



*Tips to continue  
healthy breastfeeding*

# Breastfeeding



PIGEON CORPORATION

4-4 Nihonbashi Hisamatsu-cho, Chuo-ku,  
Tokyo 103-8480 JAPAN  
[www.pigeon.com](http://www.pigeon.com)

## Build confidence in your journey of breastfeeding



*Breastfeeding is nature's most precious gift to mankind and seen as a major cultural element in raising their offspring.*

*Through breastfeeding, mothers give not only the most natural and best nutrition to their children, but it embodies the philosophy of selfless giving and art of love, the wisdom of a mature interpersonal relationship, and the holistic approach towards motherhood.*

*Exclusively breastfeeding for the first 6 months is most beneficial to your child's well-being as well as yours and the family.*

## INDEX

page 4	Mechanism of breastmilk secretion
page 5	Components of breastmilk
page 6	Characteristics of Colostrum and Mature milk
page 7	Advantages of breastmilk
page 8	3 steps involved when a baby suckles
page 9	How to help your baby latch on
page 10	How to hold your baby
page 12	Storing breastmilk
page 13	Returning to work
page 14	When you feel that your breastmilk is insufficient
page 16	Nipple problems
page 17	Breast problems
page 18	Breastfeeding fatigue
page 19	Drug ingestion and breastmilk
page 20	Diet during the breastfeeding period

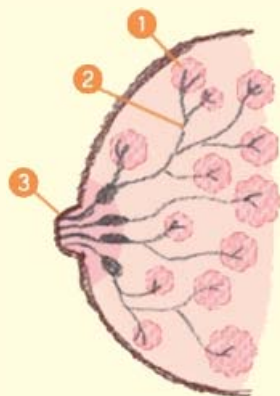
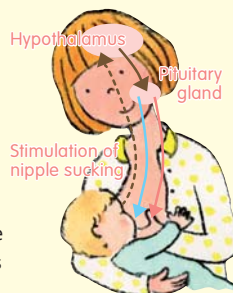
## Mechanism of breastmilk secretion

### The mechanism of breastmilk production and secretion

#### Action of hormones

When your baby sucks on the nipple and areola, the stimulation is transmitted to the pituitary gland and hormones called prolactin and oxytocin are produced. Prolactin conveys commands to change blood into breastmilk, and oxytocin operates to push out the breast milk into the milk ducts where it becomes available to the baby through the nipple's openings. Breastmilk is then released when the baby sucks on the breast. As the mother often and effectively breastfeeds her baby, both will grow more adept at it.

#### Mechanism of breastmilk secretion



- 1. Acini cell**  
(Where breastmilk is made)  
The alveolus, which looks like cluster of grape, gathers to make blood into breastmilk
- 2. Milk duct**  
(Where breast milk goes through)  
With the aid of the alveolus, it helps to eject the milk into the ducts.
- 3. Nipple opening**  
(Where breastmilk comes out)  
There are many pores in the nipple through which breast milk is expressed.

## Components of breastmilk

### The contents of breastmilk change over time.

*Breastmilk has various advantages, one of which is that it contains well-balanced nutrients, including fat, lactose and protein as main ingredients. The proportions of these ingredients are automatically adjusted at different times to match the growing needs of a baby. This makes breastmilk the best food for your baby.*



#### Breastmilk components and their functions

The main components of breastmilk are fat, lactose and protein, which has the characteristics as below.

Fat is an important ingredient in the development of your baby's brain and in the maintenance of the body structure.

Lactose is a source of energy and is contained the largest proportion (among fat, lactose and protein) in breastmilk.

Protein is broken down into amino acids when it is absorbed into your baby's body, and becomes a source for building muscles. It also contains important immunoproteins such as lactoferrin and IgA.

# Characteristics of Colostrum and Mature milk

## Colostrum

- Rich in antibodies help prevent infections and allergies. It is babies' first immunization, which can help prevent infections and allergies.
- Immunocompetent cells create resistance against bacterial and viral infections.
- Prostaglandins, oligosaccharides, facilitate meconium discharge and help relieve jaundice.
- Growth factor facilitates gut maturation, and prevents allergies and milk intolerance.
- Good source of Vitamin A promotes vision and maintain healthy skin. It helps reduce the possibility of infection in babies.



Colostrum      Mature milk

## Mature milk

Mature milk is the breastmilk that is secreted 10 days postpartum. It is characterized by a lower protein content and higher content of lactose and fat as compared to the colostrum, making it higher in calories. Breastmilk at this time looks milky white.

