



Fuelled by Iron

**PRACTICAL TIPS AND EASY IRON-RICH MEAL IDEAS
FOR BABIES AND TODDLERS**



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Why does my baby / toddler need iron?

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

Iron helps your toddler by carrying oxygen to their brain and muscles, supporting growth and brain development and releasing energy from the food they eat.

IRON IS ESSENTIAL FOR BABIES:

- » To help them grow at a normal rate
- » To carry oxygen from their lungs to the rest of their body
- » For brain development and to help them learn
- » To help them develop physically
- » To help fight infection

TIP Breast milk contains very little iron but your baby has enough stored from birth to last 4-6 months. At around 6 months, babies iron stores are running out and milk feeds alone will not give them enough iron. Now is the best time to introduce iron-rich solid food to your baby's diet.

WHICH ARE THE BEST SOURCES OF IRON?

Iron is found in a number of foods, including red meat. In general, the redder the meat, the higher the iron content.

Not all iron is the same.

Haem iron (found in red meat, fish and poultry) is easily absorbed, with about a quarter being used by the body. Non-haem iron (found in green vegetables, beans and cereals) is poorly absorbed.

Red meat can help increase the absorption 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 helps provide babies with an iron-rich diet.

TIP First foods for babies should be good sources of iron and vitamin C.

HAEM IRON FOODS (EASILY ABSORBED)

Excellent Sources:

- » Liver*, kidney
- » Lean beef, lamb

Good Sources:

- » Lean chicken, pork
- » Fish, including canned fish

TIP When first introducing liver to your baby, keep an uncooked piece in the freezer and simply grate a small amount into simmering, almost cooked vegetables in the final five minutes of cooking. Purée the liver and vegetables together before serving to your baby.

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

NON-HAEM IRON FOODS (POORLY ABSORBED)

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

*** From 8 months*

WHY ARE IRON-RICH FOODS SO IMPORTANT?

For the first six months, babies get all the iron they need from their own iron stores combined with their milk feeds.

At around six months, it becomes increasingly difficult to meet nutrient requirements from breast milk alone. Stores of iron and zinc are likely to be running out by six months so both must be supplied by complementary food. Complementary food should also provide good sources of protein.

It is important to offer foods containing easily absorbed iron, such as lean beef and lamb, to ensure iron needs are met.



HOW MUCH IRON DOES MY BABY / TODDLER NEED?

Babies

Your baby's iron needs can be met with a combination of:

- » Milk feeds
- » Cooked lean beef or lamb and vegetables
- » Non-haem iron foods with fruit to increase iron absorption

Toddlers

Your toddler's iron needs can be met by making sure they eat a variety of healthy meals and snacks each day. Offer your toddler foods from each of the four main food groups:

- » Vegetables and fruit
- » Breads and cereals, including some wholemeal
- » Milk and milk products or suitable alternatives
- » Lean meat, poultry, seafood, eggs, legumes

COULD MY BABY / TODDLER BE IRON DEFICIENT?

If you can tick any of the boxes below, or are concerned about your baby's or toddler's iron level, talk to your doctor or Plunket nurse:

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



How much food does my baby need?

Babies are good at knowing when they are hungry and when they are full. When first introducing solids, try $\frac{1}{2}$ - 2 teaspoons at a time and slowly increase the amount you give your baby. Every baby is unique; some days they will eat more than other days. Offer small amounts of nutritious foods each day and trust your baby to decide how much to eat. A happy, contented baby, growing well, is the best sign your baby is getting all the nutrients they need.

SIGNS YOUR BABY IS READY TO START SOLIDS:

- » Can hold head up and sit with support, either in your lap or in a highchair
- » No extrusion reflex i.e. tongue doesn't stick out, and mouth opens when spoon of food is offered
- » Shows interest in food i.e. watches others eat, hand goes in mouth, nuzzling, leaning forward
- » Can keep food in their mouth and swallow

The most common allergies in children are to cow's milk and egg, followed by soy, nuts and wheat. When first introducing these foods, try one new food at a time to observe any reactions your baby may have. After 2-3 days you can try offering another type of food.

BABY-LED WEANING

Baby-led weaning is a style of introducing solids that lets babies feed themselves whole pieces of softened food. Babies are not given purées.

Baby-led weaning is not currently recommended by the Ministry of Health. In some cases, babies who follow this style have lower intakes of iron, zinc and vitamin B₁₂ than spoon-fed babies. Yet, some research has shown babies that do feed themselves are less likely to be picky eaters.

