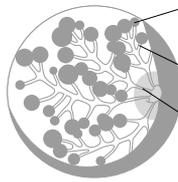


What makes breastmilk so unique?

Surprise! The breast is an organ, too!

Your breasts can also be called mammary glands and they produce breastmilk. Within each mammary gland, different parts play a role in making and transporting breastmilk.



- 1 Alveoli
This is where breastmilk is made and stored. Alveoli are clusters of small grape-like sacs in your breast. They are surrounded by tiny muscles that squeeze them to push milk out into the ductules. Alveoli develop during your pregnancy.
- 2 Ductules
These are small canals that carry milk from the alveoli to the main milk ducts.
- 3 Main milk ducts
This intricate network of canals carries milk from the alveoli and ductules straight to your baby. You have an average of 9 of these main milk ducts in your nipple.

Breastmilk is a living fluid

Breastmilk is a living substance that changes to meet the growing needs and development of the child.



The power of colostrum

The precious colostrum and the milk you make in the first weeks are different from mature milk. Colostrum may not seem like a lot of volume, but it is jam-packed with ingredients, containing double the amount of protein than your later milk. These proteins protect your baby against diseases from the very beginning.

Wow! The cells can change!

Breastmilk contains live cells, like stem cells. These stem cells can be directed to become other body cell types such as bone, fat, liver and brain cells and may act as a type of "internal repair system". Isn't that amazing?

Your breastmilk is what you eat

Breastmilk has a flavour profile: The foods you eat during pregnancy and breastfeeding flavour the amniotic fluid and milk and may 'program' later food preferences of your baby.



Pregnancy



Breastfeeding



After weaning

Breastmilk is the most natural defence

When a baby is born, breastmilk is the baby's first immunisation to help fight disease and illness. Breastmilk is a living substance that changes to meet the growing needs and development of the child.



Thousands of ingredients

There is no substitute for breastmilk. There are thousands of different ingredients in breastmilk such as proteins, fats, lactose, vitamins, iron, minerals, water and enzymes. The vast majority of these ingredients cannot be replicated artificially.

Just the fat a baby needs

Human milk is specifically designed for human babies. Your milk contains around 4% fat, while milk of seals and whales contains up to 50% fat! The fats in your milk are important for growth and development, and are even antibacterial.

Over 130 prebiotics

Breastmilk contains prebiotics, more than 130 complex sugars (oligosaccharides) that help protect the gut from different types of microbes. No other species has so many special sugars except perhaps the elephant!

Over 415 proteins

Many of the proteins in breastmilk are active with functional roles! Some of these proteins can help to kill bacteria and others can identify pathogens. These immune proteins are guards that protect against microbes.

Breastmilk supports brain development

The brain is the fattest organ in the body! Brain mass almost doubles in the first 6 months and at 2 years of age it reaches more than 80% of adult size. Breastmilk contains essential components for optimal development of the brain.



Brain at birth
0.38 kg



Brain at 6 months
0.64 kg



Brain at 1 year
0.97 kg



Adult brain
1.25 kg

Breastmilk: the gold standard



Breastmilk is the ultimate all-in-one meal for your baby. Amazingly, your body produces the right nutrients in the right amount and the right volume of milk to match your baby's needs at all times.

References

- 1 Ramsay,D.T., Kent,J.C., Hartmann,R.A., & Hartmann,P.E. Anatomy of the lactating human breast redefined with ultrasound imaging. J Anat 206, 525-534 (2005).
- 1 Hasiotis,F. et al. Breastmilk is a novel source of stem cells with multilineage differentiation potential. Stem Cells 30, 2164-2174 (2012).
- 1 Mennella,J.A., Jagnow,C.P., & Beauchamp,G.K. Prenatal and postnatal flavor learning by human infants. Pediatrics 107, E88 (2001).
- 1 Jansen,R.G. Handbook of milk composition (Academic Press, San Diego, 1995).
- 1 Kunz,C., Rudolf,S., Schaeff,W., & Braun,D. Lactose-derived oligosaccharides in the milk of elephants: comparison with human milk. Br. J. Nutr. 82, 391-399 (1999).
- 1 Molinari,C.E. et al. Proteomic mapping of human skim milk proteins in term and preterm milk. J Proteome Res 11, 1696-1714 (2012).
- 1 Dekaban,A.S. Changes in brain weights during the span of human life: relation of brain weights to body heights and body weights. Ann. Neurol. 4, 345-356 (1978).