

Pregnancy: Does every pregnant woman need daily iron supplements, and what are the possible adverse effects?



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Iron is a metal, and it is part of many proteins and enzymes that we need to keep us healthy. Iron plays a very important role in carrying oxygen around our bodies. Most of the iron in our bodies is inside haemoglobin, the protein in red blood cells that carries oxygen to our tissues.

People who have too little iron in their bodies are said to have an iron deficiency. Very low iron levels can make people tired. Severe iron deficiency can cause anaemia. This not only causes fatigue, but can also cause complications for mothers (such as making them less able to fight infections) and babies (such as increasing their risk of low birthweight).

However, severe iron deficiency or anaemia is uncommon in healthy pregnant women who eat balanced diets. What is more, it is not only too little iron that can cause problems: too much iron can also be unhealthy. Our bodies store iron, and too much iron can result in haemoconcentration (the medical term for iron overload), which can sometimes be harmful.

We normally get iron in the food we eat. Meat has haemoglobin in it, because it was in the animals' bloodstream too. That means that meat is high in iron. Liver is particularly high in iron. Although it is harder for the body to absorb iron from vegetables and fruits, there are various plants that are also good sources of iron. These include cereals (which are often fortified with extra iron) and foods such as lentils and beans. Green leafy vegetables like spinach also have some iron, and so do herbs like parsley. Iron can be taken as dietary supplements too. These include oral supplements (tablets) or tonics that are high in iron and available without prescription.

High doses of iron are prescribed when someone has anaemia or an established iron deficiency. Anaemia is a major health concern for pregnant women with inadequate nutrition or who live in developing countries where parasites in pregnancy are common (for example, hookworm, which will reduce women's iron).

Haemoglobin levels: measurement and iron supplementation

A lot of pregnant women take iron supplements because they think that their bodies need more iron during pregnancy. Having higher iron levels in turn increases the haemoglobin level (Hb): haemoglobin levels above 10 grams per decilitre are considered to be normal in late pregnancy. German authorities suggest, for example, that a pregnant or breastfeeding woman needs 20 to 30 mg total iron every day. It can be difficult for a vegetarian woman to get that amount of iron through diet alone.

It became common to give even healthy pregnant women iron supplements, as well as regularly measuring their haemoglobin levels to try to keep the levels higher. However, having high haemoglobin levels does not mean that a woman will notice any difference in her health. What is more, unless a woman really has iron deficiency or anaemia, there is no reason to fear harm to the baby from slightly lower iron. Another thing that should be considered is that a lot of products for pregnant women have quite a lot of iron in them. That can lead to an iron overload too. Because the consequences of iron overload in pregnancy are unclear, many medical experts and researchers have long questioned whether iron supplementation makes sense in pregnant women who do not have an established iron deficiency or anaemia.

Many trials on iron intake: too much iron could be a problem

Researchers from the Cochrane Collaboration assessed the results of trials that looked at whether iron supplementation in all pregnant women improves the health of women or their babies after birth. The Cochrane Collaboration is an international network of researchers who aim to assess research on medical interventions using a structured approach. If you want to be sure about the effects of a dietary supplement, research that compares the results achieved with and without the supplement can provide a reliable answer. The researchers specifically looked for trials like this. You can read more about how this kind of research is done here (URL:

<http://www.gesundheitsinformation.de/evidence-based-medicine>.

The researchers found 49 trials that involved 23,200 pregnant women who were taking daily or weekly iron supplements. They either took supplements of iron alone, supplements of iron plus folic acid (folate), a placebo (dummy treatment) or no supplement. These women did not have anaemia or other serious problems early in

pregnancy when they started taking the supplements. The researchers had aimed to find out if iron supplements for all healthy pregnant women could prevent problems. There were trials in developed as well as developing countries.

Author: German Institute for Quality and Efficiency in Health Care (IQWiG)

The results of the trials were clear: daily or weekly iron supplements definitely increase the amount of haemoglobin in pregnant women's blood – and taking iron supplements reduces the risk of developing anaemia or iron deficiency late in pregnancy. For example, in trials involving nearly 4,300 women comparing daily iron with taking a placebo (fake tablet) or no tablet, 5% of the women who took iron supplements developed anaemia compared with 15% who did not take supplements. That means that 1 in 10 women (or 10%) were prevented from developing anaemia. Some trials also found that women who regularly took iron supplements were less likely to need a blood transfusion.

However, the trials did not show that higher haemoglobin levels in healthy pregnant women have any serious health benefits – for mothers or babies. And the number of women who had too much iron in their blood was possibly even higher than the number of women in whom anaemia was prevented. Again, though, there were no signs of harm to mothers or babies from this iron overload. Other possible adverse effects (such as constipation) were not specifically studied.

There were not enough trials comparing daily with weekly supplements to be sure that it is necessary to take iron every single day in pregnancy to prevent anaemia. There were some trials testing this for supplements of iron plus folic acid: those trials showed no increase in benefit from daily use instead of weekly use.

The researchers' conclusions: more is not necessarily better

The researchers concluded that some products and recommendations that all pregnant women should take iron supplements are based on the needs of women living in developing countries, or women who have anaemia or an iron deficiency. High daily doses such as 45 or even 50 mg a day have not been proven to be of more benefit than low-dose iron supplements. Taking iron supplements once a week might be enough to have a benefit, but that is not yet clear. However, if a woman is getting enough iron in her diet, it may not be necessary for her to take supplements at all.

Glossary

folate

Folate is the salt form of the vitamin folic acid.

folic acid

Folic acid is a water-soluble vitamin. Green and leafy vegetables (eg lettuce, spinach and broccoli), liver, egg yolk, and particularly wheatgerm are rich sources of folic acid. Having too little of this vitamin can lead to anaemia. In pregnancy, low levels of folic acid can increase the risk of a fetal abnormality called spina bifida. This is why women who are pregnant, or trying to get pregnant, are encouraged to increase their intake of folic acid.

Cochrane Collaboration

The Cochrane Collaboration is an international network of thousands of researchers and others. They work together in teams called Cochrane Review Groups to answer questions about health care by doing systematic reviews of evidence. To achieve this, the members of the Collaboration have developed systems and methods for systematically finding and analysing the results of trials of health care interventions. The goal of the Cochrane Collaboration is to help patients, health care practitioners and others make more informed decisions about health care. You can read more about the Cochrane Collaboration at their website.

dietary supplement

Dietary supplements (also known as food supplements or nutritional supplements) are concentrated vitamins, minerals, trace elements, fibers and/or other substances that are intended to supplement the diet. Advocates of dietary supplements claim that they have a certain, often preventive or strengthening effect on the body. They are available as capsules, pills, powder or ampules, for example. From a legal point of view, dietary supplements rank among foods and therefore – as opposed to medications – do not need official approval. More information is available on the website of the German Federal Institute for Risk Assessment (Bundesinstitut für Risikobewertung, BfR): [To the BfR website \(in English\)](#)

Sources

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BfR – German Federal Institute for Risk Assessment [Bundesinstitut für Risikobewertung]. *Questions and answers on iron in foods. [Fragen und Antworten zu Eisen in Lebensmitteln]*. Berlin: BfR. December 2008. [Full text (URL: http://www.bfr.bund.de/cm/276/fragen_und_antworten_zu_eisen_in_lebensmitteln.html) – in German]

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