Bottle feeding - nutrition and safety

Summary

- Breastmilk is the feeding option of choice for infants.
- If breastmilk is not available, then infant formula is a suitable alternative.
- Breastmilk or formula should be the main milk used until the baby is 12 months old.
- Choose a formula to match the age and needs of your baby, and always read the label carefully as labels for other products can look very similar to those for infants.
- If you believe your baby has a problem with feeding, discuss this with your maternal and child health nurse or doctor before switching brands.

Breastmilk or a suitable infant formula is recommended as the main source of nutrition for all babies less than 12 months of age. Breastmilk is the feeding option of choice, but commercial infant formula is the only suitable alternative when breastmilk is not available.

Babies under 12 months of age should not be fed:

- regular, low-fat or skim cow’s milk
- evaporated or powdered milk, sweetened condensed milk
- cereal and legume-based beverages (such as rice, oat or soy)
- nut and seed-based beverages (such as almond or pumpkin seed)
- any do-it-yourself preparations using homemade recipes.

Commercial infant formulas have been developed to contain similar nutrition to breastmilk. They provide all the nutrition your baby needs until you introduce solids at around six months. All formulas sold in Australia conform to the Australia New Zealand Food Standard Code (Standard 2.9.1 – Infant Formula Products). There is little difference between differently priced brands.

The composition of infant formula continues to change as research provides a greater understanding of the role of the unique ingredients contained in breastmilk. A variety of new ingredients have been added to infant formulas in recent years.

Starter or first formula

There is a variety of starter formulas based on cow’s milk protein (whey or casein). Formula based on soy or goat’s milk is also available. These formulas are suitable for babies from birth to 12 months.

Read the label carefully because:

- formulas developed for toddlers as well as pregnant women can look very similar, so check the label carefully to ensure your baby gets a formula that is safe and appropriate for their age.
- the label may list a number of additions such as LCPUFAs (long chain polyunsaturated fatty acids or omega-3 fatty acids), probiotics or prebiotics. These ingredients are added because they are found naturally in breastmilk.

Caution on changing formula

If your child sleeps or feeds badly, or is unsettled or ‘colicky’, you may think you need to change the formula you are using. There is little evidence that this is helpful for the majority of babies. Seek the advice of your maternal and child health nurse or doctor before switching formulas.

Soy formula
Infant soy formula is suitable for babies with a medical reason to use them, such as an allergy to cow’s milk. This formula must not be confused with regular soy milk, which does not provide suitable nutrition for babies.

‘Follow on’ formula
‘Follow on’ formula is suitable for babies six months of age and over. It is your choice whether you use one. ‘Follow on’ formula is available based on cow’s milk, soy or goat’s milk. They are made for babies over six months of age and contain higher protein and mineral content than starter formula.

Specialised infant formula
Infant formula can be modified in a variety of ways, including changes to the fat, carbohydrate or protein content. Specialised infant formula is sometimes necessary for babies with certain medical conditions and may be prescribed by paediatricians through the Pharmaceutical Benefits Scheme (PBS).

Reasons for using one of these formulas might include:
- severe allergy or intolerance
- fat or carbohydrate malabsorption
- severe digestive disorders.

Some examples of specialised infant formula and when they are used include:
- Low lactose – is used for lactose (milk sugar) intolerance.
- Modified protein content – in some formula, the cow’s milk protein is broken down into smaller units. In other formula, the whole protein is replaced by amino acids, the individual building blocks of protein. These preparations are used for severe allergy, malabsorption and digestive disorders or metabolic conditions.
- Modified fat content – this includes formula with a high concentration of triglycerides and lower levels of fatty acids, which may be used for babies with liver or gastrointestinal conditions.
- Thickened formula – sometimes recommended for babies who frequently regurgitate (vomit or cough up) large amounts after feeding, although a thickened formula may not solve this problem. Only use under medical advice.
- Premature infant formula – designed for preterm (born premature) babies while they are preterm. Premature babies need a formula with additional energy and mineral content. This is not suitable for full-term babies or for preterm babies who are now full term, unless under medical advice.