It's very important to soften hard foods before giving to your baby. Lightly steam hard fruits and vegetables and cut into wedges before offering to your baby.

Spoon-fed babies can progress to finger food at around 7-8 months while still being offered spoons of lumpier, mashed foods.

TIP Once your baby is comfortable eating red meat, you can begin preparing meals for them from the family meal. Meals need to be bland for your baby but flavours can be added at the end of cooking for the rest of the family, as indicated in some of the following recipes.



Should I be concerned if my toddler is a fussy eater?

It's normal for children to become fussy with their food even if they've previously been very good eaters. Fussy eating usually starts at around 18 months and may last for up to a year. Your toddler might eat everything on their plate one day but refuse even their favourite foods the next. While fussy eating is normal, it can lead to lower intakes of important nutrients your child needs to grow.

Follow these tips to keep fussy eaters healthy:

- » Keep mealtime routines calm and stress-free
- » Offer your child a wide variety of healthy fruits and vegetables at each meal
- » Don't give up. It may take up to 15 tries before your child eats a new food
- » Be a good role model. Your child is more likely to eat healthy foods if you eat them too
- » Try giving your child food cooked in different ways. For example, they might not like boiled potatoes but will eat mashed potato
- » Offer a wide variety of protein foods like red meat, chicken, fish, eggs and legumes alongside your child's favourite vegetables

TIP Meat and fish are good sources of protein but toddlers might have trouble with the texture or smell. Try offering your child minced meat like in meatballs or spaghetti bolognese, or mix cooked fish with their favourite mashed vegetables.

If your child isn't growing properly or you are concerned about their eating, contact your medical practitioner or doctor for further advice.

IMPORTANT TIPS:

Tea

Stops iron being used by the body, don't give tea to your baby or toddler.

Cow's milk

Cow's milk is a healthy drink and most toddlers can have up to 500mls (2 cups) a day.

- » Drinking too much milk is filling for a toddler's small stomach and may reduce the amount of iron-rich foods they eat
- » Calcium prevents iron being absorbed from the foods your child eats so avoid giving milk just before, during or after iron-rich meals

Vitamin C

Eating meals and snacks with foods high in vitamin C helps the body use up to four times more iron.

Foods high in vitamin C:

- » Oranges
- » Kiwifruit
- » Strawberries
- » Feijoas
- » Bananas
- » Mandarins
- » Rock melon
- » Tamarillos
- » Broccoli
- » Capsicum
- » Cauliflower
- » Tomatoes

MEAT HANDLING TIPS

- » Always wash your hands thoroughly before preparing food and after handling raw meat
- » All utensils and chopping boards used for preparing raw meats should be washed thoroughly after use, and before being used to prepare other foods
- » Store raw and cooked meats separately in the fridge, with raw meat on the bottom shelf
- » Put leftover meat into the fridge in a tightly covered container as quickly as possible. Discard all food kept at room temperature for over 2 hours



Your Baby's Food Journey

SMOOTH STAGE



MASHED STAGE



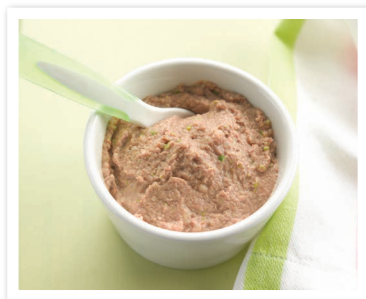
CHOPPED STAGE



TODDLER/FAMILY FOOD

Babies around 6 months

(no earlier than 4 months
and no later than 7 months)



To begin with, make your baby's puréed foods very soft, smooth and moist. Purée cooked meat such as mince, casserole, steak, liver or kidney using a blender, food processor or fine sieve. Mix with breast milk, water or formula to make the food smooth and runny. You can also purée cooked meats with vegetables (such as potato, pumpkin, carrot or kumara).

Start by offering $\frac{1}{2}$ - 2 teaspoons a day after their milk feed, using a small, shallow plastic teaspoon. Slowly increase the amount you offer each day. Babies may prefer some tastes more than others. If baby spits out a new food, try offering the food until it becomes familiar. This may take up to 15 tries.

Babies 7-8 months



Introducing texture into your baby's food encourages your baby to learn to chew, developing muscles for speech. Purée or chop cooked meat and vegetables coarsely in a food processor.

