

# COMMON NUTRITIONAL PROBLEMS IN TODDLERS

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## LEARNING POINTS

- 1 Although most toddlers in the UK are well nourished, a minority have nutritional problems that can have immediate and long-term harmful effects on their health, growth and development.
- 2 Iron deficiency is common in toddlers who eat a poor diet and may cause anaemia and delay their development.
- 3 Vitamin D deficiency is seen mainly in dark-skinned children in the UK. Toddlers who do not have sufficient exposure to sunlight and/or do not take a vitamin D supplement are at risk of vitamin D deficiency which can lead to rickets.
- 4 Dietary fibre and omega 3 fatty acids may be inadequate in the diets of some toddlers because they eat insufficient amounts of whole grain cereals, fruit and vegetables, and foods containing fish-oils.
- 5 Growth faltering is usually due to inadequate dietary energy intake. There is rarely a serious underlying medical cause.
- 6 Tooth decay in young children may be due to poor oral hygiene, unfluoridated drinking water, an excess of simple sugars and/or acid in foods and drinks, and the habit of snacking throughout the day.
- 7 Many toddlers do not shed their 'puppy fat' as they get older and lifestyle and dietary changes may be required to protect them from becoming overweight.
- 8 Constipation can be distressing for young children and is usually idiopathic but is exacerbated by a low intake of fluid and/or fibre-rich foods.
- 9 Allergic disorders are increasing but professional advice should be sought before the elimination of important foods from the diet.

# COMMON NUTRITIONAL PROBLEMS IN TODDLERS

Most children living in the UK are well nourished and consume foods that contain ample amounts of protein, carbohydrate, fat and micronutrients to meet their nutritional needs.

Deficiencies of most micronutrients (minerals and vitamins) are relatively rare (apart from iron and vitamin D in vulnerable groups). A few children do not consume enough nutritious foods to grow normally and in most cases this is due to a lack of parental knowledge or concern, rather than poverty or disease.

A healthy balanced diet [see Factsheets 1.1 and 1.2](#) along with a daily vitamin D supplement will protect against these nutritional problems, and other nutrient supplements are rarely needed.

However our relatively affluent and increasingly inactive lifestyle encourages over-consumption of energy (calories) from fat and sugar-rich foods – and under-consumption of dietary fibre, fruit and vegetables. This can have a number of detrimental effects on the health of toddlers, including dental caries and obesity <sup>1</sup>.

Each of the common nutritional problems summarised here is the subject of an accompanying Factsheet, which deals with it in more detail.

## IRON DEFICIENCY IN TODDLERS

Iron is an essential mineral for haemoglobin in the blood [see Factsheet 1.1i](#) deficiency. Iron is found in red meat, is common in the UK, and anaemia (haemoglobin <110g/l) is seen in about 12 per cent of toddlers<sup>2</sup>. It is most common between the ages of 18 and 24 months when physical and mental growth and development are rapid and large amounts of iron are needed to support these processes. This is also a time when eating habits are in transition from an infant to an adult dietary pattern and when some toddlers may refuse some foods [see Factsheet 2.1](#).

The major cause of iron deficiency in the UK is an insufficient intake of iron from the diet. This may be due to a low intake of total iron, an excess of milk drinks, a low intake of bioavailable haem iron (iron found in meat), failure to eat foods rich in vitamin C (which helps iron absorption) at the same time as eating non-haem iron (e.g. iron from vegetable or cereal foods) or to a high consumption of substances that interfere with the absorption of iron (such as bran or tea). Toddlers with low iron stores at the end of infancy may be at risk of developing iron deficiency if given unmodified cows' milk as their sole drink (because it contains little bioavailable iron).

Iron is also essential for the normal development of infants and young children and several studies have shown an association between anaemia in early life and poor neuro-cognitive development<sup>3</sup>.

A healthy balanced diet with a vitamin D supplement should prevent iron deficiency. Iron is found in red meat, oily fish, fortified breakfast cereals and other foods [see Factsheet 1.1i](#). Iron supplementation should not usually be necessary in the UK. However toddlers who are anaemic, or suspected of being so, should be assessed by a GP or paediatrician.

For more detailed information on iron deficiency [see Factsheet 4.4](#).



