



Is Your Baby
Getting Enough Iron?

Why Do Babies Need Iron?

Babies need lots of iron because they are growing so rapidly. In the first 12 months, birth weight triples.

Iron

- helps babies grow by carrying oxygen to every part of the body
- ensures normal physical development
- is essential for brain development and learning ability
- helps to fight infection

‘At 7 months, she needs more iron than her dad’

For the first six months babies get all the iron they need from their own iron stores combined with breast milk or iron-fortified infant formula. Breast-fed babies rarely lack iron. Although breast milk is quite low in iron, it is very well absorbed.

By around six months of age a baby’s iron stores are beginning to run out and iron needs increase. Iron needs are particularly high between six and nine months. At this time, solid foods are gradually introduced. It is important these early foods are good sources of easily absorbed iron.



Iron-Rich Foods For Baby

Iron is found in a number of foods, including red meat. In general, the redder the meat, the higher the iron content. But not all iron is the same. Iron is found in two forms: haem and non-haem. The body absorbs haem iron more easily, with about a quarter being used, whereas only about 5% of non-haem iron is absorbed. Red meat can help to increase the absorption, boosting the use of non-haem iron by up to four times. Vitamin C has a similar effect. Eating a combination of foods high in both haem and non-haem iron will ensure an iron-rich diet.



Haem Iron Foods Easily Absorbed

Excellent sources:

- Liver*, kidney
- Lean beef and lamb

Good Sources:

- Lean chicken, pork
- Fish, including canned fish

Foods rich in haem iron are particularly important for babies from six months of age. From this age, their high iron needs cannot be met by breast milk, baby formula or iron-fortified cereals alone.

*While liver is an excellent source of iron, it is also rich in vitamin A. Vitamin A is important for health, but too much can be harmful to babies. Limit liver to about 3 teaspoons (15 grams) a week.

Non-Haem Iron Foods Poorly Absorbed

- Infant cereal with added iron, porridge
- Peas, spinach, silverbeet, broccoli, cauliflower
- Dried apricots, prunes, other dried fruit
- Baked beans, cooked dried beans, lentils, split peas
- Puha, taro leaves
- Wholemeal bread (avoid coarse, grainy types)



Iron Absorption Boosters

Meat

Adding meat to a meal helps the body absorb up to four times more iron from non-haem foods such as green vegetables, bread and cereals.

Vitamin C

Fruit and vegetables rich in vitamin C also improve non-haem iron absorption:

- Apple, apricot, peach, pear and mango contain small amounts of vitamin C and make good first foods
- Berries – strawberries, raspberries, blackcurrants
- Pawpaw, rockmelon
- Red and yellow capsicum
- Cauliflower, broccoli

From 8 months

- Citrus fruit – oranges, mandarins, tangelos
- Tomato
- Kiwifruit

It's easy to meet your baby's iron needs each day with a combination of:

- Breast milk or iron-fortified formula
- Cooked lean beef or lamb and vegetables
- Iron-fortified infant cereal with fruit to increase iron absorption



Could My Child Be Iron Deficient?

- Recurrent infections
- Grumpy and irritable
- Tired and lethargic
- Difficulty sleeping
- Pale
- Feels the cold
- Reduced appetite
- Reduced weight gain
- Digestive problems

If you can tick two or more boxes, or are concerned about your baby's iron level, talk to your doctor or Plunket nurse.



How to Introduce Solids

To begin with, make baby's puréed foods very soft, smooth and moist. Sieve, mouli, purée or finely mash to a smooth, sloppy consistency. Do not add salt or sugar. Start by giving just one 'solid' feed of one to two teaspoons a day; lunchtime is a good time. At first, offer the solids after the milk feed, using a small, shallow teaspoon. Introduce one food at a time. Wait three or four days before introducing another new food. Gradually increase the amount offered, and make textures coarser and lumpier to encourage chewing, eg minced or mashed. From eight or nine months offer solids before the milk feed.

Meat Handling Tips

- Always wash your hands thoroughly before preparing food for your baby, and after handling raw meat.
- Chopping boards and all utensils used in preparing raw meats should be washed thoroughly after use, and before using to prepare other foods.
- Keep raw and cooked meats separate in the fridge, with the raw meat below other foods, so it cannot drip onto them.
- Cool left-over cooked meat as quickly as possible, then promptly refrigerate, tightly covered.

Tender and Tasty Meat For Your Baby

Puréed stage - around 6 months

- Purée cooked meat such as mince, casserole, lightly cooked steak, liver or kidney in a baby mouli, food processor or blender, or push through a sieve. Mix with a little vegetable stock or milk (breast or formula) if necessary to achieve a smooth consistency.
- When using roast beef or lamb, choose the inside, moist slices. Avoid crusty edges as this makes purée chunky.
- Alternatively, mix puréed meat with cooked mashed or sieved vegetables – potato, pumpkin, carrot, kumara or mashed avocado – for extra moisture.