Babies from 8 months



Babies can be encouraged to feed themselves from around 8 months. Begin offering soft solid food before milk feeds. Slice cooked meat into strips and serve with cooked carrot sticks, avocado slices or bread/toast fingers. Offer other soft fruit and vegetable slices. Homemade meatballs are a popular choice. Never leave your baby alone when eating.

Around 12 months



Toddlers should be encouraged to eat family meals but they can be fussy. Some days they happily eat anything, other days they pick like sparrows. This is perfectly normal.

Although not growing as fast as babies, toddlers are very active and still need plenty of iron. They often eat small meals, so ensure their food is nutritious and contains easily absorbed iron (see page 3). No single food provides all your toddler's iron needs – variety is the key.



Iron-rich recipes for you and your baby

BEEF MINCE AND KUMARA

Ingredients

300 - 450g Quality Mark beef mince
1 cup peeled, grated kumara
2 cups peeled, grated apple
1 cup water

Method

Put mince, apple and kumara into a saucepan. Add water and bring slowly to the boil.

Simmer gently for about 45 minutes, stirring often, until reduced and thick but still moist.

Purée to a smooth consistency.

TIP You may find it useful to cook a larger batch of puréed meals, such as this one, then freeze in small portions to use later. Purées can be frozen in an ice cube tray. When solid, transfer to a plastic bag, seal and return to the freezer.





SHEPHERD'S PIE

Ingredients

- 500g Quality Mark beef or lamb mince
- 1 Tbsp oil
- 420g jar pasta sauce*
- 1 stalk celery, finely chopped
- 6 button mushrooms, sliced
- 1 carrot, peeled and finely chopped
- 1 courgette and/or other seasonal green vegetables, finely chopped
- 4 medium potatoes, peeled and quartered

Method

Pre-heat oven to 180°C.

Heat the oil in a large frying pan and brown the mince, breaking the mince up into small pieces with the back of a spoon. This is best done in two batches.

Stir in pasta sauce* and all vegetables except the potatoes.

Cover and simmer gently for 15 minutes.

Boil the potatoes in unsalted water until tender. Drain and mash.

Spoon mixture into a pie dish and top with mashed potato.

Bake at 180°C for 15 minutes or until top is golden.

Serve with steamed green vegetables.

**Leave this ingredient out for babies under 12 months - use canned tomatoes instead.*



SMOOTH STAGE

Babies around 6 months

At this age, leave out the pasta sauce. Purée the meat and vegetable mixture. Mix with a little of baby's milk if necessary to achieve a smooth consistency.



CHOPPED STAGE

Babies from 8 months

Serve the layers separately so your baby can experience different tastes and textures. Serve with some steamed green vegetables chopped into bite-sized pieces.



MASHED STAGE

Babies 7-8 months

Purée the meat and vegetable mixture to a lumpy, mashed consistency so your baby can experience the different textures.



TODDLER/FAMILY FOOD

From 12 months

For additional flavours, add garlic or Worcestershire sauce once mince is cooked through. Serve in a small bowl with steamed green vegetables and encourage your toddler to eat with a fork.



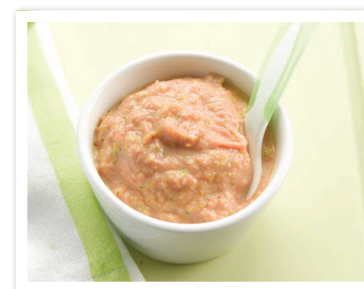
MUSTARD ROAST BEEF

Ingredients

600 - 800g piece of Quality Mark beef such as whole sirloin, topside, bolar or chuck
2 Tbsp mild mustard
2 Tbsp oil
4 medium potatoes and/or kumara, peeled and quartered
4 carrots, peeled and cut into chunks
2 leeks or other seasonal vegetables, cut into chunks

Method

Preheat oven to 180°C.
Place the beef on a rack in a roasting dish. Roast for 45 minutes.
Remove from the oven and spread the mustard over the top of the beef.
Toss the vegetables in the oil and scatter around the beef. Return to the oven for a further 45 minutes or until the meat is tender and the vegetables cooked. Remove from the oven and allow the meat to stand for 10 minutes before carving.
Place the vegetables in the oven at 100°C to keep warm.
Serve the roast beef thinly sliced with the vegetables.



SMOOTH STAGE

Babies around 6 months

Take a selection of the meat, potato and vegetables and purée to a smooth paste. If a little dry, moisten with baby's milk or some meat juices from the pan.



