GUIDE FOR PUMPING BREAST MILK AND BREASTFEEDING
Congratulations!

You have a new family member!

Your baby will need milk from the very first moments onwards. The mother’s breast milk is the best possible food which is made for your baby’s individual needs.

This guide is intended to assist you when your baby cannot establish lactation by suckling or does not have the strength to do so. The guide contains instructions for expressing breast milk and for beginning breastfeeding. As a mother, you can help your baby to grow stronger by expressing breast milk to feed the baby. Breast milk protects your baby from infection, supports its growth and development and reinforces the attachment between the mother and the child.

Please do not hesitate to ask for help, the personnel will be happy to advise you.
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Breast milk and breastfeeding

The make-up and nutrient content of breast milk is of primary importance for meeting your baby’s needs. Breast milk is easily absorbed. If your baby was preterm, your own breast milk will contain more proteins and carbohydrates than the breast milk of mothers with full-term babies.

Breast milk contains plenty of nutrients which are beneficial to babies, such as proteins, carbohydrates, fats and micronutrients.

In addition to the nutrients, breast milk contains protective factors from infection which protect your baby from increasingly common bacterial infections or sepsis, respiratory, urinary and intestinal infections. Breast milk and breastfeeding also promote the baby’s subsequent development and good health.

The breast milk secreted during the first days after the baby is born, is called first milk or colostrum. Colostrum effectively protects against infections. Initially, only droplets of milk are secreted, but all droplets should be collected in order to give them to the baby.

Colostrum milk

- Secreted during the first days
- Yellow and thick
- Contains plenty of antibodies

Primarily, the breast milk given to babies always comes from their own mother. Where necessary, donated breast milk or formula milk may be given to the baby. Donated breast milk is the secondary option, if milk from the baby’s own mother is not available.
Breastfeeding often requires more practice and may be more challenging if the baby was preterm or requires in-patient care. Suckling the breast or regular expression are the primary stimuli for milk production. Breastfeeding practice will begin as soon as the baby is ready. The baby does not have to immediately learn to suckle the breast efficiently. Suckling the breast will also provide the baby with comfort and intimacy and will promote the increase in milk and maintain milk production.

In order to ensure that the baby receives a sufficient amount of milk, a nasogastric tube will be used to administer milk where necessary. The nasogastric tube is used to support breastfeeding.

Benefits of breastfeeding and expression

<table>
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<th>Benefits for the mother</th>
<th>Benefits for the baby</th>
<th>Other benefits</th>
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<td>• Promotes recovery from childbirth</td>
<td>• Has a positive effect on the development of the baby's intestines</td>
<td>• Ecological</td>
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<td>• Protects from diseases such as type II diabetes, breast cancer and ovarian cancer</td>
<td>• Protects the baby from various infections</td>
<td>• Economic, since breast milk is free of charge</td>
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<td>• A way to keep in touch with the baby when you are separated</td>
<td>• Optimises growth and development</td>
<td>• Supports the formation of an interactive relationship between the mother and the baby</td>
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<td>• Reduces the risk of many short and long-term illnesses</td>
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<td>• Reduces the need for hospital care</td>
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<td>• Provides security and intimacy</td>
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<td></td>
<td>• Reduces the occurrence of necrotising enterocolitis (NEC) and retinopathy of prematurity (ROP) and sepsis in preterm babies</td>
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**Stages of breast milk secretion**

1. The formation of first milk or colostrum refers to hormonally driven milk secretion during pregnancy and the first days after childbirth. At this time, little milk is usually secreted.

2. During the second stage, approximately 36 to 96 hours of childbirth, the mother’s prolactin and oxytocin levels increase. Mothers often become aware of this based on the sensations in their breasts and the increase in the amount of milk secreted.

3. At the third stage, the amount of milk stabilises. Milk production is maintained by the regular expression and/or breastfeeding throughout the breastfeeding period.

Skin contact will help the mother secrete milk. 

