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]

Mother's own milk is the best nutrition for preterm born babies and should be given as soon after birth as possible.[2]

Breastfeeding and expressing breastmilk

While breastfeeding is highly beneficial for both baby and mother, it can be quite challenging in the beginning 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.[3] Cleanliness is very important when handling supplies and obtaining milk and ensures that babies receive hygienically untainted mother's own milk.

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.[4,5] Healthcare professionals decide together with parents about the optimal method of feeding according to the individual needs of the baby.

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."

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.[6]

The benefits of breastfeeding for both preterm babies and mothers

Mother's own milk is the best nutrition for preterm born babies and should be given as soon after birth as possible.[2] 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]

Bonding and physiological aspects

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. In addition it aids breastfeeding.

Immunologic aspects

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.

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]

Gastrointestinal aspects

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.

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.

Nutritional aspects

Mother's own milk is well tolerated and digested in preterm babies. The preterm baby's brain is still very immature as the last trimester of pregnancy is a time of rapid brain development. Lipids and fatty acids are important for neurological and visual development.

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.

Long-term outcome

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]

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.[4,13]

How feeding abilities develop

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

At birth

Very small amounts of breast milk are administered as soon as possible 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.[14]

Immediate kangaroo mother care (also known as iKMC) enhances the development of the baby's feeding ability and triggers the milk production reflex in the mother.[4] 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.

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.

Between week 26-32

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.

Between week 32-35

Preterm babies wil 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.

After 35 week

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.

Good to know

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.[4]

Additional nutritional needs of preterm babies and fortification

Preterm babies require higher nutrient intake due to missed third trimester growth. They need more energy, proteins, vitamins, and minerals to support organ development and meet nutritional demands. Their immature brains and digestive tracts necessitate fortified breast milk containing extra proteins, minerals, fats, and vitamins, tailored to individual needs.

Preterm babies might miss out on placental antibody transfer, leading to an immature, less immune system. Despite higher protein levels in maternal milk for preterm babies, it's insufficient for their elevated protein requirements. Thus, it's usually fortified after initial enteral feeding, with adjustability based on growth rates or lab values, adding proteins, minerals, fats, and vitamins.

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.[4,15]

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.

Further related information material

Feel free to access further information material on the topic preterm nutrition.

EFCNI Factsheet on Fortification

EFCNI Factsheet on Parenteral nutrition

EFCNI brochure on Breastmilk for preterm babies – more than a meal

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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 visit us at: ***www.efcni.org***

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