

Information for Health Professionals on Infant Feeding

Background

The World Health Organisation (WHO) revised its guidance in 2001 to recommend exclusive breastfeeding for the first six months of an infant's life. The UK supported this resolution at the World Health Assembly. Since its adoption 159 Member States have demonstrated their determination to act by preparing or strengthening their national nutrition policies and plans, with France, Australia and Ireland also announcing recommendations of six months' exclusive breastfeeding.

The UK's Scientific Advisory Committee on Nutrition (SACN) stated in 2001 that there was sufficient evidence that exclusive breastfeeding for six months is nutritionally adequate, but that due to current practices in the UK there should be some flexibility in the advice. SACN agreed that the available evidence did not support the commonly held concern that between four to six months breastmilk was inadequate to support normal infant growth.

Following WHO's revised guidance, the Department of Health, London issued a new recommendation on breastfeeding last year. Key professional and voluntary bodies have supported this recommendation, including the Royal College of Midwives, the Community Practitioners and Health Visitors Association and the National Childbirth Trust.

What are the Department's recommendations on feeding infants?

- Breastmilk is the best form of nutrition for infants; it provides all the nutrients a baby needs.
- Exclusive breastfeeding is recommended for the first six months of an infant's life.
- Six months is the recommended age for the introduction of solid foods for both breast and formula fed infants.
- Breastfeeding (and/or breastmilk substitutes, if used) should continue beyond the first six months along with appropriate types and amounts of solid foods.
- Mothers who are unable to, or choose not to, follow these recommendations should be supported to optimise their infants' nutrition.

What is the scientific evidence for exclusively breastfeeding for 6 months?

There is extensive scientific evidence to support the consensus that breastfeeding is the best way to feed an infant. WHO undertook a systematic review on the Optimal Duration of Exclusive Breastfeeding. The main objective of the review was to assess the effects on child health, growth, and development, and on maternal health, of exclusive breastfeeding for six months compared with exclusive breastfeeding for three to four

months with mixed feeding (introduction of complementary liquid or solid foods with continued breastfeeding) thereafter through 6 months.

Twenty independent studies were reviewed (nine from developing countries and eleven from developed countries). The conclusions were:

- Infants who are exclusively breastfed for six months experience less gastrointestinal or respiratory infection.
- No deficits were demonstrated in growth among infants who were exclusively breastfed for six months.
- No benefits of introducing complementary foods between four and six months have been demonstrated, with the exception of improved iron status in one developing country setting.
- Exclusively breastfeeding for six months is associated with delayed resumption of the menstrual cycle and greater postpartum weight loss in the mother.

Is there any risk associated with the recommendations?

A study by WHO concluded that “while infants must be managed individually, the evidence demonstrated that there was no apparent risk in the recommendation of exclusive breastfeeding for the first six months of life in developed and developing countries.”

Although there is no evidence to suggest that giving a baby solid food before six months has any health advantage, it is important to manage infants individually so that any deficit in growth development are identified and managed appropriately. All infants are individuals and will require a flexible approach to optimise their nutritional needs. Mothers should be supported in their choice of infant feeding.

In what ways does exclusive breastfeeding for six months benefit the health of mother and baby?

Although it is recommended that weaning should begin at six months, breastfeeding should continue to be an important part of babies’ diets. Many of the health benefits gained by the infant and mother are increased the longer breastfeeding continues:

- Breastmilk provides all the nutrients that a baby needs for healthy growth and development for the first 6 months of life.
- Breastfed babies may be less likely to become obese in later childhood.
- Infants who are exclusively breastfed are less likely to experience gastrointestinal / respiratory infections.
- The risk of developing pre-menopausal breast cancer is reduced the longer a mother continues to breastfeed.
- Mothers who continue exclusive breastfeeding for longer are more likely to return to their pre-pregnancy weight.

- Exclusively breastfeeding for six months is associated with delayed resumption of the menstrual cycle.

Naylor and Morrow (2001) conducted a review, which concluded that exposure of the infant to pathogens that are commonly present in food could result in frequent infection. The human gut is anatomically and functionally mature at birth in the full term infant. However, immaturity's in digestion, absorption and protective function exist at birth that may predispose the infant during the first six months of life to age-related gastrointestinal disease. They suggested that exclusive breastfeeding provides both passive and active support of the infant's gut function during the first six months of life. This review supported the recommendation that infants should be exclusively breastfed up to six months.

Should infants who are mixed fed on both breastmilk and infant formula milk or just given infant formula milk also introduce solids at six months?

Yes. The Scientific Advisory Committee on Nutrition (SACN) sub group on Maternal and Infant Nutrition concluded that there are unlikely to be any risks associated with delaying weaning to six months in infants who are mixed fed on breast and infant formula milk or solely fed on infant formula milk.