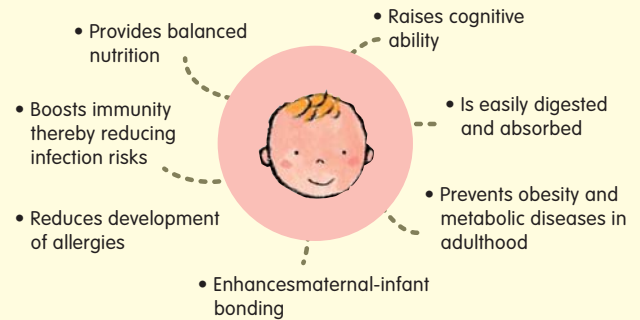


# Advantages of breastmilk

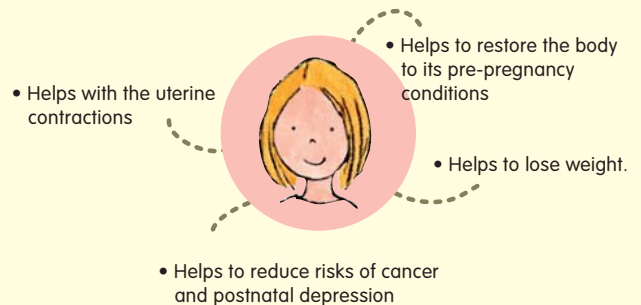
## Bond with your baby through breastfeeding

***Breastfeeding is an ideal way for mother and baby to bond. In addition to that, there are other advantages to both, as below.***

### Baby



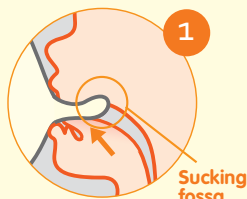
### Mother



## 3 steps involved when a baby suckle

### Latching on, Sucking, Swallowing

*A baby is born with the ability to drink milk in a completely different way to that of an adult. First, a baby tightly attaches his lips and tongue onto the nipple ("latching on"). He then begins moving his tongue in a wave-like way of motion called "peristaltic movement." This motion squeezes the nipple and extracts milk ("sucking"). Finally the back of the tongue rises, channeling the milk into the esophagus ("swallowing"). These three key steps work together to enable a baby to suck milk smoothly and efficiently. When bottle-feeding your baby, it is important to facilitate these three key steps.*



#### Latching on

The lips open outward and latch on to the areola.

Small round cavity in the center of the upper jaw found only in babies



#### Peristaltic tongue movement (sucking)

"Wave-like" tongue movement squeezes the nipple and extracts milk.



#### Swallowing

The back of the tongue rises, channeling the milk into the esophagus.

Pigeon was the first in the world to explain the mechanics of the special muscle contraction in infants, using an intra-oral camera.

## How to help your baby latch on

Help your baby latch on properly to take full advantage of this peristaltic movement, which the baby is born with.



Position with the baby's nose facing the nipple. The baby's lower jaw should be touching the bottom of the areola.

Touch the baby's lips with the nipple or areola to stimulate the searching reflex. Wait until the baby opens the mouth, and move the baby closer to the nipple.



The part of the areola next to the baby's lower jaw enters the baby's mouth first. Check to see if the baby has firmly latched on to the nipple.

Your baby will usually leave the nipple when he or she has had enough milk, but sometimes not. If that happens, slide your finger into the side of the baby's mouth to break the seal and stop the baby from sucking.

# How to hold your baby

## Hold your baby appropriately to breastfeed comfortably

*Mothers generally breastfeed their babies 8-12 times a day, for 10-30 minutes each time. It is important for mothers to feel relaxed to continue to breastfeed. Holding your baby correctly and helping your baby suck on the breast are very important for smooth breastfeeding. Appropriate positioning and latching on will help the baby take in breastmilk effectively and reduce or prevent discomfort when breastfeeding.*

### Positioning

Positioning involves holding your baby appropriately and maintaining the appropriate posture while breastfeeding. There are 4 main ways to position your baby, and the following points are important.

#### Four basic points:

1. Keep your baby's head and body in a straight line.
2. Your baby's face is towards you and his mouth and nose are facing your nipple.
3. Hold your baby close to you to ensure your baby takes in as much nipple and areola.
4. Keep your baby's head and body aligned and back well supported.

### Four basic positioning:

#### 1. Side hold/cradle hold

Hold the baby at breast level; your stomach and that of your baby should be close together, with the baby facing you. Support your baby's head on the arm that is on the same side as the breast you are nursing with. This is one of the most common breastfeeding positions.



