



Iron deficiency in children (8 years or younger)

What is iron?

Iron is a mineral found in food that your body needs. It is bound to hemoglobin, which is an important part of red blood cells. Iron helps carry oxygen to all parts of your body.

Iron is important as it gives your child the energy to run, play, concentrate and learn.

How much iron does my child need?

The amount of iron your child needs depends on his or her age:

Age	Amount needed each day
0 to 6 months	0.27mg
7 to 12 months	11 mg
1 to 3 years old	7 mg
4 to 8 years old	10 mg

Your baby will get enough iron from breast milk until he or she is 6 months old. After 6 months, your baby's own iron stores will be used up. At this time, the iron from breast milk is not enough. You will need to give another source of iron such as iron fortified formula, pablum or both.

What happens if my child does not get enough iron in the diet?

Low levels of iron in the blood can lead to iron deficiency anemia.

Children with iron deficiency anemia:

- Are often faced with social and mental delays. This can continue even after the child's iron level returns to normal.
- Are more likely to get sick because of decreased immune function.
- May also have poor weight gain and decreased activity levels.

How will I know if my child is iron deficient?

If your child's iron level is low, their blood carries less oxygen to the cells. This may make him or her have these signs:

- tired
- pale
- poor intake of food
- poor concentration
- irritable
- poor growth and development

Why is my child iron deficient?

Iron deficiency is one of the most common nutritional problems in infants and children. It can happen for a number of reasons including:

- Not getting enough foods rich in iron after 6 months of age. Breast milk usually has enough iron to prevent iron deficiency anemia for the first 4 to 6 months. After 6 months, your child will need other sources of iron in their diet to prevent deficiency.
 - Children who are picky eaters or are "too busy" to eat usually do not eat enough and miss out on iron rich foods.
 - Drinking more than 2 cups (16 oz or 500 ml) of milk a day. This can cause your child to become too full for other iron rich foods. Milk is a poor source of iron and prevents absorption of iron.
 - Recent surgery or a large blood loss can lead to iron deficiency in children.
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Treatment of iron deficiency

If your child has low iron, the doctor will prescribe an iron supplement. However, your child may have side effects such as constipation, upset stomach, nausea, vomiting and dark coloured stool.

To help prevent or relieve constipation ensure that your child is drinking enough fluids and add foods with fibre to their diet. Examples include prune juice, whole grain breads, fruit and vegetables. Try adding a teaspoon of bran to hot cereals.

Make sure iron supplements are kept out of your child's reach, as they can be toxic in high doses.

In addition to taking an iron supplement, your child will need to increase his or her intake of iron rich foods.

What foods have iron?

There are two types of iron found in food.

1. **Heme iron** is found in animal products such as red meat, fish and poultry.
2. **Non-heme iron** is found in plant products, such as grains, beans, legumes, nuts, vegetables and fruit.

Iron from animal products is better absorbed than iron from plant products.

If your child does not eat any animal products, he or she will need to eat twice as much non-heme iron. See the insert, Sources of Iron, for the foods with iron.

Here are some tips to help absorb the iron from food:

- Combine heme iron rich foods with non-heme iron rich foods when possible.
- Include a source of vitamin C with your meals. Vitamin C helps iron absorption. Some sources of vitamin C include:
 - broccoli
 - green and red peppers
 - cabbage
 - oranges
 - orange juice
 - grapefruit
 - strawberries
 - cantaloupe
 - brussel sprouts
 - potatoes
 - peas
 - tomatoes
 - tomato juice



Include at least one iron rich food and a Vitamin C food at most meals and snacks to help increase iron absorption.

Key points to remember

- Heme iron is better absorbed than non-heme iron.
- Include at least one iron rich food and one food high in Vitamin C at each meal.
- Take an iron supplement with orange juice to help increase iron absorption. Do not take with milk.
- Limit intake of cow's milk to 2 cups per day.
- Too much juice can decrease your child's appetite.