Six months is the recommended age to introduce solid foods for all normal healthy infants whether breastfed or given infant formula milk. Health professionals should consider infants' individual developmental and nutritional needs, whether breastfed, mixed fed or given solely infant formula milk before giving advice to introduce solid foods.

Regardless of whether babies are breastfed or mixed fed on breastmilk and infant formula milk, mothers should be supported to optimise their infant's nutrition regarding suitable weaning foods and gradually weaned onto more solid food. Where mothers choose to introduce solid foods before six months, they should follow existing guidance on appropriate types and amounts of first food (COMA, 1994).

What are the risks associated with an early introduction of solid food?

The Introduction of solid food to an infant too early, before sufficient development of neuro-muscular co-ordination to allow the infant to eat solid foods or before the gut and kidneys have matured to cope with a more diverse diet, can increase the risk of infections and development of allergies.

Early introduction of solids can also reduce the absorption of nutrients from breastmilk. (COMA, 1994).

Do babies need to explore tastes and textures before six months to help with speech development and acceptance of a wide variety of foods?

No. Whilst infants can be offered foods at an earlier age than six months, their oral anatomy, reflex responses and resulting oral motor function suggest that this is developmentally premature.

Will waiting until six months affect babies' ability to chew?

No. This misconception appears to have arisen from an old paper presenting case studies of children who remained on a liquid diet for 6 -10 months, most of whom had developmental delays or disabilities (Illingworth and Lister, 1964). A hypothesis was suggested that 'if children are not given solid foods to chew at a time when they are first able to chew, troublesome feeding problems may occur'. This has since been quoted and inappropriately extended to younger babies with normal development.

Is waiting to introduce solids until six months likely to produce a 'fussy eater'?

No. There is no evidence to support the idea that starting solids at around six months is more likely to be associated with the baby being a fussy eater. Indeed, a randomised trial comparing breastfed babies started on solids at either four months or six months in Honduras found no difference in appetite or food acceptance as reported by the mothers (Cohen *et al*, 1995).

What is 'developmental readiness'?

Reviews of the literature on three aspects of the developmental readiness of babies for solid foods with respect to physiological maturing were published in April 2001. (Wellstart, 2001). These aspects were:

- Development of the baby's immune system.
- Maturation of the gastrointestinal tract.
- Oral development in relation to coping with the transition from a purely liquid diet to semi-solid and solid foods.

The expert review team concluded that although there is a great deal that is still not known most full term babies are probably ready to start solids near six months or perhaps a little beyond.

Is a baby developmentally ready for spoon-feeding before six months?

Active spoon feeding with the upper lip moving down to clean the spoon emerges at six months. Refinement of tongue activity during the swallowing of strained foods is noted at nine months with up and down tongue movement. Lip closure during swallowing appears at twelve months and resembles mature feeding behaviour. (Stevenson and Allaire, 1991)

What are the advantages of waiting until six months?

Infants who are weaned at or near six months can be moved onto a mixed diet more quickly than those weaned earlier. Stopping predominant breastfeeding before 6 months has been associated with an increase risk of wheezing and lower respiratory tract infections (Oddy WH et al, 2003).

What do mothers believe?

At present 49% of mothers introduce solid foods before 16 weeks (Hamlyn *et al*, 2002).

This may be for a number of reasons Anderson *et al* (2001) held focus group discussions with mothers to try to identify the range of maternal attitudes and beliefs that influence the timing of introducing solid foods. Mothers who had started their babies on solids believed their babies had shown behaviour indicating readiness. They were also aware of the recommendation to wait until four months but did not know the reasoning behind this.

It is common for mothers to believe that giving solid foods will help their baby to sleep longer at night. Heinig *et al* (1993) reported virtually identical sleeping times (729 versus 728 minutes per day).

Many mothers would like their child to be ahead of its peers. Weaning can be seen as a developmental milestone and so some mothers may be keen to start weaning as soon as possible.

What should health care facilities do to encourage breastfeeding?

The Department encourages all health facilities to have policies and practices that protect, promote and support breastfeeding. An example of the required standard of best practice would be represented by the ten steps to successful breastfeeding as set out by the UNICEF UK Baby Friendly Initiative.

Will the baby food manufacturers be persuaded to alter their labelling of weaning foods from four months to six months?

Weaning foods are currently labelled in accordance with the European Union Directive. The labelling of weaning foods is currently under discussion at CODEX and the EU. The UK Government welcomes the introduction of clearer guidance and will work with the FSA on this issue.

Will the information for parents be updated so that the advice they are receiving is consistent?

Leaflets and books such as, 'The Pregnancy Book', 'Birth to Five' and the Weaning leaflet 'Weaning made Easy' will be amended in future publications to reflect the revised recommendations. The breastfeeding section of the Health Promotion Agency's website www.healthpromotionagency.org.uk/breastfeeding will also be updated.

How should solid foods be introduced?

