



Breastfeeding a preterm baby

Born too soon

The average pregnancy lasts for approximately 37 – 42 weeks. When born before 37 weeks of pregnancy, the baby is considered preterm. Worldwide, more than one in ten babies is born too soon every year.¹

Nutritional needs: challenges for preterm babies

Preterm babies are particularly vulnerable and have higher nutrient requirements than babies born at term. One reason for this is that they often miss the third trimester of pregnancy, which is usually the period of greatest nutrient accumulation and growth.

The earlier in pregnancy babies are born, the less developed their organs will be. To “catch-up” in growth and development, and to meet their body’s nutritional demands, babies born too soon need more energy, proteins, vitamins and minerals.^{2,3}



The preterm baby’s brain is still very immature as the last trimester of pregnancy is a time of rapid brain development.



The digestive tract of preterm babies is immature. Functions such as intestinal movements, secretion of protective digestive substances as well as digestion and absorption of food are not yet mature.



Depending on the stage of pregnancy when they are born, preterm babies may have missed out on the transfer of antibodies across the placenta during the last period of pregnancy. Their immune system is still immature with reduced immunity.



In the beginning, breastfeeding can be quite challenging for mothers of preterm babies. Preterm babies born before around 34 weeks of gestation are not able to feed directly from the breast. However, there are many ways to feed mother’s own milk to a preterm baby. Expression of milk (by hand or by using an electric pump) is often the best solution until breastfeeding is possible. Frequent expression of breast milk shortly after delivery helps to increase milk supply. Protocols for safe handling are helpful to preserve the high quality of mother’s own milk.⁴ Cleanliness is very important when handling supplies and obtaining milk and ensures that babies receive hygienically untainted mother’s own milk. More information can be found in the EFCNI Brochure *“Breastmilk for preterm babies – more than a meal”*, accessible on www.efcni.org/downloads/brochuresposters.

How women benefit from breastfeeding






Breastfeeding can be beneficial for women by lowering the risk of bleeding after delivery as well as the risk of breast and ovarian cancer. Skin-to-skin contact and breastfeeding may also reduce the risk of postpartum depression within the months following birth.^{3,5}



How preterm babies benefit from mother's own milk

Mother's own milk is the best nutrition for preterm born babies and should be given as soon after birth as possible.⁶

Mother's own milk contains multiple ingredients from which all newborn babies benefit in many ways. Breastfeeding supports immunity, growth, the mother-infant dyad and development and is the optimal choice for both term and preterm babies.⁷⁻⁹

	<p>Immunologic aspects</p>	<p>Mother's own milk protects babies against gastrointestinal and respiratory infections. Feeding mother's own milk results in reduced risk of necrotising enterocolitis (NEC), an acute inflammatory disease of the intestines and the most common gastrointestinal medical emergency occurring in newborns.^{10,11}</p>
<p>Fats in mother's own milk are easily digested. Protective enzymes, hormones, and growth factors are important for intestinal growth and maturation. Oligosaccharides (non-digestible carbohydrates) present in mother's own milk support the establishment of a healthy gut microbiota.</p>	<p>Gastrointestinal aspects</p>	
	<p>Nutritional aspects</p>	<p>Mother's own milk is well tolerated and digested in preterm babies. Lipids and fatty acids are important for neurological and visual development. Colostrum, the valuable first milk provided by mothers during the first days after birth, is rich in immunologic components and contributes crucially to the maturation of the baby's intestines. Please also see infobox on colostrum on the next page.</p>
<p>Skin-to-skin contact gives baby and mother a feeling of emotional closeness, supports milk production and induces release of certain hormones. Skin-to-skin contact also stabilises the preterm baby's heart beat, blood oxygen and breathing frequency.</p>	<p>Bonding and physiological aspects</p>	
	<p>Long-term outcome</p>	<p>There is a link between breastfeeding and decreased risk of overweight and obesity in adults, and a lower risk of type II diabetes and high blood pressure in later life. Some studies show a lower risk for breastfed children to develop clinical asthma later on and furthermore, improved cognitive development of preterm babies was reported if they had been breastfed.¹²</p>

Even though milk from mothers of preterm babies contains higher protein levels, it is not sufficient to cover the baby's nutritional needs, as preterm babies have a much higher protein need than babies born at term. Therefore, mother's own milk usually needs to be fortified with proteins and additional nutrients, once the initial phase of establishing enteral feeding has been completed. Fortifiers contain additional proteins, minerals, fats, and vitamins and may be individually adjusted based on growth rates or laboratory values. More information can be found in the *EFCNI Factsheet on fortification*, accessible on www.efcni.org/downloads/factsheets.



How feeding abilities develop

Preterm babies go through several feeding stages until full breastfeeding is possible.

