, gingernut biscuits, pastry, curry powder.

Small amounts of haem iron are found in game and poultry - eg, pheasant, venison, rabbit, chicken, turkey.

## TOP TIPS

Having vitamin C with iron-rich foods will help to absorb the iron more easily. Serve up meals with plenty of vegetables and fruit or have glass of orange juice with your meal.

Eating meat at meal times can also help to absorb the iron from non-animal sources.

Avoid drinking tea with meals as this can actually reduce the amount of iron that is absorbed. Raw wheat bran can also interfere with the absorption of iron so this should be avoided.

## Folic acid-deficiency anaemia

A lack of **folic acid (folate)** is one cause of anaemia. The usual cause is not eating enough foods which contain folic acid. It is treated easily by taking folic acid tablets. Pregnant women should also take extra folic acid to help prevent spina bifida and other related problems in the baby.

Folic acid is a vitamin and is needed to make new cells in the body, including red blood cells. The body does not store very much folic acid. You need a regular fresh supply to keep healthy. A normal balanced diet contains enough folic acid. However, a lack of folic acid will cause anaemia and sometimes other symptoms.

### What foods contain folic acid?

We need around 200 micrograms per day of folic acid. However, during pregnancy an additional 400 micrograms are needed, especially for the first 12 weeks of pregnancy. This is usually taken in the form of a supplement, as it is difficult to obtain this required amount through food alone.

Good sources of folic acid include:

- Fresh, raw or cooked Brussels sprouts, asparagus, spinach, kale, broccoli, spring beans, green beans, cabbage, cauliflower, okra, lettuce, parsnips, peas, beansprouts.
- Cooked black-eyed beans and chickpeas.
- Breakfast cereals (with folic acid added to them).
- Liver (note, pregnant women should avoid liver).
- Kidneys, yeast and beef extracts.

To ensure you are getting the amount of folic acid you need, aim to include 2-3 portions of these sources daily.

Moderate amounts of folic acid are also founds in foods such as fresh fruits, nuts, cheese, yoghurt, milk, potatoes, bread, brown rice, oats, eggs, salmon and beef.

## TOP TIP

Try not to overcook foods containing folic acid. Steam, stir fry or microwave vegetables to prevent them from losing too much folic acid.

If you are deficient in vitamin B12, this can impair the absorption of folic acid and the way it is used in the body.

## Vitamin B12 deficiency

Vitamin B12 is essential for life. It is needed to make new cells in the body such as the many new red blood cells which are made every day. A normal balanced diet contains enough vitamin B12. A lack of **vitamin B12** leads to **anaemia** and sometimes to other problems such as nerve damage and heart disease.

Vitamin B12 deficiency from a lack of dietary vitamin B12 is rare. Vitamin B12 is found in foods such as meat, fish, cheese, milk and eggs. It is generally not found in plant foods, so people who follow a vegan diet or have a poor diet for a long time are at significant risk. Deficiency over a prolonged period of time can lead to pernicious anaemia.

## Pernicious anaemia

Normally, when you eat foods with vitamin B12, the vitamin combines with a protein called intrinsic factor in the stomach. The combined vitamin B12/intrinsic factor is then absorbed into the body further down the gut at the end of the small intestine. (Intrinsic factor is made by cells in the lining of the stomach and is needed for vitamin B12 to be absorbed.)

**Pernicious anaemia** is the most common cause of vitamin B12 deficiency in the UK. It is classed as an autoimmune disease. The immune system normally makes antibodies to attack bacteria, viruses and other germs. If you have an autoimmune disease, the immune system makes antibodies against certain tissues of your body. If you have pernicious anaemia, antibodies are formed against your intrinsic factor, or against the cells in your stomach which make intrinsic factor. This stops intrinsic factor from attaching to vitamin B12, and so the vitamin cannot be absorbed into your body. If you have pernicious anaemia, you will need vitamin B12 injections.

## Foods containing vitamin B12

The following foods are good sources of vitamin B12. Including these foods regularly in the diet should help to prevent vitamin B12 deficiency:

- Liver/liver pâté (note pregnant women should avoid liver/liver pâté).
- Eggs.
- Cheese.
- Milk.
- Meat - eg, beef, lamb, pork.
- Fish.
- Fortified breakfast cereals.
- Marmite®.
- Fortified oat, rice and soya milks.
- Fortified soya yoghurts.
- Fortified spreads.
- Fortified yeast extract.

If you are vegan, aim to include foods that are fortified with vitamin B12 at least three times a day. If these foods are not consumed in adequate amounts, the Vegan Society recommends a vitamin B12 supplement of 10 micrograms per day.

**Liver and liver products should be avoided if you are pregnant.**

## Further help & information

### British Dietetic Association

Web: [www.bda.uk.com](http://www.bda.uk.com)

### NDR (Nutrition and Diet Resources) UK

Suite 421, 4th Floor, Baltic Chambers, 50 Wellington Street, Glasgow, G2 6HJ

Tel: 0141 202 0690

Web: [www.ndr-uk.org/](http://www.ndr-uk.org/)

## PAS - Pernicious Anaemia Society

Level Four, Brackla House, Brackla Street, Bridgend, CF31 1BZ

Tel: 01656 769717

Web: [www.pernicious-anaemia-society.org](http://www.pernicious-anaemia-society.org)

## Further reading & references

- [Guidelines for the management of iron deficiency anaemia](#); British Society of Gastroenterology (March 2011)
- [Guidelines for the diagnosis and treatment of Cobalamin and Folate disorders](#); British Committee for Standards in Haematology (2014)
- [B vitamins and folic acid](#); NHS Choices
- [Folic acid fortification](#); Food Standards Agency

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Original Author: Alexa Evans	Current Version: Alexa Evans	Peer Reviewer: Dr Hayley Willacy
Document ID: 28812 (v1)	Last Checked: 21/07/2014	Next Review: 20/07/2017

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