

Infant Formula Preparation

Breastfeeding is always recommended as the first choice for feeding your baby. This is sometimes called "exclusive breastfeeding." That is the goal. But sometimes it is not possible. You might have an infection. Or you might be dehydrated (*not have enough fluids*). Some mothers are taking medicines for cancer or another health problem. These medicines can get into breast milk. Some of the medicines might harm a baby. Also, some babies just need more milk. They may have been tiny at birth. Or they might be having trouble gaining weight. They need extra calories.

Whatever the reason, sometimes formula must be used. Formula comes in different forms:

- Powder. You mix it with water, as you need it. This is usually the cheapest type of formula.
- Concentrated liquid. This is also mixed with water, as you need it.
- Ready-to-eat formula. This comes in a can or bottle. You do not add anything to it.

Make sure you know just how much formula the baby should get at each feeding. Markings on the bottle can help you keep track.

BEFORE MIXING FORMULA

- Cleanliness is very important. Everything used to prepare a bottle of formula must be as clean as possible. Each time, take these steps:
 - Wash all supplies in warm, soapy water. This includes bottles, nipples, and rings.
 - Boil water. Then put all bottles, nipples, and rings in the boiling water for 5 minutes. Let everything cool before handling it.
 - If you are going to use well water or bottled water to mix the formula, boil it first. This should also be done if you are worried that your water supply is not safe. If you boil water, make sure it boils for at least 1 minute. Then let it cool before using it for the formula.
 - Wash your hands with soap and water.
- Check the date on the formula container. It is usually on the bottom of a can of formula. This is the expiration date. Check your calendar. Do not use the formula if that date has passed.

PREPARING THE FORMULA

Read the directions on the can or bottle of formula you are using. Follow them carefully. This is how formula is usually prepared:

- For a 4-ounce feeding, using powder:
 - Pour 4 ounces of water into the bottle.
 - Add 2 scoops of formula powder.
 - Cover the bottle with the ring and nipple. Shake it to mix it.
 - Put the plastic top back on the can of formula. Store it in a cool, dry place.
- When using liquid concentrate:
 - Mix together equal amounts of water and concentrated formula. For a 4-ounce feeding, you would mix 2 ounces of water and 2 ounces of concentrated formula.
 - It is OK to mix more than you need. The extra can be kept in the refrigerator for up to 48 hours. Then, just take it out when it is needed. If any is left after 48 hours, throw it away.
- When using a ready-to-eat formula:
 - Pour it into the bottle.
 - Any extra can be kept in the refrigerator for 48 hours. If any is left after that, throw it away.

Make sure the formula is the right temperature. If it came from the refrigerator, warm it up. Hold it under warm, running water or place it in a pan of hot water for a few minutes. Never use a microwave to warm up a bottle of formula. Test the temperature by putting a few drops on the inside of your wrist. It should be warm, but not hot.

Use mixed formula quickly. Throw away any formula that has been sitting out at room temperature for more than two hours.

This information is not intended to replace advice given to you by your health care provider. Make sure you discuss any questions you have with your health care provider.

Document Released: 01/09/2011 Document Revised: 03/11/2013 Document Reviewed: 01/09/2011
Elsevier Interactive Patient Education ©2016 Elsevier Inc.

Infant Formula Feeding

Breastfeeding is always recommended as the first choice for feeding a baby. This is sometimes called "exclusive breastfeeding." That is the goal. But sometimes it is not possible. For instance:

- The baby's mother might not be physically able to breastfeed.
- The mother might not be present.
- The mother might have a health problem. She could have an infection. Or she could be dehydrated (*not have enough fluids*).
- Some mothers are taking medicines for cancer or another health problem. These medicines can get into breast milk. Some of the medicines could harm a baby.
- Some babies need extra calories. They may have been tiny at birth. Or they might be having trouble gaining weight.

Giving a baby formula in these situations is not a bad thing. Other caregivers can feed the baby. This can give the mother a break for sleep or work. It also gives the baby a chance to bond with other people.