Minced stage - 7-8 months

- Chop cooked meat very finely across the grain, or chop coarsely in a processor or blender. Mix with mashed vegetables.
- Use moist meat from casseroles, stews or soups for easy chopping. Suitable cuts include beef chuck, blade or shin, and lamb shoulder or leg.

Finger foods - from 8 months


- Slice cooked meat into strips and serve with pasta pieces or bread fingers, and soft fruit and vegetable slices.
- Grilled lamb cutlets are good for teething gums, avoiding bones with sharp edges.



Baby Feeding Guide

Age*	Iron Status	Food Texture	Milk Feeds
Birth To Around 6 Months	Good iron stores at birth	Liquid	Baby needs only: Breast milk or infant formula
Around 6 Months	Baby's iron stores are diminishing	Puréed, soft and smooth	Breast milk or infant formula
7-8 Months	Baby has very high iron needs	Puréed, minced, finely chopped or mashed (lumpy) Introduce finger foods	Breast milk or infant formula
8-12 Months		Chopped finger foods (wedges, slices or strips)	Breast milk or infant formula



Food Needs	Special Notes
	Don't introduce cows' milk or solids
<p>When ready, slowly start the introduction of: Iron-fortified infant cereal (baby rice)</p> <p>Puréed fruit without skin, pips or seeds, cooked to soften, eg apple, pear, ripe banana, apricot, melon, plums, berry fruits</p> <p>Puréed, cooked, peeled vegetables, eg potato, kumara, carrot, pumpkin, broccoli, cauliflower, parsnips, taro, puha, capsicum, raw avocado</p> <p>Cooked meats, eg lamb, beef, pork, liver, kidney, chicken, fish</p> <p>Cooked legumes, eg baked beans, lentils</p>	<p>Offer solids after milk feeds</p> <p>Start with ½ -2 teaspoons of new foods, one at a time</p>
<p>Infant milk products, eg infant yoghurt, milk puddings</p> <p>Increase the variety of foods slowly with: Cooked and mashed egg Soy foods, eg tofu, temph Yoghurt, milk puddings, cheese Pasta, noodles</p>	<p>2 tablespoons to ½ cup, 2-3 times/day increasing to 3-4 meals/day plus 1-2 snacks as required</p> 
<p>Rusks, crackers, bread and toast</p> <p>Introduce slowly: Shellfish and other seafood Smooth peanut butter Salad vegetables, eg tomatoes, cucumber Soft raw fruits, eg orange, kiwifruit, pineapple Breakfast cereals, eg breakfast biscuits, porridge, infant muesli</p>	<p>Offer solids before the milk feed</p> <p>Leave until after 12 months: Whole cows' milk as a main drink Wholegrain muesli, rye cereals, honey</p>

* Age of introduction provided as a guide only

Reference: Ministry of Health (2008). Food and Nutrition Guidelines for Healthy Infants & Toddlers (Aged 0-2).

Toddlers Need Iron Too

Toddlers can be fussy eaters. Some days they happily eat anything, other days they pick like sparrows. This is perfectly normal. Although they are not growing as fast as babies, toddlers are very active and still need plenty of iron for a healthy body and brain.

Toddlers often eat small meals, so ensure the food they eat contains iron that is easily absorbed – see page 3 for sources of haem iron. Combine non-haem iron foods such as breakfast cereal, vegetables and baked beans, with absorption boosters such as oranges or red meat. No single food will provide all your toddler's iron needs – variety is the key.

Drinks

After 12 months toddlers can continue on breast or formula milk, or switch to whole cows' milk for drinking. Cows' milk is low in iron, but an excellent source of calcium, so very important in a toddler's diet. Too much milk, however, can take the edge off an already small appetite and not leave room for other important foods.

Offer milk or water to drink between or after meals, instead of sweet drinks, such as fruit juice or fizzy drinks. Do not give tea to your child. Tannins in tea reduce iron absorption.

Is My Toddler At Risk Of Iron Deficiency?

- My child drinks large amounts of milk in place of food.
- My child drinks tea – which reduces iron absorption.
- My child is a fussy eater – won't eat meat.

If you can tick any of the boxes, or are concerned about your child's iron level, talk to your doctor or Plunket nurse.

A happy, contented child who is growing well is the best sign your child is getting all the nutrients needed.



For more information about iron and health and/or a copy of the recipe booklet, *Easy Iron-Rich Meals for Babies and Toddlers*, please contact: Beef + Lamb New Zealand Freephone 0800 733 466 or visit www.beeflambnz.co.nz

Health problems may result from an inadequate diet (including iron deficiency). They may also have a medical basis unrelated to diet. The information in this booklet is only general and is not to be taken as a substitute for medical advice in relation to specific symptoms or health concerns.