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## VITAMIN D DEFICIENCY

Vitamin D is a fat-soluble vitamin that is essential for bone growth and health. Vitamin D deficiency can cause rickets, in which the bones become soft and misshapen. Vitamin D is also important in protecting toddlers against infections.

There are only a few dietary sources of vitamin D – oily fish is the best source. Margarine, follow on formulas and some breakfast cereals are fortified with vitamin D [see Factsheet 1.1i](#). Most daily needs are met by the manufacture of vitamin D in the skin when it is exposed to the ultraviolet rays of sunlight.



Dark skinned toddlers from ethnic minorities have a greater tendency towards vitamin D deficiency than white children<sup>4</sup>. Genetic differences, lifestyle factors (such as less exposure to sunlight owing to less outdoor activity and covering the skin or using sunscreen when outside) and dietary habits (such as replacing fortified infant formula with cows' milk as the main drink before 12 months) can all be responsible.

The Department of Health recommends a daily supplement of 10 micrograms of vitamin D for all children over 1 year. For infants a safe intake of 8.5–10 micrograms/day from birth is recommended<sup>5</sup> [see Factsheet 1.1](#). Vitamin D supplementation is particularly important in dark skinned children who need longer in the sunshine to make adequate vitamin D in their skin.

For more detailed information on vitamin D deficiency and rickets [see Factsheet 4.7](#).

## OTHER NUTRIENT DEFICIENCIES

Clinical signs of other vitamin deficiencies are rare in toddlers in western countries. They are seen mainly in children with chronic diseases (such as cystic fibrosis, intestinal malabsorption and liver disease) or in those receiving unusual and restricted diets for cultural or other reasons (e.g. an improperly managed food allergy or hypersensitivity)<sup>6</sup>.

However surveys have highlighted that low blood levels of some micronutrients occur in a sizeable minority of toddlers who are not eating a healthy balanced diet. Low dietary intakes of vitamin B6, folic acid, calcium, as well as iron, are not uncommon in toddlers<sup>2</sup>.

Children who eat little food, or who consume a diet low in nutrient-dense foods – milk, meat, fish, bread, fortified breakfast cereals and fruit and vegetables – can be at risk of micronutrient deficiencies.

Some toddlers eat too little of foods rich in dietary fibre such as wholegrain cereals, fruit and vegetables, which may exacerbate constipation.

In recent years diets have changed to contain more omega 6 fats and fewer omega 3 fats with a tendency for children to eat more vegetable oils and margarine based on omega 6 fats. Toddlers need to be encouraged to eat foods containing omega 3 fats, such as oily fish, regularly to maintain a healthy balance of fatty acids [see Factsheet 1.2](#).

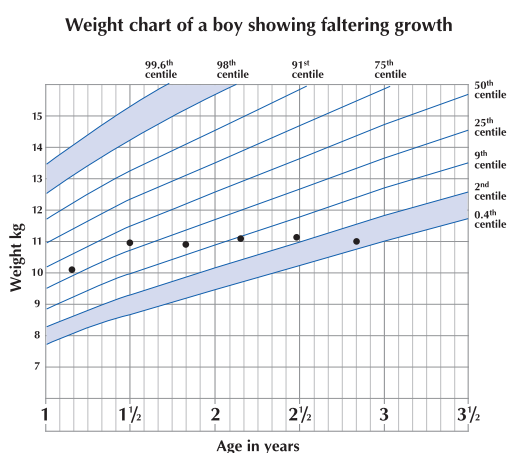


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# GROWTH FALTERING

Poor growth and weight faltering are relatively common in the UK and may affect up to 5 per cent of all children and 10 per cent from families with medical or socio-economic problems<sup>7,8</sup>. Weight faltering usually occurs before 18 months, most commonly during the second six months of life when growth is rapid and energy and nutrient requirements are high<sup>7</sup>.

Growth faltering is often detected when the weight of a child falls below the bottom centile or crosses centiles downwards on a growth chart. The height, as well as weight, of a child needs to be measured in order to properly interpret changes in the latter<sup>9</sup>. It is not possible to detect growth faltering without using appropriate growth charts.