**QR code: The benefits of breastfeeding**

The QR code will lead you to the Naistalo.fi (in Finnish) website to read about the benefits of breastfeeding. You can use your phone to read the QR code with a QR code reading application. Several phone models can read the QR code directly using the phone camera.
BREAST MILK EXPRESSION

If the baby is born prematurely or requires treatment in the Neonatal Care Unit for some other reason, it is important to launch the secretion of breast milk by expressing it. **Expression should be launched as soon as possible after childbirth, preferably within one hour and no later than six hours after childbirth.** Initially, only a few droplets of milk will be secreted, and then, a few millilitres will be secreted. Each time milk is expressed is an indication that more milk should be produced. **For launching milk secretion and for increasing the amounts of milk, it is important to express regularly.**

The mode of delivery, stress, prematurity or the mother’s illnesses may have an effect on the production of breast milk or delay lactation. This is normal, which is why the focus should be on regular expression instead of the amounts of milk. From the very beginning, milk should be expressed regularly at an interval of approximately three hours in order to launch milk production.

Where possible, milk should be expressed next to the baby. If the mother and the baby are separated, looking at photographs or videos of the baby or smelling something with the smell of the baby may promote lactation. For the mother’s well-being, it is also important to eat and drink well at the ward and at home.
**First days**

- Express by hand every three hours. At night, milk should be expressed once or twice, as the production of prolactin is at its peak. Prolactin will increase the amount of milk secreted! Initially, there will only be droplets and subsequently a few millilitres of milk, but an empty breast is always an indication that more milk should be produced. The first milk effectively protects from infections. This is why each droplet should be carefully expressed for the baby.

- It is important to express milk regularly instead of focusing on the amounts of milk.

- Once the amount of milk increases (more than 10 to 20 ml/session), use an electric pump. Please initially use the stimulating programme in the pump and regulate the suction comfortably. One session should take approximately 15 minutes if you use a double set to simultaneously express milk from both breasts. If you express milk separately, you should spent approximately 10 minutes on each breast. **At the end, express by hand for a few minutes. This will promote an increase in the amounts of milk and will help you empty your breasts more efficiently.**

- Using the double set to express milk will render milk production more effective and reduce the time required for expression.

- Where possible, keep your baby in skin-to-skin contact with kangaroo mother care.

QR code: Launching milk secretion by expressing (Naistalo.fi, in Finnish)
First weeks

- The first weeks are crucial for increasing the amounts of milk.

- Continue to express using the double set every three hours, between 8 to 10 times per day.

- You should give your breasts a massage while expressing milk. This will also increase the amount of fat in the breast milk.

- Relaxing, listening to music and giving your breasts a massage and keeping them warm may help to express milk and thus increase the amounts of milk expressed.

- At two weeks, you should aim at producing 500–750 ml per day, or more, if you aim at full breastfeeding. Initially, this seems to be a lot, but you should only focus on maintaining a regular expression schedule. The amounts will increase. The amount of milk will increase most readily and most rapidly during the first 14 days. After this, the amount of milk will stabilise. However, it is possible to increase the amounts of milk after this by expressing more often. Please discuss the matter with the personnel if the amounts of milk do not increase after the first week despite regular and efficient expression sessions.

For breastfeeding or expression, there should be no breaks in excess of six hours, or the hormone levels will decrease excessively. This will reduce milk production.

Maintaining milk production

- Please continue to express until your baby can eat all of the milk needed directly from the breast.

- Keep your baby often in skin-to-skin contact and/or your arms.

- If the amount of milk decreases, express more often, every two hours for a few days.
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CLEANING THE BREAST PUMP

• The breast pump components (including the seals and valves) shall be washed carefully with washing-up liquid after each session. First, rinse the components in cool water and wash them with warm water.
• The clean components shall be stored in a dry and well ventilated place. The components shall be assembled with clean hands.
• At the ward, you should replace single-use breast pump components every 24 hours.

Breast milk shall always be handled with clean and disinfected hands.

When breast milk is taken to the hospital from home, the bottles and boxes shall be carefully packed in a cool box with cool packs to keep the milk from warming up.