Seek medical advice before using specialised formula.

Amount of formula required
From five days to three months, a full-term, healthy baby will need about 150 ml of prepared formula per kilogram of body weight, every day. For example, a baby who weighs 3 kg will need 450 ml of prepared infant formula each day.

From three to six months, this falls to 120 ml of infant formula per kilogram of body weight each day. From six to 12 months, it falls again to between 90 and 120 ml of infant formula per kilogram of body weight each day.

Premature babies need more formula. At first, they usually need about 160–180 ml of formula per kilogram of body weight per day. Your neonatal doctor or maternal and child health nurse will advise you.

See your doctor or maternal and child health nurse if you are worried about your baby’s appetite or growth.

Preparing formula
Always remember to:
- Wash your hands thoroughly and make sure your preparation area is clean.
- Check the date on the bottom of the tin or on the sachet to ensure the formula has not passed its expiry (use-by) date.
- Use the powder within one month of opening the tin.
- Follow the manufacturer’s instructions strictly. Accuracy is important to make sure your baby receives the
right nutrition.

- Boil fresh, clean water in a kettle or saucepan.
- Do not let the water cool for longer than 30 minutes before making up infant formula. Hot water helps kill any bacteria (germs) in the powder.
- Pour the recommended amount of boiled water into the bottle.
- Use the scoop that came with the formula to measure the exact amount of powder. A scoop from another brand of powder might be larger or smaller. Never use a half-scoop as it may not be accurate. Make up the full volume (later throw out any leftover mixture).
- Level the powder with a sterilised knife or spatula (do not pack it down). Add this powder to the bottle of boiled water.
- Place the disc and cap on the bottle, and shake until thoroughly mixed.
- Never warm a bottle in a microwave oven. This is unsafe as it does not heat evenly and there may be ‘hot spots’ in the bottle that can burn your baby’s mouth.
- You can warm a bottle by standing it in a container of hot (not boiling) water for 10 minutes.
- Test the temperature by dripping some milk onto the inside of your wrist. It should feel the same temperature as your skin. If it is too warm, then cool the bottle under running water or in a container of cool water. Re-test on your wrist before giving to your baby.
- If you are going out for the day, carry hot water in a hot water flask and the formula separately, then prepare it just before it is needed.
- When the tin of formula is empty, discard the scoop that was provided with the tin of infant formula.
- Read the instructions carefully if you change formula brands to ensure you use the correct amount of water and powder.

**Do not use leftover formula**

Use a fresh bottle for every feed. Throw away any leftover formula or expressed breastmilk following the feed. Never give your baby leftovers. They can grow bacteria (germs) that may make your baby ill.

Do not add other food, such as baby rice cereal, to the milk. If you think your baby needs more food than recommended, talk to your maternal and child health nurse.

**Enjoy mealtimes with your baby**

Mealtimes are a time to be together and communicate. Just as adults and children enjoy talking with each other at mealtimes, so do babies. Hold your baby close to your body, facing you, when feeding. This should be an enjoyable and social experience for you both.

Take the bottle away as soon as your baby has had enough.

Do not put your baby to bed with a bottle, to feed alone. This is dangerous because your baby may choke. Also, older children who are regularly fed this way are more likely to get middle-ear infections and tooth decay.

**Equipment for bottle-feeding**

Whether you are using a bottle for expressed breastmilk or infant formula, the equipment you will need includes:

- infant formula or expressed breastmilk
- clean water
- bottles
- teats
- sterilising equipment (and possibly sterilising chemicals).

**Bottles for expressed breastmilk or infant formula**

When buying bottles, remember that:

- You will need at least three large bottles with leak-proof caps, discs and teats.
Plastic bottles are better, because glass breaks more easily. Bottles should be smooth on the inside surface (no ribbing or indentation), so they are easy to clean properly. Bottles should have clearly marked measurement guides that will not wear off over time.