Children with diseases that increase their requirements for energy and nutrients (such as cystic fibrosis) are likely to grow poorly unless they receive nutritional supplementation. Other medical problems such as constipation, gastro-oesophageal reflux or dental caries can be reasons for poor food intake in toddlers and lead to poor growth.

The most common cause of growth faltering (except some medical conditions) is insufficient intake of food to support normal growth [see Factsheets 1.1 and 1.2](#). There is a variety of reasons for inadequate intake and in most cases behavioural, socio-economic and organic factors play a part<sup>7</sup>.

Detecting the reason for an inadequate intake of food is important. Some toddlers are faddy eaters and may have difficulty accepting new foods [see Factsheets 2.1, 2.2 and 2.3](#). The growth rates of many toddlers will respond positively to an increased food intake, so long as the foods eaten contain sufficient energy and all necessary nutrients. Sometimes it may be necessary to increase the energy density of the diet [see Factsheet 3.2](#). Only a few toddlers will have undiagnosed disease.

For further information about growth, growth faltering and how to treat it [see Factsheets 3.1 and 3.2](#).

# DENTAL PROBLEMS

Tooth decay in toddlers is most often caused by frequent consumption of foods or liquids containing simple sugars and sticky foods that leave a residue in the mouth and around the teeth. Prolonged bottle-feeding, particularly when a toddler is allowed to fall asleep with the bottle in the mouth, can be to blame and should be strongly discouraged.

Saliva in the mouth helps protect against tooth decay. During sleep salivary flow and swallowing decline, making clearance of material in the mouth less frequent. Frequent eating (more than seven meals or snacks per day) is also associated with a raised risk of developing dental caries in toddlers<sup>10</sup>.

Erosion of tooth enamel is another dental problem seen in young children. This is caused by the frequent consumption of sweet acidic drinks such as fruit juices, squashes and fizzy soft drinks. Pure fruit juice erodes tooth enamel and is not recommended for toddlers. Sweet food and drinks should be restricted to four eating occasions a day e.g. three meals and no more than one snack<sup>11</sup>.

The 'milk' or deciduous teeth help with the development of speech and allow optimum growth of the jaw so that the permanent teeth can grow and develop normally. They are also involved in the transition from a liquid-based infant diet to a solid-based adult diet. Milk teeth are just as prone to dental decay and caries as permanent teeth and need good dental care.

Calcium, vitamin D and fluoride are essential nutrients for normal tooth development. Fluoride strengthens dental enamel and makes it resistant to attack by bacteria, which are involved in causing tooth decay. In some areas of the UK fluoride is added to tap water, while in others tap water naturally contains adequate amounts of fluoride. However, there remain large areas of the UK without adequate levels of fluoride in tap water.

Oral hygiene should begin when the first tooth erupts. Parents should clean their toddler's teeth with a soft toothbrush and toothpaste (containing fluoride) at least twice each day and regular check-ups by a dentist are recommended<sup>12</sup>. Where fluoride levels are low in tap water dentists may recommend fluoride drops or tablets.

Further information on dental caries is found in [Factsheet 4.5](#).

# OVERWEIGHT AND OBESITY

Obesity is fast becoming the most common nutritional disorder of our time. Almost a quarter of preschool age children are overweight or obese<sup>13</sup>. The long-held view that fat babies and toddlers will 'grow out of it' no longer always holds true and the prevention of obesity should begin early in life.

Overweight and obesity are caused by an imbalance in the amount of energy (calories) consumed in food and expended in activity. Children who eat excessive amounts of energy-rich foods and are inactive become obese. The excess energy is 'laid down' as fat (sometimes called adipose tissue).

Overweight and obesity can be identified by measuring body weight and height and calculating the Body Mass Index (BMI). BMI is defined as weight in kilograms divided by height in meters squared ( $BMI=W/H^2$ ). Thus a toddler who weighs 13kg and is 90cm tall has a BMI of  $13/0.9^2 = 16$ .

Both the percentage of body fat and BMI decrease during the toddler years. BMI decreases from an average of about 17.5 at one year to about 15.5 at four to five years of age.

A healthy BMI range for adults of 20–25 is therefore not applicable to children. Using a BMI centile chart for children a BMI over the 91st centile indicates overweight, and above the 98th centile is defined as obesity. The body weight of a toddler of more than two centile lines above that of the height centile suggests that there is cause for concern, and BMI should be calculated.



