

# Milk Production – How it Works



## *The Beginning of Milk Production*

The female body prepares itself to feed the baby during pregnancy. You will notice that your breasts are changing: The nipples and areola (brown area around the nipple) will become darker. Your breasts become larger, heavier, and firmer. Your nipples will become more sensitive. Small glands on the areola will enlarge; these areolar glands secrete an ointment to lubricate and protect the nipple and it releases a scent that will guide the baby to the nipple. The milk ducts and milk producing tissue in the breasts develop. When you're about 16-20 weeks pregnant, your breasts already start producing milk, called colostrum. Some women might leak a few drops of colostrum towards the end of their pregnancy. That is quite normal and nothing to be concerned about. However, most mothers will not secrete milk until after the baby's birth, because the pregnancy hormones inhibit milk ejection. So, during pregnancy the breasts develop for milk production, even start production of colostrum, but do not secrete milk yet.

## *Milk Production Continued after Birth*

### *Milk Production and Secretion due to Hormonal Changes*

After the birth of your baby, the placenta will be delivered and this will cause the pregnancy hormones to decrease. Subsequently, two other hormones will be released: prolactin and oxytocin. Under influence of these two hormones your breasts will produce and secrete milk. Putting the baby to the breasts soon after birth and frequent feeding in those first few days is very important. Why?

- Your baby will get very valuable colostrum
- Your baby will lose less weight
- Your baby will pass his first stool (meconium) faster
- You reduce the chance of the baby becoming (very) jaundiced
- Your baby's blood sugar will remain stable
- Your mature milk will come in faster
- It is a good opportunity to practice breastfeeding on soft breasts
- Frequent breast stimulation in those early days after birth will stimulate the development of so called "prolactin receptors". These prolactin receptors make it possible for the hormone prolactin to enter the milk producing cells, causing the cell to produce milk. Development of "prolactin receptors" is necessary for sufficient milk production in the weeks and months ahead as your baby's needs increase.

### *Milk "Comes In"*

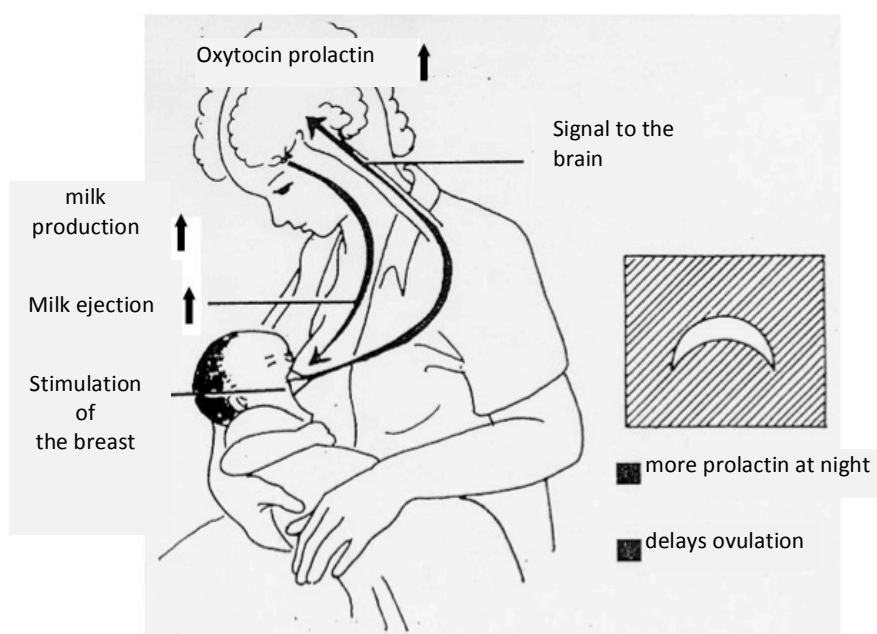
Around the third or fourth day after birth, your milk will come in: it is the onset of copious milk production. This doesn't mean that until now you didn't have any milk. The small amounts of colostrum your breasts have produced in the first days are exactly enough to satisfy your newborn's need. His small stomach (which is only the size of a small marble in the first days after birth) can handle only small amounts of milk. As your baby's stomach and his appetite grow, your breasts start producing more. Your milk comes in and you will be able to feel and see your breasts become fuller. Colostrum gradually changes in colour, composition, and quantity.



### “Demand=Supply”

In the first week after birth milk production is regulated by the hormonal change that occurs after delivery. In the second or third week milk production will start to be controlled by the “demand=supply” principle. This principle is shown in the picture below:

Every time the baby nurses, a signal goes to the mother’s brain, causing the release of the hormones prolactin and oxytocin. Prolactin stimulates the breasts to produce milk. Oxytocin causes the muscles around the milk producing cells to contract, resulting in milk secretion: the “milk-ejection” or “let-down reflex”. The more milk the baby “demands”, the more milk the breasts “supply”. Another mechanism will stop full breasts from producing milk and will allow an empty breast to produce milk. In this way your milk supply is adjusted to the needs of your baby. It is therefore important that the mother continues to regularly feed the baby in order to maintain a good milk supply.



The “demand=supply” principle is influenced by a few factors:

- *Don't limit night feedings:* Prolactin levels are higher during the night than during the day. Therefore, feed on demand both day and night.
- *Relax!* Tension, stress, anger, and lack of confidence can inhibit the let-down reflex.

- *Good latch:* only if the baby drinks correctly from the breasts, signals will go to the brain, and milk production and secretion is stimulated. (Read “Is my Breastfeeding Baby Getting Enough to Eat?” and “The Importance of Latch-on”)

In the first 3-4 weeks, your milk supply adapts to the baby’s demand. Once breastfeeding is well established, your breasts won’t feel as full anymore. Breasts return close to their pre-pregnancy size, but they still produce plenty of milk.

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