STORING BREAST MILK AT THE HOSPITAL

• Where possible, colostrum milk should be given directly to the baby when it is fresh, or it should be preserved in a refrigerator.
• Fresh breast milk is preserved for 3 to 4 hours in ambient temperature, and one hour after being kept in the refrigerator.
• Breast milk is preserved for two days in a refrigerator.
• Breast milk is preserved for three months in the freezer.

At the Neonatal Care Unit, a slow infusion may be used to give milk to the baby. During this time, it has been considered that the milk remains usable.

Breast milk should be given to the baby as soon after expression as possible. Refrigeration, freezing and pasteurization will reduce the immunological properties of the milk.
SELECTING AN APPROPRIATE FUNNEL SIZE FOR THE BREAST PUMP

If the funnel is too small, it will not allow the milk to flow out normally, whereas too large a funnel will cause swelling in the tissues and will result in compressed milk ducts.

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<th>Too small</th>
<th>Appropriate size</th>
<th>Too large</th>
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| • The nipple rubs the edges of the funnel's tunnel section.  
• Try a larger funnel. | • The nipple is in the middle of the funnel and can move freely.  
• The size is correct. | • The nipple and part of the areola stretches far into the tunnel.  
• Try a smaller funnel. |

Drawing: Riikka Käkelä-Rantalainen
USEFUL LINKS AND VIDEOS FOR EXPRESSION

Milk expression (manual and electric pump), in Finnish
www.terveyskyla.fi/naistalo/raskaus-ja-synnytys/imetys/maidonerityksen-käynnistäminen-lypsämällä

Where can I borrow an electric breast pump?
rintapumppu.fi
rintapumpunvuokraushelsinki.fi

Long-term expression

Journal for expressing breast milk
In English see last page in this guide.
You can support and help the mother express milk in many different ways. For instance, you can help by ensuring that the breast pump components are kept clean and by taking on a larger amount of housework or taking care of other family members. The mother will need a sufficient amount of drink and healthy nutrition in order to express milk for the baby. The affection and support given to the mother will help maintain the mother’s milk production. Expressing milk may be hard for the mother.

**Pacifier**

During in-patient care, it is recommended that a pacifier be used for well-founded reasons for calming the baby, for pain alleviation and for practising suction. Subsequently, it is recommended that a pacifier be used at home for sleeping to avoid the risk of sudden infant death syndrome. After you are discharged, you should remember that pacifiers are not used to replace time spent on the mother’s breast.
BREASTFEEDING POSITIONS

Finding a good breastfeeding position may be difficult, which is why it is important that the baby and the mother are well supported, for instance with pillows. The breastfeeding position may not be painful, and it should be good for both the mother and the baby. The baby must be able to stay as close to the mother as possible, and the natural shape of the nipple shall not be altered in various positions. After breastfeeding, the breasts should be examined. Initially, the baby’s nose is at the nipple, and when the baby opens its mouth, it can tilt its head backwards and grab the nipple correctly. The entire areola maybe in the baby’s mouth. You should change the position from time to time to empty various sections of the breast.

Seated position

In a seated position, the mother’s back should be as straight as possible, which is when the nipple is correctly placed in the baby’s mouth.

The baby is placed on the breast so that the baby’s stomach is against the mother’s stomach. Use pillows to support the baby’s position. The mother may help the baby with her hands, for instance by holding her breast as illustrated. The mother’s breastfeeding position must be relaxed.

The healthcare personnel will help you find a good position for yourself and for your baby. Your spouse may also support you and help you find the correct position. Please don’t hesitate to ask for advice!
The armpit position

The baby’s feet are under your armpit, and pillows are used to support. This position is suitable for preterm babies and mothers who have undergone a Caesarean.

The horizontal position

The mother may lie in bed on her back or on her side. Pillows may be used for support to keep the baby and the mother in a good position. At the ward, this position is not always possible.

WHAT IS A GOOD BREASTFEEDING LATCH?

• The baby’s mouth is wide open.
• The baby’s lower lip is turned outward.
• The nipple is deep in the baby’s mouth.
• The areola is better visible on the side of the baby’s nose rather than the side of the baby’s jaw.

