

Iron needs of babies and children

Iron is a mineral that babies and children need for good health and development.

Red blood cells contain hemoglobin, a protein that carries oxygen to all cells in the body. Our bodies need iron to make hemoglobin. Iron gives red blood cells their colour. When you don't have enough iron, red blood cells become small and pale. They can't carry enough oxygen to your body's organs and muscles. This is called anemia.

What are the symptoms of iron deficiency?

Babies and children need iron for their brains to develop normally. Babies who don't get enough iron ("iron deficiency") may be less physically active and develop more slowly. They may also show these symptoms:

- slow weight gain,
- pale skin,
- no appetite, and
- irritability (cranky, fussy).

Iron deficiency can affect how older children do in school. Low levels of iron can make it hard for children to concentrate and cause them to feel tired and weak.

How much iron do babies and children need?

Full-term babies are born with a reserve of iron, which comes from their mother's blood while they are in the womb.

For the first 6 months, breastfed babies will get what they need from their mother's milk. However, waiting too long after 6 months to introduce other foods increases your baby's risk of iron deficiency. If breastfeeding is not an option, use a store-bought iron-fortified infant formula for the first 12 months. The formula should be cow's milk-based.

Once babies start eating solid foods, the amount of iron they need depends on their age. The Recommended Dietary Allowance (RDA) is the amount a person needs every day to stay healthy.

Age	Amount of iron per day (RDA)
7 to 12 months	11 mg
1 to 3 years	7 mg
4 to 8 years	10 mg
9 to 13 years	8 mg
14 to 18 years	11 mg (for boys) 15 mg (for girls)

Source: Health Canada, Dietary Reference Intakes

What foods are good sources of iron?

There are two different types of iron:

- Heme iron is more easily absorbed by the body. It is found in meats.
- Non-heme iron comes from plant sources like legumes, vegetables and cereals.

Foods that are rich in iron include:

- Meats: Beef, lamb, pork, veal, liver, chicken, turkey, seal (especially liver).
- Fish
- Eggs
- Grains and cereals: Iron-fortified cereals, whole grain breads, enriched bread, pasta and rice.

Other sources of iron include:

- Legumes: Chickpeas, lentils, dried peas and beans.

- Vegetables: Spinach, broccoli, Brussels sprouts, green peas, beans.

To help the body absorb iron, combine these foods with good sources of vitamin C, such as oranges, tomatoes and red peppers. For example, serve an iron-fortified breakfast cereal with orange slices. Or top spaghetti with a meat and tomato sauce.

Is cow's milk a good source of iron?

No, cow's milk is not a good source of iron. Even though cow's milk has about as much iron as human milk, the body doesn't absorb it well.

- Be sure your baby is getting other sources of iron and vitamin C before you start to offer cow's milk. Wait until your baby is 9-12 months old before introducing whole cow's milk.
- Drinking too much cow's milk can lead to iron deficiency (limit to 500 mL after 12 months of age).

Should I give my child an iron supplement?

- Full-term babies who are breastfed or who get iron-fortified infant formula from birth do not need an iron supplement.
- Low birth weight babies need iron supplementation. Which supplement, how much and for how long depends on their birth weight and their diet. Talk to your doctor about the right amount for your baby.
- Children over a year old don't need an iron supplement unless they aren't eating enough iron-rich foods. Talk to your child's doctor if you think this is the case.

My child's doctor suggested iron supplements. What is the best way to give them?

- Try to give the pills on an empty stomach (about 1 hour before or 2 hours after meals). Some children may need to take the iron with food to avoid a stomach ache.
- Vitamin C helps the body absorb iron. Try giving iron pills with a glass of orange juice or another food high in vitamin C.

- Do not give your child antacids or let your child drink milk or caffeinated drinks, such as pop, at the same time or within 2 hours of taking the iron pills. They can stop the body from properly absorbing the iron.
- Iron pills may cause heartburn, nausea, diarrhea, constipation, and cramps. Be sure your child drinks plenty of fluids and eats fruits, vegetables, and fibre every day.
- A child needs to take the pills for several months (as much as 3 to 6 months) to build up the iron supply in his or her body.

Do iron supplements have side effects?

There is little evidence that iron fortified formulas, cereals or iron rich foods cause adverse gastrointestinal events such as constipation in infants or toddlers.

Common side effects of iron supplements may include:

- Stomach ache
- Nausea
- Diarrhea
- Constipation
- Black stools

Most children begin to feel normal after a few weeks of taking iron pills.

Is there anything else I should know?

- Iron pills can make your child's stool greenish or grayish black. This is normal.
- Liquid forms of iron can stain teeth. Wipe your child's teeth with a washcloth after to prevent permanent staining.
- Keep iron pills out of the reach of small children. Too much iron can be very dangerous.

Reviewed by the following CPS committees

- Nutrition and Gastroenterology Committee

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