CHOPPED STAGE

Babies from 8 months

Cut the meat and vegetables into small bite-sized pieces or give the vegetables as finger food.



MASHED STAGE

Babies 7-8 months

Take a selection of the meat, potato and vegetables and purée to a lumpy, mashed consistency.



TODDLER/FAMILY FOOD

From 12 months

Cut up the meat and vegetables and encourage your toddler to eat with a fork.



CASSEROLE LAMB

Ingredients

- 500g diced Quality Mark lamb
- 1 tsp oil
- 1 1/2 cups reduced-salt beef or vegetable stock or 1/2 tsp reduced-salt stock powder to 1 1/2 cups water
- 1 small potato, peeled and diced
- 1/2 cup cauliflower, diced
- 1/4 cup frozen peas

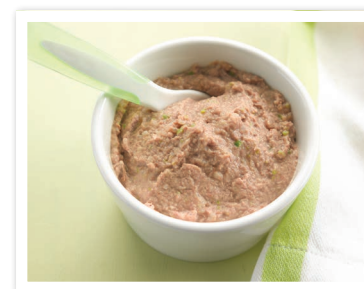
Method

Heat the oil in a large frying pan and brown the lamb mince. Add the stock, cover and simmer for 30 minutes. Simmer gently to ensure the meat remains tender.

Add the potato and cook a further 30 minutes before adding the cauliflower. Cook until the vegetables are tender.

Add the peas and heat through. Total cooking time is approximately 1 1/2 hours.

Serve with rice.



SMOOTH STAGE

Babies around 6 months

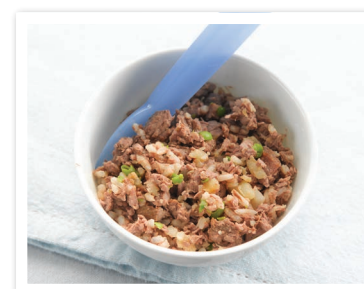
Purée the meat and vegetable mixture. Mix with a little of baby's milk if necessary to achieve a smooth consistency.



CHOPPED STAGE

Babies from 8 months

Cut the meat and vegetables into smaller pieces and serve them separately so your baby can begin to distinguish different tastes and textures.



MASHED STAGE

Babies 7-8 months

Purée the meat, vegetables and rice together to a lumpy, mashed consistency.



TODDLER/FAMILY FOOD

From 12 months

When browning the lamb, add a diced onion. Add 1 tsp of curry paste and 2 Tbsp sultanas with the stock. Cut up sultanas as necessary.



MEATY HOT POT

Ingredients

- 500g diced Quality Mark beef or lamb casserole meat such as beef chuck, blade steak or boneless lamb
- 420g can baked beans (low sodium)
- 1/2 small swede or kumara, peeled and cubed
- 2 carrots, peeled and chopped
- 1 onion, peeled and chopped*
- 2 Tbsp tomato purée*
- 1 1/4 cups water
- 2 large potatoes, peeled and thinly sliced

1 tsp oil

Method

Pre-heat the oven to 180°C.

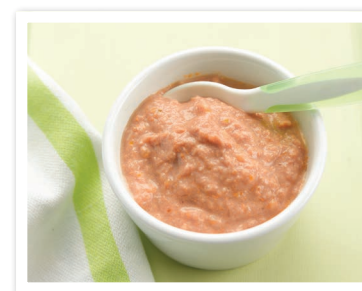
In a large casserole dish, mix together the meat, beans, swede or kumara, carrots, onion* and tomato purée*.

Stir the water into the casserole mix. Cover and cook at 180°C for 1 1/2 hour.

Remove the casserole from the oven and top with sliced potatoes, brushed with oil.

Return to the oven, uncovered for 1 hour. Serve with seasonal vegetables.

**Leave these ingredients out for babies around 6 -8 months - see Smooth and Mashed Stages on opposite page for more details.*



SMOOTH STAGE

Babies around 6 months

Leave out the tomato purée and reduce the amount of onion until your baby is familiar with the flavour. Purée the meat and vegetables. Mix with a little of baby's milk if necessary to achieve a smooth consistency.



CHOPPED STAGE

Babies from 8 months

Chop up the large pieces of meat and vegetables into bite-sized pieces and serve separately so your baby can experience different tastes and textures.



MASHED STAGE

Babies 7-8 months

Leave out the tomato purée. Purée the meat and vegetables to a lumpy, mashed consistency.