For a good breastfeeding latch, the baby should be able to latch the breast in the shape of the nipple. The baby should be able to maintain the latch and suckle in rhythm. The baby’s suction is visible from the movements of the jaw, and the baby can be heard swallowing. The baby’s tongue is on the side of the lower breast, and the baby’s nose is not too tightly against the breast. If the baby’s nose is too tightly against the breast, the mother may gently press her breast in order to release the baby’s nostrils. The baby’s suction is not intended to be painful, but during the first days, the mother may feel some pain.
NIPPLE SHIELD

The nipple shield will help the baby hold better onto the breast. This may also help if the mother has low nipples. Preterm babies find it hard to hold onto the breast. In this case, the nipple shield will help by shaping the nipple correctly in the baby’s mouth. This will help the baby hold on in order to eat larger amounts from the breast.

Using the nipple shield

1. Wet the nipple shield with water before placing it. This will help the nipple shield stick better to the skin.

2. Turn the edges of the nipple shield so that the nipple shield looks like a hat or is almost turned inside out and place it on the breast so that the nipple shield sucks the nipple slightly upward.

3. Express a few droplets of milk in the shield so that the baby can immediately smell and taste what it is.

4. After use, rinse the nipple shield with cold water and wash it using washing-up liquid. At the hospital, replace the nipple shield every 24 hours. Nipple shields are multiple-use items, and they are sterilised between uses. At home, the nipple shield should be boiled once per 24 hours.

You can use nipple shields until the baby can independently hold onto the breast. Preterm babies usually need nipple shields until they have sufficiently matured, or until the expected date of delivery. They are subsequently gradually weaned from nipple shields.
**WEIGH-IN BEFORE AND AFTER FEEDING**

The baby is weighed before and after feeding once the baby can independently suckle milk from the breast. The weigh-ins before and after feeding indicate the amount of milk received by the baby from the breast, and accordingly, the baby is given the correct amount of additional milk in addition to breastfeeding. A single weigh-in before and after feeding will not provide sufficient evidence of the baby’s feeding.

For the weigh-in, the baby is weighed before and after breastfeeding. The baby shall wear the same clothing and/or nappies at both stages. The increased weight in grams indicated by the weigh-in corresponds to the amount of milk eaten by the baby in millilitres, for instance +5 g = 5 ml.

A towel may be used to create a ‘nest’ on the scale for the weigh-in. In this case, the baby will feel safe and will more easily stay still during the weigh-in. The scale shall be reset before the weigh-in.
How can you continue to do this at home?

You can continue to breastfeed at home as you did at the ward, practising baby-led feeding. The milk portions focus on daily amounts instead of single portions. Please take the amounts the baby can usually eat from the breast into account at the ward. Monitor how and how long the baby feeds, how your breasts are emptied and what results the weigh-in produces. That is, you can estimate how much the baby can usually eat from the breast. In addition to this, the baby’s weight gain may initially be monitored each week at the maternity clinic. **In addition to this, you should monitor the amount of nappies with urine and faeces.**

If there is uncertainty of the amounts of milk received by the baby from the breast, you may also borrow, rent or purchase scales which are sufficiently accurate for weigh-ins.

In addition to breastfeeding, it is recommended that milk is also expressed at home in order to provide sufficient amounts of milk. Expression should continue until the baby eats all of the milk from the breast.

The way of providing additional milk should be discussed in advance at the ward before you are discharged. It will be tailored to meet the wishes of the baby and the family. In most cases, a nasogastric tube, a baby bottle and sometimes also feeding with a spoon and a mug are used. The use of a nasogastric tube is the best way to promote breastfeeding directly from the breast.
Breastfeeding preterm babies

Kangaroo mother care is the first way of launching breastfeeding with preterm babies. It reduces the stress for preterm babies and increases the mother’s oxytocin secretion, resulting in lactation. In addition to breastfeeding, Kangaroo mother care also has a positive effect on the baby’s physical and neurological development.

For Kangaroo mother care, the baby should be in nappies in skin-to-skin contact against the parent’s bare chest.

