The importance of iron in your child's diet

This leaflet is for the parents and carers of children who have been diagnosed with iron deficiency anaemia, and explains the importance of iron in the diet.

Introduction – why is iron important?

Iron is an essential nutrient that is used to make the red blood cells that carry oxygen around the body. Iron also plays an essential role in maintaining a healthy immune system. A lack of iron in the blood is called iron deficiency anaemia and this is normally confirmed by a blood test. The signs and symptoms of iron deficiency anaemia can include: feeling tired, looking more pale than usual and picking up lots of infections. Anaemia can also impact on a child's growth and development. There certain medical conditions which increase the risk of developing iron deficiency anaemia but the most common cause is not getting enough iron in the diet.

Some groups of children are at increased risk of iron deficiency

- Infants who were born prematurely or with low birth weight or whose mothers had iron deficiency in pregnancy.
- Children with feeding difficulties or restricted diets or those who consume large amounts of cow's milk instead of food.
- Vegetarians and vegans – the iron from plant based foods is not as easily absorbed.
- Adolescents with heavy menstrual bleeding can have reduced stores of iron.
- People who have gut disorders (such as coeliac disease or inflammatory bowel disease).

Iron requirements for children

If a mother's iron levels have been good during her pregnancy, then a healthy full-term, new-born baby should have enough iron stores in their body to last about six months.

Breast milk and standard infant formula milk will then provide enough iron for the first six months of a baby's life.

At age 6 months, foods that are rich in iron should be introduced into a baby's diet as part of weaning, in order to meet their iron needs.

Daily iron requirements (RNI's*) for children

Age	Iron requirement (mg)	Age	Iron requirement (mg)
0-3 months	1.7mg/day	4-6 years	6.1mg/day
4-6 months	4.3mg/day	7-10 years	8.7mg/day
7-9 months	7.8mg/day	11-18 years (males)	11.3mg/day
10-12 months	7.8mg/day	11-18 years (females)	14.8mg/day
1-3 years	6.9mg/day		

**RNI = Reference nutrient intake. A reference nutrient intake is the amount of a nutrient that is enough, or more than enough for most infants, children and adolescents*

What are the best food sources of iron?

There are two types of iron in food – haem and non-haem iron. They are absorbed differently by the body. Haem iron is far more easily absorbed.

- **Haem iron** is found in the flesh of beef, lamb, liver, fish, pork and poultry. Red meats, such as lean beef and lamb, contain three times as much iron as chicken or oily fish. Liver and liver products are also an excellent source of iron but should be limited to once per week in your child's diet and should be avoided in pregnancy due to the high vitamin A content in these foods.
- **Non-haem iron** is found in plant foods, such as fresh and dried fruits, dark green leafy vegetables, iron fortified breakfast cereals, beans, chickpeas and lentils, tofu, nuts and eggs. The non-haem iron in these foods is less well absorbed than food sources of haem iron. so children who are on vegetarian or vegan diets will need to consume more of them in order to meet their requirements.

Sources of dietary iron (toddlers)

Food	Toddler serving size	Haem iron content per serving
Liver (limit to once per week)	3 teaspoons (15g)	1.4 mg
Lean beef	5 teaspoons (25g)	0.7 mg
Lean lamb	5 teaspoons (25g)	0.5 mg
Lean pork	5 teaspoons (25g)	0.2 mg
Dark poultry meat (e.g. chicken legs and thighs)	5 teaspoons (25g)	0.2 mg
Chicken breast	5 teaspoons (25g)	0.1 mg
Fish	5 teaspoons (25g)	0.15 mg

Food	Toddler serving size	Non-haem iron content per serving
Fortified breakfast cereal	3 teaspoons (15g)	1.8 mg
Egg	1 small egg	1.0 mg
White bread	1 slice	0.4 mg
Cooked lentils	3 teaspoons (15g)	0.4 mg
Dried apricots	4 apricots (15g)	0.5 mg
Steamed / fried tofu	4 teaspoons (20g)	0.5 mg
Hummus	4 teaspoons (20g)	0.4 mg
Baked beans	4 teaspoons (20g)	0.3 mg
Banana	1 small banana	0.3 mg
Cooked broccoli	3 teaspoons (15g)	0.15 mg

Sources of dietary iron (school age children)