Here are some ways to add iron to your child's meals

- Add kidney, lima or navy beans to tomato and meat based soups, stews and casseroles.
- Add beef to pasta with tomato sauce or add meat to nachos or salads.
- Add blackstrap molasses and wheat germ to baked goods
- Add dried fruits such as apricots, prunes, raisins and dates to cream of wheat or enriched oatmeal.
- Add strawberries to breakfast cereals or have a glass of orange juice.
- Add pablum to hot cereal or baked products.
- Sprinkle wheat germ into hot cereals, sauces and stews.
- Use a cast iron pan for cooking when possible, your food will absorb some of the iron from the pot.

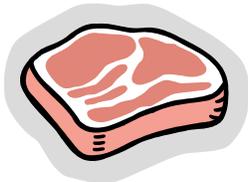
Dietitian's suggestions:

Dietitian _____ 905-521-2100, ext. _____ Date _____

Sources of Iron

Note: Raisins and nuts are a choking hazard for children under 4 years old. Only give raisins and nuts to your child when you or someone is around to watch over or supervise them.

Excellent Sources (3.5 mg or more)	Good Sources (2.1 mg or more)	Sources (0.7 mg or more)
Heme Iron – animal source		
<ul style="list-style-type: none"> • Beef liver (3 oz) • Clams, 4 large or 9 small 	<ul style="list-style-type: none"> • Beef, lean (3 oz) • Oysters, 3 	<ul style="list-style-type: none"> • Corned beef (2 oz) • Canned sardines (2) • Egg yolk (1) • Chicken and turkey (3 oz) • Ham, lamb and pork (3 oz) • Tuna and salmon (3 oz) • Perch, halibut, bass (3 oz) • Clam chowder, canned (1/2 cup)
Non-Heme Iron – plant source		
<ul style="list-style-type: none"> • Tofu, regular or firm (1/4 cup) • Soybeans, white beans, lentils, cooked (1/2 cup) • Blackstrap molasses (1 tbsp) • Enriched whole grain cold cereals such as Corn Bran™, Raisin Bran™, Shreddies™ (1 cup) • Enriched hot cereals such as Cream of Wheat™ (instant), Quaker Oatmeal™ (instant) (1 pouch) • Iron fortified baby cereal, dry (4 tbsp) 	<ul style="list-style-type: none"> • Spinach, cooked (1/2 cup) • Potato with skin (1 medium) • Egg noodles, cooked (1 cup) • Pasta, enriched, cooked (1 cup) • Kidney, chick peas and navy beans, cooked (3/4 cup) • Lima beans, cooked (1/2 cup) • Split peas, cooked (1 cup) • Sesame seeds (2 tbsp) • Enriched cold cereals such as Cheerios™, Rice Krispies™, Special K™ (1 cup) • Enriched hot cereals such as Cream of Wheat™ (1 cup) • Breakfast bars such as Vector Bar™ (1) 	<ul style="list-style-type: none"> • Broccoli (1 cup) • Green peas (1/2 cup) • Tomato sauce (1/2 cup) • Almonds, cashews, hazelnuts, peanuts (3 tbsp) • Prune juice (1/2 cup) • Brown rice, cooked (1 cup) • Bread, whole grain (1 slice) • Dried figs (3) • Dried apricots (5) • Dried dates (10) • Raisins (1/4 cup) • Wheat germ (1/4 cup) • Hot cereals such as oatmeal (regular), Red River™ (1 cup) • Molasses, regular (1 tbsp)



Meat



Chicken



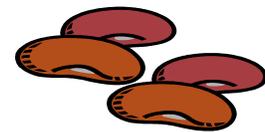
Fish



Pasta . Noodles



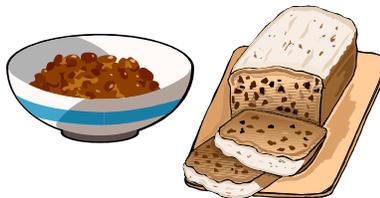
Eggs



Beans



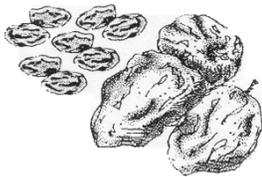
Cream of Wheat



**Whole Grain Bread
and Cereal**



Nuts . Peanut Butter



Raisins . Prunes



**Dark Green Leafy
Vegetables**



Liver