**Teats for bottle-feeding**

When choosing teats, consider:

- **Flow rate** – check the label to make sure the teat has the right flow rate for your baby’s age. For example, a teat designed for an older baby can flood a newborn’s mouth with too much milk and may lead to choking.

- **Testing the flow** – hold the bottle upside down and milk should drip out at a constant, steady rate. If it drips too slowly, your baby will get tired before finishing their feed. If milk pours out in a stream, your baby may dribble and splutter and will not enjoy the feed. A baby should take 15 to 30 minutes to drink a bottle.

- **Teat shape** – many manufacturers claim that their teats are an exact copy of a mother’s nipple in her baby’s mouth, but there is no proof that any teat design is the best. ‘Orthodontic’ teats are no better than regular-shaped teats and they may, in fact, not be good for later tooth development. Over time, you will discover which teat works best for your baby.

- **Air** – air bubbles should rise through the milk as the baby drinks. If the teat flattens during feeding, loosen the cap a little.

**Sterilise all equipment for bottle-feeding**

You must sterilise (thoroughly clean and kill all germs) all bottle-feeding equipment until your baby is 12 months old. This is very important.

Always remember:

- Steam can cause severe skin burns, so be careful when boiling or steaming equipment.
- Place all equipment out of reach of children.
- Avoid unnecessary handling of sterilised equipment and do not touch the inner surfaces of bottles or teats.

First, wash all the equipment in warm, soapy water. Use a clean bottlebrush to thoroughly remove all traces of milk, then rinse, then sterilise. You can use different sterilising methods, such as boiling, chemicals, steam or microwave steam.

**Boiling bottle-feeding equipment**

Put all equipment in a large pot and cover with tap water (make sure your water meets the Australian Drinking Water Guidelines if you are not using town water).

Remember to:

- Make sure there are no air bubbles trapped inside the bottles.
- Put the saucepan lid on and bring to the boil.
- Allow five minutes of rapid boiling.
- Turn off heat and allow to cool.
- Always wash your hands thoroughly with soap and water before handling the equipment.
- Store the sterilised equipment in a clean container in the fridge and re-boil after 24 hours if it has not been used before then.

**Chemical sterilising bottle-feeding equipment**

Sterilising chemicals usually come in liquid or tablet form. When you sterilise the equipment:

- Follow the manufacturer’s instructions to get the correct strength.
- Mix the chemicals with water in a large plastic or glass bowl.
- Place all equipment in the solution. Cover **every** surface – for example, squirt solution through the teats and get rid of any air bubbles.
- Soak for at least one hour.
- Remove the equipment and shake off excess solution, but **do not rinse**.
- Use only glass or plastic equipment, as metal will rust in the solution.
- Change the solution every 24 hours.
- Scrub the container with warm soapy water and rinse thoroughly before refilling with new solution.

**Steam sterilising bottle-feeding equipment**

A steam steriliser plugs into a power point. It works automatically once you have switched it on. You must follow the manufacturer’s directions. Most will tell you to:

- Place the equipment in the steriliser and add the correct amount of water.
- Put the lid on and steam the equipment for the recommended time.
- Leave the lid on the steriliser until the bottles are needed.
- Wipe and dry the inside of the container once a day to keep it clean.

**Microwave steam sterilising bottle-feeding equipment**

This is used in a microwave oven. You should:

- Follow the instructions carefully.
- Check the microwave power needed – not all microwave ovens are the same.
- Do not put any metal inside these sterilisers.

**Where to get help**

- Your maternal and child health nurse
- Your paediatrician
- Dietitians Association of Australia Tel. 1800 812 942
- Royal Children’s Hospital Tel. (03) 9345 5522
- Advisory Panel on the Marketing in Australia of Infant Formula (APMAIF) Tel. (02) 6289 7358

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