PRECAUTIONS

- Make sure you know just how much formula the baby should get at each feeding. For example, newborns need 2 to 3 ounces every 2 to 3 hours. Markings on the bottle can help you keep track. It may be helpful to keep a log of how much the baby eats at each feeding.
- Do not give the infant anything other than breast milk or formula. A baby must not drink cow's milk, juice, soda, or other sweet drinks.
- Do not add cereal to the milk or formula, unless the baby's healthcare provider has said to do so.
- Always hold the bottle during feedings. Never prop up a bottle to feed a baby.
- Never let the baby fall asleep with a bottle in the crib.
- Never feed the baby a bottle that has been at room temperature for over two hours or from a bottle used for a previous feeding. After the baby finishes a feeding, throw away any formula left in the bottle.

BEFORE FEEDING

- Prepare a bottle of formula. If you are using formula that was stored in the refrigerator, warm it up. To do this, hold it under warm, running water or in a pan of hot water for a few minutes. Never use a microwave to warm up a bottle of formula.
- Test the temperature of the formula. Place a few drops on the inside of your wrist. It should be warm, but not hot.
- Find a location that is comfortable for you and the baby. A large chair with arms to support your arms is often a good choice. You may want to put pillows under your arms and under the baby for support.
- Make sure the room temperature is OK. It should not be too hot or too cold for you and for the baby.
- Have some burp cloths nearby. You will need them to clean up spills or spit-ups.

TO FEED THE BABY

- Hold the baby close to your body. Make eye contact. This helps bonding.
- Support the baby's head in the crook of your arm. Cradle him or her at a slight angle. The baby's head should be higher than the stomach. A baby should not be fed while lying flat.
- Hold the bottle of formula at an angle. The formula should completely fill the neck of the bottle. It should cover the nipple. This will keep the baby from sucking in air. Swallowing air is uncomfortable.

- Stroke the baby's cheek or lower lip lightly with the nipple. This can get the baby to open his or her mouth. Then, slip the nipple into the baby's mouth. Sucking and swallowing should start. You might need to try different types of nipples to find the one your baby likes best.
- Let the baby tell you when he or she is done. The baby's head might turn away. Or, the baby's lips might push away the nipple. It is OK if the baby does not finish the bottle.
- You might need to burp the baby halfway through a feeding. Then, just start feeding again.
- Burp the baby again when the feeding is done.

This information is not intended to replace advice given to you by your health care provider. Make sure you discuss any questions you have with your health care provider.

Document Released: 01/09/2011 Document Revised: 03/11/2013 Document Reviewed: 01/09/2011
Elsevier Interactive Patient Education ©2016 Elsevier Inc.

Breastfeeding

Deciding to breastfeed is one of the best choices you can make for you and your baby. A change in hormones during pregnancy causes your breast tissue to grow and increases the number and size of your milk ducts. These hormones also allow proteins, sugars, and fats from your blood supply to make breast milk in your milk-producing glands. Hormones prevent breast milk from being released before your baby is born as well as prompt milk flow after birth. Once breastfeeding has begun, thoughts of your baby, as well as his or her sucking or crying, can stimulate the release of milk from your milk-producing glands.

BENEFITS OF BREASTFEEDING

For Your Baby

- Your first milk (*colostrum*) helps your baby's digestive system function better.
- There are antibodies in your milk that help your baby fight off infections.
- Your baby has a lower incidence of asthma, allergies, and sudden infant death syndrome.
- The nutrients in breast milk are better for your baby than infant formulas and are designed uniquely for your baby's needs.
- Breast milk improves your baby's brain development.
- Your baby is less likely to develop other conditions, such as childhood obesity, asthma, or type 2 diabetes mellitus.