#### 2. Cross cradle hold/transitional hold

In this position, you support the baby's head (base of the neck) using the arm on the opposite side of the breast you are nursing with. Support that breast with the opposite hand with which you are holding your baby.

Babies sometimes don't like it if you press too strongly on their heads, and this position is good for such babies. It is a better position for babies who have difficulty latching on and for babies with low birth weight, and you can control the movement of your baby's head better. You can shift to the more common cradle hold after the baby has latched on tightly and started to drink.



#### 3. Clutch hold/football hold

Support the breast with the hand on the opposite side of the breast you baby is nursing from, and support the baby's head and body with the other hand. Your baby's legs will pass under the arm supporting the baby, and point toward the rear. Hold your baby close to your side.

This positioning is good for babies who have difficulty latching on, for babies with delicate health, and if you have to breastfeed from different directions because of nipple or breast problems. It is also good for mothers with Caesarean scars, since the baby won't be pressing directly against the abdominal area.



#### 4. Straddle hold

Sit the baby on your knee and support the baby's head and shoulders. This position is better for babies who have difficulty latching on firmly, and for smaller babies.



## Storing breastmilk

### Express your breastmilk in an appropriate way

*There are situations when the mother cannot breastfeed directly her baby due to varied reasons. Yet, you can still continue to nourish your baby with breastmilk if you express and store breastmilk for baby's use.*



#### Express

Expressions in a day should be similar as that of the normal breastfeeding.

- (i) When preparing your breasts for expression, massage the breasts with breast massage gel.
- (ii) You may express milk by hand or use a breast pump. Repeated expression of breastmilk helps in the production of milk and relieves mammary swelling and eliminates duct blockage.

#### Preserve

	Freezer (Approx. -18°C)	Refrigerator
Fresh breast milk	3 weeks	24 hours
Thawed breast milk but not warmed	Do not refreeze	24 hours

(Source: Pigeon)

### Advice for expressed breastmilk

- Breastmilk that has been warmed once should not be refrigerated or frozen.
- Breastmilk should not be microwaved, as much of the nutritive value will be lost.
- Breastmilk should not be preserved at room temperature.
- Use stored breastmilk as soon as possible, regardless of the storage life.

## Returning to work

### How to continue breastfeeding after returning to work

*Breastmilk will keep the relationship between you and your baby close when you can't be with your baby. Seek the understanding of your family, employer and child-care worker so that you can balance a career and raising your child.*



#### Tips to continue Breastfeeding after returning to work

- Breastfeed directly before and after work.
- Dress in clothes that enable you to breastfeed or express milk easily.
- Prepare a breast pump so that you can express breastmilk at the office.
- It's best to freeze the breastmilk that you express during the day, and have it thawed and given to baby at the nursery center.
- You can express breastmilk a little at a time during breaks. It helps relieve breast engorgement, and as you can easily breastfeed at night and on holidays, it helps to prevent decreases in the amount of breastmilk produced.
- Make use of facilities such as nursing rooms, which enable mothers to express breastmilk.
- It's a good idea to bring something that will relax you such as your baby's photo to look at while expressing breastmilk at the workplace.
- Tell the child-care worker not to feed the baby very much just before the time you pick the baby up.
- Breastfeed frequently at night and on weekends.



# When you feel your breastmilk is insufficient

**As you continue to breastfeed more frequently, the more breastmilk will be produced in your body**

*Baby's appearance, how the baby drinks breastmilk, the amount and frequency of urine and stool output, and the baby's weight are indicators that you are providing enough breastmilk. In the first few days, you will be nourishing your baby with colostrum and as your milk supply comes in, the number of wet cloth nappies begin to increase.*

*Baby's frequent crying and slight engorgement of the breast do not indicate that insufficient breastmilk is being produced. Breastmilk secretion increases and the amount of breastmilk produced stabilizes as you continue to breastfeed.*



## Baby's appearance and causes

There can be other causes of the symptoms that are making you think that your breastmilk is insufficient.

### 1. Your baby cries frequently, wakes up and cries while asleep

Even when your baby has consumed enough breastmilk, the baby can be in a bad mood or sleep only lightly for other reasons.

### 2. Your baby wants to nurse frequently

Because breastmilk is easily digested and doesn't produce a long-lasting feeling of satiety, breastfeeding intervals are often short. Additionally, your baby's rate of growth will not always be the same. During periods when your baby is growing more quickly, your baby will want breastmilk frequently.

### 3. Your breasts doesn't become engorged

The mother's breasts often stop being engorged a few weeks after the baby's birth, but this doesn't mean that breastmilk production has decreased.