Preterm babies may be ready to eat from the breast at a very early stage. However, the development of their readiness to feed is highly individual. Breastfeeding practice will begin as soon as possible once the baby is ready. The personnel will help you interpret the baby’s reactions. For preterm babies, these gestures may be minimal.
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Signs of hunger in preterm babies

- Licking.
- Feeling for the breast.
- Placing hands in the mouth.
- In Kangaroo mother care, the baby may approach the breast.
- On the breast, the baby may taste the breast or grab it to indicate hunger.

As much Kangaroo mother care should be provided as possible. Where possible, it is recommended that you stay with the baby and that you participate in the baby’s care 24 hours a day depending on the situation of your family and the ward.
PRETERM BABY’S JOURNEY TO FULL BREASTFEEDING

A preterm baby’s journey to the breast begins with skin-to-skin contact and closeness in Kangaroo mother care. From there, the baby will slowly approach the breast. The journey may consist of many stages and require plenty of practice and patience before the baby is able to drink all of the milk needed from the breast. The stages are described below.

• Kangaroo mother care

• Approaching the breast

• Licking and tasting

• Searching and finding the breast and taking it in the mouth

• Sucking and swallowing (for short periods during the day)

• Sucking gradually becomes more efficient, but the majority of the baby’s milk still comes from the tube.

• Sucking more milk from the breast compared to the milk received through the tube.

• Drinking all of the milk needed from the breast (full breastfeeding).

(Adapted from texts by Ph.D. Ragnhild Maastrup)

Conditions for breastfeeding a preterm baby:

The baby is not on a ventilator and is sufficiently stable in terms of circulation and breathing.
Initially, preterm babies will practice suckling without focusing on getting milk from the breast. Initial breast-feeding may consist of the baby getting to know the breast briefly, for instance in connection with Kangaroo mother care. When a lively baby comes to practice feeding, and the mother has plenty of milk, it is recommended that the breasts are emptied before breastfeeding. When the baby practices, the nurse may give milk simultaneously through a nasogastric tube. Thus, the baby will associate staying on the chest with the feeling of filling its stomach. Gradually, the baby will suckle on the breast. As the baby grows stronger, suckling will become repeated, and gradually in connection with weigh-ins before and after feeding, it is detected that the baby has received milk from the breast. However, the most important thing is practicing, not the weigh-in result!

In connection with breast-feeding or expression, breasts will secrete foremilk and hindmilk. Their nutrient content differs slightly. Hindmilk contains more fat and energy. If there is plenty of milk, the benefits of hindmilk may also be used for feeding the baby. Hindmilk contains more fat, which is why more of it may be used for feeding if milk is otherwise left over from the baby. The milk content may also be analysed at the ward. This allows a more individual adaptation of the baby’s nutrition.

The breast milk of mothers with preterm babies contains more energy, proteins and carbohydrates compared to the breast milk of mothers with full-term babies.
During the first days, the amount of milk produced is very small and that is completely normal. Your baby benefits from each drop and each pumping increases the amount of milk the next day. The more often you pump, the more milk will be produced. You should pump at least eight times per day. At least one pumping should take place during the night. If the amount of milk decreases, try pumping more often. This will cause milk production to increase.

**Milky way – breast milk pumping diary**

Breast milk should be pumped regularly if the baby's blood sugar levels are monitored, the baby receives supplementary milk in addition to breastfeeding, or is not able suckle at all. During the first days, milk production is best increased by expressing milk by hand. You may begin using the breast pump once milk production has increased. First, massage your breasts for about a minute. If you are using a breast pump, massage your breast while pumping. Alternate frequently between breasts, or pump both breasts at the same time.

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Information and peer support

Health Village (in Finnish)
www.terveyskyla.fi/naistalo/raskaus-ja-synnytys/imetyys

Finnish Association for Breastfeeding Support Imetyksen tuki
ry https://imetyys.fi/

Baby-led Bottle Feeding

Weaning from a Nipple Shield

Finnish Association for Preterm Babies (Kevyt)
www.kevyt.net
(also on Facebook, Instagram and Twitter)