For You

- Breastfeeding helps to create a very special bond between you and your baby.
- Breastfeeding is convenient. Breast milk is always available at the correct temperature and costs nothing.
- Breastfeeding helps to burn calories and helps you lose the weight gained during pregnancy.
- Breastfeeding makes your uterus contract to its prepregnancy size faster and slows bleeding (*lochia*) after you give birth.
- Breastfeeding helps to lower your risk of developing type 2 diabetes mellitus, osteoporosis, and breast or ovarian cancer later in life.

SIGNS THAT YOUR BABY IS HUNGRY

Early Signs of Hunger

- Increased alertness or activity.
- Stretching.
- Movement of the head from side to side.
- Movement of the head and opening of the mouth when the corner of the mouth or cheek is stroked (*rooting*).
- Increased sucking sounds, smacking lips, cooing, sighing, or squeaking.
- Hand-to-mouth movements.
- Increased sucking of fingers or hands.

Late Signs of Hunger

- Fussing.
- Intermittent crying.

Extreme Signs of Hunger

Signs of extreme hunger will require calming and consoling before your baby will be able to breastfeed successfully. **Do not** wait for the following signs of extreme hunger to occur before you initiate breastfeeding:

- Restlessness.
- A loud, strong cry.
-



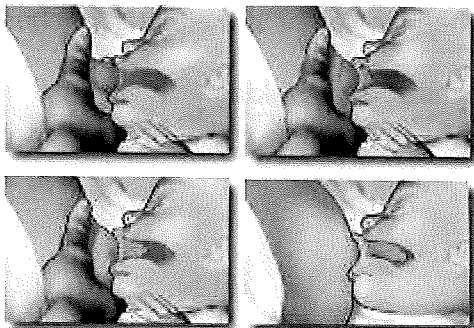
- Screaming.

BREASTFEEDING BASICS

Breastfeeding Initiation

- Find a comfortable place to sit or lie down, with your neck and back well supported.
- Place a pillow or rolled up blanket under your baby to bring him or her to the level of your breast (if you are seated). Nursing pillows are specially designed to help support your arms and your baby while you breastfeed.
- Make sure that your baby's abdomen is facing your abdomen.
- Gently massage your breast. With your fingertips, massage from your chest wall toward your nipple in a circular motion. This encourages milk flow. You may need to continue this action during the feeding if your milk flows slowly.
- Support your breast with 4 fingers underneath and your thumb above your nipple. Make sure your fingers are well away from your nipple and your baby's mouth.
- Stroke your baby's lips gently with your finger or nipple.
- When your baby's mouth is open wide enough, quickly bring your baby to your breast, placing your entire nipple and as much of the colored area around your nipple (*areola*) as possible into your baby's mouth.

○



- More areola should be visible above your baby's upper lip than below the lower lip.
- Your baby's tongue should be between his or her lower gum and your breast.

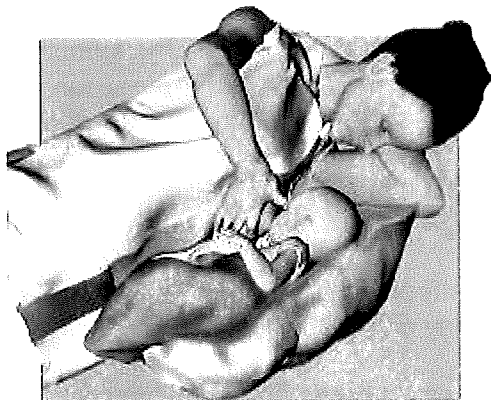
- Ensure that your baby's mouth is correctly positioned around your nipple (*latched*). Your baby's lips should create a seal on your breast and be turned out (*everted*).
- It is common for your baby to suck about 2-3 minutes in order to start the flow of breast milk.

Latching

Teaching your baby how to latch on to your breast properly is very important. An improper latch can cause nipple pain and decreased milk supply for you and poor weight gain in your baby. Also, if your baby is not latched onto your nipple properly, he or she may swallow some air during feeding. This can make your baby fussy. Burping your baby when you switch breasts during the feeding can help to get rid of the air. However, teaching your baby to latch on properly is still the best way to prevent fussiness from swallowing air while breastfeeding.