### 4. Your breasts grow smaller

It is said that breast size has nothing to do with breastmilk production.

### 5. The amount of breastmilk your baby takes in is small

The amount of intake differs from baby to baby. A more accurate indicator is whether your baby is gaining weight appropriately.

### 6. Only a little breastmilk is expressed

It is said that the amount of milk secreted and the amount the baby takes in are not the same.

## Signs that a newborn is receiving sufficient breastmilk

1. Your baby breastfeeds at least eight times in 24 hours.
2. During a feed, his suckling rhythm will slow down as milk is released, and swallowing or gulping may be heard.
3. Your baby is alert, and displays good muscle tone and healthy skin.
4. Your baby is contented between feeds. In some cases, well-fed babies become fussy for other reasons not due to insufficient milk.
5. Your baby has six or more wet diapers in 24 hours, with pale, diluted urine.
6. Your baby has three to eight bowel movements in 24 hours especially as milk supply sets in. As babies grow older, frequency of stools maybe less frequent.
7. Your baby shows a consistent weight gain, with an average of 18-30 grams/day.
8. Your breasts may feel full before a breastfeed and become softer after feeding, although some mothers do not experience such change.

(Source: UNICEF WHO, "UNICEF/WHO Breastfeeding Management and Promotion in a Baby-Friendly Hospital, an 18-hour course for maternity staff", 1993, p. 68)



## Nipple problems

### Breastfeeding with flat or inverted nipples

1. Apply breast massage gel to the nipple and areola.
2. Use a nipple suction device to pull the nipple until the nipple and part of the areola protrude. The suction time should not be too long.
3. Then make the newborn attach to the breast to suckle.

### Breastfeeding with irritation/cracked/bleeding nipples

#### Nipple irritation

- The nipple is unusually sensitive because it isn't used to external stimuli.
- There is nipple soreness with no visible damage.
- The pain can be an initial symptom of internal bleeding, blisters and cracking (rhagades).



#### Bleeding, internal bleeding

It is believed that there is edema or pooled blood in the nipple, and the negative pressure produced by the baby's sucking promotes anoxia in the papillary tissues, which increases capillary permeability and leads to burst capillaries and internal bleeding.



#### Crack

Created on the tip, sides and neck of the nipple; it resembles chapped skin and hurts when pressed or sucked.



1. Evaluate whether the newborn is attached to the breast properly and correct it if necessary.
2. Use a nipple shield during breastfeeding in case of sore/cracked nipples.
3. Apply nipple cream, then use a routine nipple shield to reduce the friction from clothes to help injured nipples heal.

## Breast problems

### Take appropriate measures depending on the symptoms

*Common symptoms of breast trouble are presence of lumps or swelling that hurt and the infection is called mastitis. Consult your healthcare provider such as your doctor, midwife, and lactation nurse or lactation consultant, as these breast problems may lead to breastmilk insufficiency and later result to poor weight gain in your baby.*

#### Lumps and swelling

If you find lumps or swelling, try to breastfeed using the appropriate positioning and latch on, and breastfeed frequently. Another way to take care of lumps and swelling is to express breastmilk after and between breastfeedings. Expressing breastmilk often helps, even when the lump causes a burning pain. There is a possibility that a lump in the mammary gland will become mastitis if it is left untreated. Additionally, if your baby suddenly stops wanting breastmilk, it may be a warning of mastitis.

#### Mastitis

Mastitis is a breast disease accompanied by pain, fever (38.5 degrees C and above) and engorgement, chills, flu-like body pain and systemic symptoms. In some cases, it is from a bacterial infection. It is said to be most common 2-3 weeks postpartum, but it can develop at anytime during the breastfeeding period.

##### 1. Stagnation mastitis

Stagnation mastitis (noninfectious mastitis) causes breast inflammation without bacterial infection. It is usually accompanied by redness, engorgement, lumps, a burning sensation in one breast, and sometimes a mild systemic fever. If you have these symptoms, try to breastfeed using the appropriate positioning and latch on to cope with the disruption of breastmilk.

##### 2. Acute purulent mastitis

If symptoms do not improve within 24 hours of the start of the symptoms in (1) and you have flu-like symptoms such as fever, chills and body pain, you may be infected by this bacterial form of mastitis. If the symptoms are severe, a course of antibiotics may be recommended, but in any case, see a specialist and obtain advice.