Very small amounts of breast milk are administered until the intestines get used to it. Preterm babies are able to make sucking movements and swallow, but not at the same time, so drinking is not yet possible. However, every drop of colostrum** administered into the baby's mouth counts. Mouth care with colostrum is especially beneficial for preterm babies.¹³

**Colostrum is the first breast milk available after birth. This first milk is extremely beneficial for the baby thanks to its great infection-fighting and immunity-building properties. It is important for the baby to receive even tiny amounts of colostrum, this is crucial for the baby's health and development and supports the baby's intestines to grow and mature.



Kangarooed babies start to turn their head towards the breast and may lick some drops of milk directly from the breast. Attempts to suck can be observed but babies are usually too weak to suck sufficiently at that time, so most feeds will still need to be through the nasogastric tube.



Preterm babies will gradually get better at sucking and will take more oral feeds. They may occasionally get tired and need a sporadic tube feed. They may need temporary support such as nipple shields, finger feeding, cup feeding, or bottle feeding. Healthcare professionals can help parents to find the optimal method.

At birth



Around 24 weeks



26-30 weeks



30-32 weeks



32-35 weeks



After 35 weeks

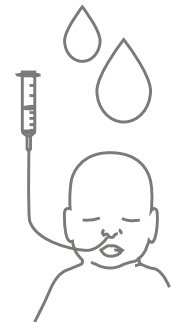
Immediate kangaroo mother care* enhances the development of the baby's feeding ability and triggers the milk production reflex in the mother.³ It might be necessary to start parenteral nutrition (intravenous feeding) after birth if the intestines cannot yet tolerate enough food, usually with combining parenteral and enteral (feeding by using a tube) nutrition. More information can be found in the *EFCNI Factsheet on parenteral nutrition*, accessible on www.efcni.org/downloads/factsheets.



*Immediate KMC: Kangaroo mother care (KMC) for preterm or low-birth-weight infants should be started as soon as possible after birth. KMC is a program defined by WHO as early, continuous and prolonged skin-to-skin contact between the mother (or, if the mother is not available, other caregiver) and the baby, including exclusive breastfeeding and early discharge from hospital.³



Enteral nutrition via nasogastric (from nose to stomach) or orogastric (from mouth to stomach) tube can be initiated soon after birth (unless there are specific contraindications) and is recommended for preterm babies as long as they cannot coordinate to drink, suck, swallow, and breathe. Preterm babies start developing a gag reflex.



Preterm babies will start to coordinate their ability to suck, swallow, and breathe. But most babies at that age are still weak and may get tired easily. Tube feeding is still needed in many cases.



The aim of nutritional support of a preterm baby is to achieve a growth rate as similar as feasible compared to a fetus in the womb at the same age. In order to reach the optimal growth rate, starting to feed as soon as possible after birth is recommended.^{3,6}



Maternal diet and breast milk composition

Maternal diet modulates the content of a number of nutrients in mother's own milk. Therefore, women providing milk for their preterm babies should follow a healthy, balanced diet. Since preterm babies have particularly high needs for the omega-3 fatty acid DHA, women should aim to consume at least two portions of sea fish per week, or/and consider taking a supplement with DHA and potentially ARA (omega-6 fatty acid). Additionally, supplementation of about 100 µg iodine per day, as well as vitamin K and D is recommended during lactation.¹⁴



Ilknur Okay

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"Neither milk pumping nor breastfeeding your baby is mechanical, it is a fully emotional process. Mothers need to contact their babies physically by touching, holding, kangaroo caring and even smelling. We need to support mothers by keeping them closest to their babies for adequate milk expression."

When providing milk is challenging ...

... helpful advice and support from a healthcare professional or a lactation specialist, as well as encouragement by family and friends is of the utmost importance. There is a wide range of things you can try to optimise milk production e.g. regular breast milk expression (minimum 6-8 times per day), using a comfortable pump, and breast massage before milk expression. Even though the quantity of milk produced may seem low, especially in the first few days, every drop is important. If not enough mother's own milk is available, there is the possibility to give donor human milk (from an established human milk bank following national safety guidelines) in addition to the preterm mother's own milk. When mother's own milk and donor human milk are not available, nutrient-enriched preterm formula may be considered as alternative choice at least for very preterm or very low-birth-weight infants.^{3,15} Healthcare professionals decide together with parents about the optimal method of feeding according to the individual needs of the baby.

Going home

At home, feeding is still crucial for the optimal growth and development of a preterm baby. Parents need to continue with adequate nutrition to ensure the optimal supply of nutrients suited to the child's age. Monitoring of growth and weight gain is recommended also at home to adapt the feeding to the changing requirements of the baby. Some preterm babies benefit from continued human milk fortification, which may be recommended on an individual basis after hospital discharge.



Images: EFCNI, Quirin_Leppert, Shutterstock.

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About EFCNI

The European Foundation for the Care of Newborn Infants (EFCNI) is the first pan-European organisation and network to represent the interests of preterm and newborn infants and their families. It brings together parents, healthcare experts from different disciplines, and scientists with the common goal of improving long-term health of preterm and newborn children. EFCNI's vision is to ensure the best start in life for every baby.

For more information: www.efcni.org

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