Signs that your baby has successfully latched on to your nipple:

- Silent tugging or silent sucking, without causing you pain.
- Swallowing heard between every 3-4 sucks.
-



- Muscle movement above and in front of his or her ears while sucking.

Signs that your baby has not successfully latched on to nipple:

- Sucking sounds or smacking sounds from your baby while breastfeeding.
- Nipple pain.

If you think your baby has not latched on correctly, slip your finger into the corner of your baby's mouth to break the suction and place it between your baby's gums. Attempt breastfeeding initiation again.

Signs of Successful Breastfeeding

Signs from your baby:

- A gradual decrease in the number of sucks or complete cessation of sucking.
- Falling asleep.
- Relaxation of his or her body.
- Retention of a small amount of milk in his or her mouth.
- Letting go of your breast by himself or herself.

Signs from you:

- Breasts that have increased in firmness, weight, and size 1-3 hours after feeding.
- Breasts that are softer immediately after breastfeeding.
- Increased milk volume, as well as a change in milk consistency and color by the fifth day of breastfeeding.
- Nipples that are not sore, cracked, or bleeding.

Signs That Your Baby is Getting Enough Milk

- Wetting at least 3 diapers in a 24-hour period. The urine should be clear and pale yellow by age 5 days.
- At least 3 stools in a 24-hour period by age 5 days. The stool should be soft and yellow.
- At least 3 stools in a 24-hour period by age 7 days. The stool should be seedy and yellow.
- No loss of weight greater than 10% of birth weight during the first 3 days of age.
- Average weight gain of 4-7 ounces (113-198 g) per week after age 4 days.
- Consistent daily weight gain by age 5 days, without weight loss after the age of 2 weeks.

After a feeding, your baby may spit up a small amount. This is common.

BREASTFEEDING FREQUENCY AND DURATION

Frequent feeding will help you make more milk and can prevent sore nipples and breast engorgement. Breastfeed when you feel the need to reduce the fullness of your breasts or when your baby shows signs of hunger. This is called "breastfeeding on demand." Avoid introducing a pacifier to your baby while you are working to establish breastfeeding (the first 4-6 weeks after your baby is born). After this time you may choose to use a pacifier. Research has shown that pacifier use during the first year of a baby's life decreases the risk of sudden infant death syndrome (SIDS).

Allow your baby to feed on each breast as long as he or she wants. Breastfeed until your baby is finished feeding. When your baby unlatches or falls asleep while feeding from the first breast, offer the second breast. Because newborns are often sleepy in the first few weeks of life, you may need to awaken your baby to get him or her to feed.

Breastfeeding times will vary from baby to baby. However, the following rules can serve as a guide to help you ensure that your baby is properly fed:

- Newborns (babies 4 weeks of age or younger) may breastfeed every 1-3 hours.
- Newborns should not go longer than 3 hours during the day or 5 hours during the night without breastfeeding.
- You should breastfeed your baby a minimum of 8 times in a 24-hour period until you begin to introduce solid foods to your baby at around 6 months of age.

BREAST MILK PUMPING

Pumping and storing breast milk allows you to ensure that your baby is exclusively fed your breast milk, even at times when you are unable to breastfeed. This is especially important if you are going back to work while you are still breastfeeding or when you are not able to be present during feedings. Your lactation consultant can give you guidelines on how long it is safe to store breast milk.

A breast pump is a machine that allows you to pump milk from your breast into a sterile bottle. The pumped breast milk can then be stored in a refrigerator or freezer. Some breast pumps are operated by hand, while others use electricity. Ask your lactation consultant which type will work best for you.

Breast pumps can be purchased, but some hospitals and breastfeeding support groups lease breast pumps on a monthly basis. A lactation consultant can teach you how to hand express breast milk, if you prefer not to use a pump.