From six months old, the amount of solid foods given can be gradually increased so that solid foods become the main part of the baby's diet, with breast or formula milk making up the balance. So, by a year old, an infant will be eating a varied diet. During the first couple of weeks of weaning, a baby learns that food has a different texture and taste, and that it doesn't come in a continuous flow. All babies are different. Some start solid foods earlier, some later. Some are choosy, others seem to like everything. The older the baby the more readily a baby will accept a varied diet of texture, taste and amount. The younger the baby the more weaning foods need to be liquid and in smaller amounts.

If a mother chooses to wean her baby before the recommended 6 months of age, which foods should be avoided?

It is recommended that the following foods should be avoided:

- Wheat-based foods and other foods containing gluten, including bread, wheat flour, breakfast cereals and rusks.
- Nuts and seeds – including peanuts, peanut butter and other nut spread. (Whole peanuts or any type of whole nuts should be avoided for children under five years old as they can cause choking).
- Eggs
- Fish and shellfish
- Citrus fruit and fruit juice such as orange, lemon and lime

Which foods should be avoided from 6 months?

Salt should not be added to any foods given to babies, as their kidneys can't cope with it. Foods that are high in salt, such as cheese, bacon and sausages should be limited. Processed foods that aren't made specifically for babies such as pasta sauces and breakfast cereals should be avoided as they can be high in salt.

Sugar should not be added to food or drink given to babies as it could encourage a sweet tooth and can lead to tooth decay when the first teeth start to come through.

Honey should not be given to babies until one year old. Very occasionally, honey can contain a type of bacteria that can produce toxins in a baby's intestines. This can cause serious illness (infant botulism). Honey is also a sugar, and can cause the same problems.

There are also certain foods that can cause an allergic reaction in some babies, so new foods should be introduced one at a time. Soft cheese (including blue) should be introduced after the age of one. Hot spices, such as, black pepper and red chilli powder should be avoid until one year of age and thereafter introduced gradually. Mild spices, such as, coriander, cumin and cinnamon can be used sparingly.

Which drinks are suitable for infants?

Cooled boiled tap water is the best drink for babies if required. Breastfed babies don't need water because each breast provides the baby with watery milk at the beginning of a feed. However, infants fed on infant formula milk can get thirsty.

Some natural mineral waters have a mineral content unsuitable for babies. However, there are other bottled waters that are suitable for infant feeding which may state 'suitable for infant feeding' on their labels. Bottled water like tap water should be boiled.

Fruit juices are a good source of vitamin C, but this and other drinks may reduce a baby's appetite for milk. Fruit juice should be diluted, one part juice with ten parts cooled boiled water in a feeding cup and at mealtimes only. As well as being acidic, fruit juice also contains naturally occurring sugars, which can cause tooth decay. For these reasons fruit juice should not be given to babies before 6 months.

Squashes, fizzy drinks, flavoured milk and juice drinks are not suitable for babies. They contain sugars and even when diluted, can cause tooth decay, especially when given in a bottle. Babies given these drinks will have a poor appetite, poor weight gain and, if they're toddlers, loose stools. Diet drinks and 'no added sugar' drinks are not intended for babies or toddlers. Tea and coffee are not suitable drinks for babies or young children. Cow, Goat and sheep's milk are not suitable as drinks for babies under a year old as they do not contain enough iron and other nutrients to meet their needs.

What about specialised Infant formulas?

Specialised infant formula is not necessary for normal infants. Hydrolysed protein infant formula can be prescribed by the GP if a baby has an allergy to cows' milk. They may be better nutritionally than soya-based milks. Babies who are allergic to cows' milk may also be allergic to soya. Follow-on infant formula milk is not suitable for babies less than 6 months.

What is the current advice on Soya milk?

The Committee on Toxicity (COT) has identified a possible risk to long-term reproductive health of infants arising from the high phytoestrogen content of soya-based formulas. SACN has confirmed that there is no particular health benefit associated with the consumption of soya-based infant formula by healthy infants. It was also SACN's view, that there is no unique clinical condition that particularly requires the use of soya-based infant formulas.

Therefore, in the light of the potential risk to infants, soya-based infant formulas should not be used as the first choice for the management of infants with proven cow's milk sensitivity, lactose intolerance, galaktokinase deficiency and galactosaemia. More appropriate hydrolysed protein formulas are available and can be prescribed. Soya-

based formulas should only be used or advised in exceptional circumstances to ensure adequate nutrition. For example, for infants of vegan parents or those infants who do not accept hydrolysed protein formula.

References:

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Further Information

Useful websites:

www.healthpromotionagency.org.uk/breastfeeding

www.doh.gov.uk/infantfeeding

www.breastfeeding.nhs.uk

www.unicef.org/programme/breastfeeding/baby.htm

www.who.int/health_topics/breastfeeding/en/

www.sacn.gov.uk