# Breastfeeding fatigue

## For mothers who feel tired of breastfeeding

*It's hard to stay positive when you feel tired. Babies are very sensitive to their mothers' moods. It's good for both the mother and the baby if the mother's fatigue is relieved, so seek support from your family or get some time for yourself in a positive way.*



### Physical fatigue

#### 1. Awakened for breastfeeding while asleep

Newborns need time to master suckling on the breast. Sometimes they can take in a lot, another time only a little, and the frequency with which they want to take in breastmilk differs at different times. However, rest assured that you will both settle into a rhythm as your baby gets used to breastfeeding. It is also possible for you to arrange your lifestyle around the baby's demands.

#### 2. Feeling exhausted while caring for your baby and feeding

Strength and energy are needed for the mother to hold her baby and breastfeed many times a day. After establishing your milk supply and you feel physically tired, seek the support from your partner or other family members at home who maybe able to feed your baby with expressed breastmilk using a nursing bottle. This also creates a bond between other family members and the baby.

### Mental fatigue

#### 1. Make time to rest

Prolactin makes a breastfeeding mother relaxed and sleepy. It is natural that as the baby feels sleepy after breastfeeding, the mother does too. It is important to make time for rest sometimes, like taking a nap with your baby, and relieve your fatigue rather than doing housework while your baby is asleep.



#### 2. Make time for yourself

It's important to make time for yourself once in a while. If it is hard to seek the support of your family, another option is to use a day nursery, babysitter service or confinement nanny service. It is a good chance to take a look at what is important to you, and you will be a better mother when you see your baby the next time. Don't forget to express breastmilk beforehand and have them give it to your baby when you leave the baby at a day nursery or with a babysitter.

#### 3. Exercising with your baby

Taking a walk with your baby can refresh both of you. In addition, these days there are more gyms or facilities where you can exercise with your baby. Exercising with your baby lets you to feel refreshed and reshapes your body post partum, and it can also be a happy time for your baby to bond with you.

## Drug ingestion and breastmilk

### Consult your physician on the appropriate medications during the breastfeeding period

When taking medications while breastfeeding, most of the drugs will transfer to your breastmilk then to the baby. However, only a few drugs harm breastmilk or affect your milk supply. Most drugs are safe for mother during breastfeeding period. To be safe, check with your doctor before taking any kind of medication including over-the-counter drugs and herbal medications. The doctor can evaluate appropriately the detriments and danger of stopping breastfeeding with the amount of drugs that are transferred to the breastmilk, as the risks depend on the kind and amount of the drug.



# Diet during the breastfeeding period

## Maintain a balanced diet for yourself and your baby



### Well-balanced diet

Postnatal mothers need more energy and caloric intake when breastfeeding than during pregnancy. As they care for their babies, sometimes they suffer from lack of sleep. Under these circumstances, mothers may tend to neglect their diet.

Be sure to maintain a balanced diet for yourself and your baby. Give yourself 6 months to lose the weight gained during pregnancy coupled with exercise. Avoid restricting your diet excessively to lose weight faster, as this not only affects your health, but also the production of breast milk.

### Tips to make a better breastmilk

- Eat reasonably well-balanced meals
- Consume foods that are less spicy, and low in fat and sugar
- Avoid smoking, drinking alcohol or excessive caffeine as babies can be sensitive
- Drink adequate amount of fluids
- Sleep well and take time to relax



## Chance to increase your bone mass

A mother's bone mass decreases substantially during pregnancy and breastfeeding. But they have a chance to increase bone mass during the 6 months to one year after their periods restart following pregnancy. If you supply the building blocks of bones, which are calcium and vitamin D, then stronger bones will be produced. Dairy products, small fish, beans, seaweed and wheat are all rich in calcium.

## The effects of drinking and smoking

As much as 2% of alcohol in the maternal system will find its way into the breast milk. Your newborn's ability to rid alcohol would be slower than that of an adult due to the his immature liver. In effect, this may inhibit your baby's growth and ability to thrive.

It has been reported that nicotine has direct effect on babies, including causing vomiting, diarrhea, an increased pulse rate and restlessness. The whole family should take the opportunity afforded by pregnancy to give up on smoking.



## The effects of caffeine

It is said that when mothers drink beverages that contain caffeine, such as green tea and coffee, the caffeine is excreted in the breastmilk \*1. Limit as much as possible your intake of products that contain caffeine, since breastmilk that contains caffeine can cause sleeping disorders to your baby. \*2.



\*1 Source: Berlin, C., et al.: Disposition of dietary caffeine in milk, saliva, and plasma of lactating women, Pediatrics, p. 73, p. 59-63, 1984

\*2 Source: Supplements & Health Support Food Data Base Ver. 1, National Institute of Health Sciences, p. 144, 2007

This book belongs to 's mother

Memo