CARING FOR YOUR BREASTS WHILE YOU BREASTFEED

Nipples can become dry, cracked, and sore while breastfeeding. The following recommendations can help keep your breasts moisturized and healthy:

- Avoid using soap on your nipples.
- Wear a supportive bra. Although not required, special nursing bras and tank tops are designed to allow access to your breasts for breastfeeding without taking off your entire bra or top. Avoid wearing underwire-style bras or extremely tight bras.
- Air dry your nipples for 3-4 minutes after each feeding.

- Use only cotton bra pads to absorb leaked breast milk. Leaking of breast milk between feedings is normal.
- Use lanolin on your nipples after breastfeeding. Lanolin helps to maintain your skin's normal moisture barrier. If you use pure lanolin, you do not need to wash it off before feeding your baby again. Pure lanolin is not toxic to your baby. You may also hand express a few drops of breast milk and gently massage that milk into your nipples and allow the milk to air dry.

In the first few weeks after giving birth, some women experience extremely full breasts (*engorgement*). Engorgement can make your breasts feel heavy, warm, and tender to the touch. Engorgement peaks within 3-5 days after you give birth. The following recommendations can help ease engorgement:

- Completely empty your breasts while breastfeeding or pumping. You may want to start by applying warm, moist heat (in the shower or with warm water-soaked hand towels) just before feeding or pumping. This increases circulation and helps the milk flow. If your baby does not completely empty your breasts while breastfeeding, pump any extra milk after he or she is finished.
- Wear a snug bra (nursing or regular) or tank top for 1-2 days to signal your body to slightly decrease milk production.
- Apply ice packs to your breasts, unless this is too uncomfortable for you.
- Make sure that your baby is latched on and positioned properly while breastfeeding.

If engorgement persists after 48 hours of following these recommendations, contact your health care provider or a lactation consultant.

OVERALL HEALTH CARE RECOMMENDATIONS WHILE BREASTFEEDING

- Eat healthy foods. Alternate between meals and snacks, eating 3 of each per day. Because what you eat affects your breast milk, some of the foods may make your baby more irritable than usual. Avoid eating these foods if you are sure that they are negatively affecting your baby.
- Drink milk, fruit juice, and water to satisfy your thirst (about 10 glasses a day).
- Rest often, relax, and continue to take your prenatal vitamins to prevent fatigue, stress, and anemia.
- Continue breast self-awareness checks.
- Avoid chewing and smoking tobacco.
- Avoid alcohol and drug use.

Some medicines that may be harmful to your baby can pass through breast milk. It is important to ask your health care provider before taking any medicine, including all over-the-counter and prescription medicine as well as vitamin and herbal supplements.

It is possible to become pregnant while breastfeeding. If birth control is desired, ask your health care provider about options that will be safe for your baby.

SEEK MEDICAL CARE IF:

- You feel like you want to stop breastfeeding or have become frustrated with breastfeeding.
- You have painful breasts or nipples.
- Your nipples are cracked or bleeding.
- Your breasts are red, tender, or warm.
- You have a swollen area on either breast.
- You have a fever or chills.
- You have nausea or vomiting.
- You have drainage other than breast milk from your nipples.
- Your breasts do not become full before feedings by the fifth day after you give birth.
- You feel sad and depressed.

- Your baby is too sleepy to eat well.
- Your baby is having trouble sleeping.
- Your baby is wetting less than 3 diapers in a 24-hour period.
- Your baby has less than 3 stools in a 24-hour period.
- Your baby's skin or the white part of his or her eyes becomes yellow.
- Your baby is not gaining weight by 5 days of age.

SEEK IMMEDIATE MEDICAL CARE IF:

- Your baby is overly tired (*lethargic*) and does not want to wake up and feed.
- Your baby develops an unexplained fever.

This information is not intended to replace advice given to you by your health care provider. Make sure you discuss any questions you have with your health care provider.

Document Released: 12/18/2006 Document Revised: 12/23/2014 Document Reviewed: 06/11/2014
Elsevier Interactive Patient Education ©2016 Elsevier Inc.