The diet of toddlers whose BMI is too high should be assessed. Their consumption of concentrated sources of fat and sugars may need to be reduced and exercise encouraged. Increasing physical activity is an essential part of the management of overweight and obesity in all age groups. Toddlers should be physically active for a minimum of three hours each day<sup>14</sup>. There is usually no need for overweight toddlers and young children to actively lose weight, but weight gain should be slowed or stopped temporarily through healthy eating and exercise so that BMI declines as the child gets taller.

For further information on overweight and obesity  
[see Factsheet 3.3](#).

# CONSTIPATION

Constipation is defined as the infrequent passage of hard stools, often with difficulty or discomfort. The bowel habits of normal toddlers vary considerably, ranging between once every two days to two times each day<sup>15</sup>. Constipation can occur in up to 3 per cent of normal toddlers<sup>16</sup>.

Passage of hard stools is often painful and children may deliberately withhold them, especially if they have an anal fissure. Some toddlers develop a phobia about opening their bowels during the transition from a potty to an adult toilet.

Some rare disorders of the gut that cause constipation (such as Hirschsprung's disease) are also associated with poor appetite and growth faltering, and some children with developmental disorders, such as cerebral palsy, are prone to constipation. However in the vast majority of toddlers constipation is idiopathic – of unknown origin. It is exacerbated by poor diet.

The two most important dietary factors associated with the development of constipation are insufficient fluid and dietary fibre intake. Toddlers need at least one litre of fluids from drinks each day and failure to drink sufficient liquid can contribute to constipation.

At least one serving of a fibre-rich food should be given at each mealtime. Foods that are naturally rich in fibre include wholegrain cereals, pulses and fruits and vegetables<sup>17</sup>. Unprocessed bran or fibre-enriched cereals should not be given to toddlers.

NICE recommend the use of a simple laxative or stool softener to ease the passage of hard stools, at the same time as modifying the diet or behaviour of the toddler<sup>18</sup>.

For detailed information on constipation  
[see Factsheet 4.6](#).



# FOOD ALLERGIES

Food allergy is seen most commonly in early life. In the UK around 2-4 per cent of 1-3 year olds may have allergic symptoms to foods<sup>19,20</sup>. Symptoms of true food allergy can include skin reactions such as dermatitis or eczema, gastrointestinal symptoms such as reflux, vomiting and diarrhoea and respiratory symptoms such as wheezing. Hyperactivity, which affects 1-5 per cent of children, may be caused by an adverse reaction to food in a very small proportion of children.

The most common food allergens in toddlers' diets are cows' milk, egg, wheat, peanuts, tree nuts and soya. Allergy to food additives such as colourings – often suspected by parents – is rare, affecting only 0.03 per cent of the population.

If food allergy is suspected it is important that the toddler is referred to a paediatrician or allergy clinic for investigation and appropriate dietary advice. A diet that eliminates an important food item, such as milk or wheat, must contain adequate nutrients for growth and development<sup>21</sup>, so appropriate professional advice should be sought.

Most children 'grow out' of food allergies, particularly if they started in infancy. About 90 per cent of infants with cows' milk protein allergy recover by the age of three years. Peanut allergy is an exception and is more likely to be lifelong. Toddlers with allergies (including eczema and asthma) which are thought to be due to food or other allergens, OR who also have immediate members of family (parents or siblings) with a food allergy or allergy (including eczema, asthma and hayfever) may be at higher risk of developing peanut allergy. Such children should be reviewed by their GP, health visitor or a medical allergy specialist before starting to eat peanuts or foods containing peanuts.

Foods removed from the diet because of the risk of allergy can often be slowly reintroduced in very small amounts between the ages of one and three years. It is essential that this is done under medical supervision because there may be a risk of an anaphylactic reaction.

For more detailed information on understanding and managing food allergy see Factsheets 4.2 and 4.3.

This Factsheet is intended as an overall introduction to common nutritional problems in toddlers. Each topic will be covered in greater detail in an accompanying Factsheet that will also include the relevant 'Guidance and Tips for Parents'.

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