TODDLER/FAMILY FOOD

From 12 months

Cut up the meat and vegetables as necessary, encouraging your toddler to use a fork.



MOROCCAN DICED LAMB

Ingredients

500g Quality Mark diced lamb
1 Tbsp oil
1 onion, peeled and diced*
 $\frac{1}{2}$ tsp ground cumin*
 $\frac{1}{2}$ tsp paprika*
1 carrot, peeled and diced
12 dried apricots, diced
300g can chickpeas
1 cup reduced-salt beef stock or
 $\frac{1}{2}$ tsp reduced-salt beef stock
powder to 1 cup water

Method

Pre-heat oven to 160°C.

Heat oil in a frying pan and brown diced lamb well. Place in a casserole dish.

Add the onion*, cumin* and paprika* to the pan and cook in the residue oil until lightly brown. Scatter over the lamb.

Add carrots, apricots, chickpeas (including liquid from the can) and stock.

Place casserole dish in oven and cook at 160°C for approximately 1 $\frac{1}{2}$ hours until the lamb is tender.

Serve with seasonal vegetables and mashed potato or couscous, uncovered for 1 hour.

**Reduce the amount of these ingredients for babies around 6 months - see Smooth Stage on opposite page for more details.*



SMOOTH STAGE

Babies around 6 months

To begin with you may need to reduce the amount of spices and onion until your baby is familiar with the flavours. Purée the meat and vegetable mixture. Mix with a little of baby's milk if necessary to achieve a smooth consistency.



CHOPPED STAGE

Babies from 8 months

Chop up any large pieces of meat and serve with mashed potato and chopped vegetables.



MASHED STAGE

Babies 7-8 months

Purée the meat and vegetables into a lumpy, mashed consistency so your baby can experience the different textures.



TODDLER/FAMILY FOOD

From 12 months

Chop up any large pieces of meat as necessary. Serve with couscous or flat bread as an alternative to potato.



AGE*	IRON STATUS	FOOD TEXTURE	FOOD NEEDS	SPECIAL NOTES
BIRTH TO AROUND 6 MONTHS	Good iron stores at birth	Liquid	Milk feeds only	Don't introduce cow's milk or solids.
AROUND 6 MONTHS	Baby's iron stores are diminishing	Puréed, soft and smooth (see page 8)	<p>When ready, at around 6 months, start to introduce slowly:</p> <ul style="list-style-type: none"> » Puréed, cooked, peeled vegetables e.g. potato, kumara, carrot, pumpkin, broccoli, cauliflower, parsnips, taro, puha, capsicum, raw avocado » Puréed fruit without skin, pips or seeds, cooked to soften if necessary e.g. apple, pear, ripe banana, apricot, melon, plums » Puréed, cooked meats e.g. lamb, beef, pork, liver, kidney, chicken, fish » Puréed, cooked legumes e.g. baked beans, lentils » Iron-fortified infant cereal 	Offer solids after milk feeds. Start with ½ - 2 teaspoons of new foods, one at a time.
7-8 MONTHS	Baby has high iron needs	Puréed, minced, finely chopped or mashed (see page 8-9)	<p>Increase the variety of foods slowly with:</p> <ul style="list-style-type: none"> » Cooked and mashed egg » Soy foods e.g. tofu, tempeh » Yoghurt, cooked milk puddings, cheese » Well-cooked finely chopped pasta and noodles » Rusks, crackers, bread and toast 	Offer solids after milk feeds. 2 tablespoons to ½ cup, 2-3 times/day increasing to 3-4 meals/day plus 1-2 snacks as required.
8-12 MONTHS	Baby has high iron needs	Chopped finger foods, wedges, slices or strips (see page 9)	<p>Introduce slowly:</p> <ul style="list-style-type: none"> » Shellfish and other seafood » Smooth peanut butter » Salad vegetables e.g. tomatoes, cucumber » Soft raw fruits e.g. orange, kiwifruit, pineapple, berry fruits » Breakfast cereals e.g. breakfast biscuits, porridge, infant muesli 	<p>Offer solids before milk feeds.</p> <p>Leave until after 12 months:</p> <ul style="list-style-type: none"> » Whole cow's milk as a main drink » Wholegrain muesli, rye cereals, honey

*Age of introduction provided as a guide only. Reference: Ministry of Health (2008). Food and Nutrition Guidelines for Healthy Infants and Toddlers (Aged 0-2).

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BEEF + LAMB

NEW ZEALAND

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