Food	School age child serving size	Haem iron content per serving
Liver (limit to once per week)	2–3 tablespoons (30-45g)	2.8–4.2 mg
Lean beef	3–5 tablespoons (50-75g)	1.4–2.1 mg
Lean lamb	3–5 tablespoons (50–75g)	1.0–1.5 mg
Lean pork	3–5 tablespoons (50–75g)	0.4–0.6 mg
Dark poultry meat, e.g. chicken legs and thighs	3–5 tablespoons (50–75g)	0.4–0.6 mg
Food	**School age child serving size**	**Haem iron content per serving**
Chicken breast	3–5 tablespoons (50–75g)	0.2–0.3 mg
Fish	3–5 tablespoons (50–75g)	0.3–0.45 mg
Food	**School age child serving size**	**Non-haem iron content per serving**
Fortified breakfast cereal	1–2 tablespoons (15-30g)	1.8–3.6 mg
Egg	1 medium egg	1.5 mg
White bread	1–2 slices	0.4–0.8 mg
Cooked lentils	2–3 tablespoons (30-45g)	0.8–1.2 mg
Dried apricots	8 apricots (30g)	1.0 mg
Steamed / fried tofu	2–3 tablespoons (30-45g)	0.75–1.1 mg
Hummus	2–3 tablespoons (30-45g)	0.45–0mg
Baked beans	2–3 tablespoons (30-45g)	0.45–70 mg
Banana	1 small banana	0.3 mg
Cooked broccoli	2–3 tablespoons (30-45g)	0.3–0.45 mg

Examples of iron rich meals for your child:

Breakfast	• Fortified breakfast cereal with fruit • Eggs with toast and sliced tomato, followed with fruit, e.g. banana, orange segments, grapes
Light meals/snacks	• Ham or other cold meat sandwich • Fish sandwich / bagel • Hummus with pitta bread and carrot sticks • Peanut butter sandwich with tomatoes • Baked beans on toast and slices of red peppers • Toast with chicken liver pate
Main meals	• Meal with red meat or dark poultry meat, e.g. beef spaghetti Bolognese with vegetables • Meal with fish, e.g. salmon / tuna with potatoes and vegetables • Meal with tofu, e.g. tofu and vegetable stir-fry with rice • Meal with beans / lentils, e.g. beans with sweet potatoes and salad • Omelette with added vegetables
Puddings	• Dried fruit and fresh fruit

Top tips for increasing iron intake:

Iron boosters ✓

- ✓ Combining sources haem iron with non-meat sources of non-haem iron can boost absorption overall. For example: serving meats with green leafy vegetables or beans / pulses at a meal.
- ✓ A source of vitamin C (also known as ascorbic acid) can help the body to absorb iron, especially if taken alongside non-meat (or non-haem) sources of iron, e.g. having a small glass of orange juice or apple juice with a meal.
- ✓ Fruit and vegetables are good sources of vitamin C, for example: oranges, kiwi, watermelon, strawberries, blueberries, raspberries, tomatoes, broccoli, Brussel sprouts, red peppers, green peppers, cabbage and cooked spinach.

Iron blockers ⊘

- × Do not offer your child tea to drink because it contains polyphenols, which reduces iron absorption in the body.
- × Do not offer cow's milk as a drink to babies under one year of age, as cow's milk is a poor source of iron.
- × Toddlers who drink too much cow's milk and do not eat a healthy balanced diet may not get enough iron, as cow's milk is a poor source of iron.
- × After your child's first birthday, about three drinks of 120ml (4oz) of cow's milk per day should be enough for their calcium needs. Other sources of dairy can be offered, for example, cheese and yoghurts.
- × Foods that are high in phytates, such as wheat bran cereal, nuts, seeds, soya and raw spinach can also inhibit iron absorption; therefore, combine these foods with foods rich in vitamin C. For example have orange juice with bran flakes.

Iron supplements

Most children should be able to get all the iron they need by eating a varied and balanced diet and should not need to take iron supplements.

There are children's iron supplements and multi-vitamins available to buy and you can discuss with your child's doctor or dietitian if this would be beneficial for them.

If your child's iron level is very low then your doctor may prescribe an iron supplement for them. These can be in liquid or tablet form to suit your child.

Please note: It is best to give your child their iron supplement with food at mealtimes. If your child is also taking a calcium supplement, avoid taking them both at the same time as calcium will affect the absorption of iron.

Iron supplements can cause constipation in some children. Speak to your doctor if your child has any unusual side effects. Iron supplements must always be stored out of the reach of children and you should not exceed the prescribed or recommended dose as iron can be toxic to children if taken in excess.

Contact details

If you have any queries, please contact the branch of the Dietetic Department where your child is seen:

- East Berkshire Community Dietitians 01753 636724
- West Berkshire Community Dietitians 01635 273710
- Royal Berkshire Hospital Dietitians 0118 322 7116
- CYPIT East Berkshire Dietitians 01753 635073
- CYPIT West Berkshire Dietitians 0118 918 0571

Leaflet adapted from:

Scientific Advisory Committee on Nutrition (2010) Iron and Health;

UCH Department of Nutrition and Dietetics Paediatrics (2014) How to get enough iron in your child's diet: Information for parents and guardians

British Dietetic Association Iron: Food Fact Sheet (2021)

NHS Website: https://www.nhs.uk/conditions/iron-deficiency-anaemia/

To find out more about our Trust visit www.royalberkshire.nhs.uk

Please ask if you need this information in another language or format.

Berkshire Healthcare Foundation Dietitians, April 2023

Next review due: April 2025