



### Frequent and Efficient Milk Removal

A nursing mother's breasts are producing milk at all times, with the speed of production depending on the "emptiness" of each breast. (Note that milk production works independently for each breast).

Milk collects in the breasts in between feedings, so the greater the amount of time between feedings, the greater the amount of milk in the breasts. When there is a lot of milk in the breast, a special protein in breast milk called Feedback Inhibitor of Lactation (FIL) prevents the alveoli from making more. When milk is removed from the breast—and FIL is not there to stop milk production—the alveoli get busy and manufacture more milk. This is why it is important to nurse often and to encourage the baby to empty the breast as much as possible for optimal milk supply.

However, don't think of your breasts as containers that are completely emptied after nursing and then need to time to "refill." Breasts are never "empty," since milk is being produced at all times. Research has shown that babies remove, on average, 75-80% of their mother's available milk per feed. Waiting a set amount of time to nurse your baby can be counterproductive to your milk supply. Consistently delaying nursing over time will lead to a decreased milk supply because you are allowing milk to accumulate in your breasts, and a full

breast signals your body to produce less milk. Rather than thinking of nursing or pumping as "pouring milk out of a container" think of it as flipping on the "high speed production" switch!

Whether nursing or pumping, stimulating the let-down reflex is the key to effective removal of milk from the breasts, because the let-down makes the milk in all parts of the breast available. Some milk accumulates near the nipple, but without the let-down reflex, most of your milk will remain in the breast. While many mothers feel a tingly, or achy, sensation in their breasts during let-down, and/or experience a feeling of relaxation, some mothers do not feel anything at all. Other signs of let-down include: milk leaking from the other (non-nursing) breast; a change in the baby's suck-swallow rhythm, from quick sucks to long, slow sucks with regular swallowing after every couple sucks; baby gulping; or milk appearing at the corners of baby's mouth. A mother who is pumping will notice a significant increase in milk being removed from her breasts.

When a baby is nursing, his mouth must be opened wide enough to take in as much breast tissue as possible, so that his gums grasp the area behind the nipple. If baby sucks only on your nipple, only a little milk will be drawn out, and your nipple will be irritated unnecessarily. Remember one of the golden rules of effective latch-on: Babies suck on areolas, not nipples. Baby must have enough of your areola in his mouth to efficiently get the milk out.

### Foremilk and Hindmilk

The milk your baby receives at the beginning of a feed is called "foremilk" and is thin like skim milk because of its relatively low fat content. As baby continues to suck, the milk later in the feed is called "hindmilk" and is much higher in fat and slightly higher in protein. The creamier, more caloric hindmilk is very important for a baby's weight gain and helps his tummy feel full.

There is actually no sharp distinction between the production of foremilk and hindmilk. As milk is produced in the breast, the fat globules in the milk tend to stick to each other and to the walls of the alveoli. As the breast starts to empty, the fat globules begin to dislodge and move

down the ducts (let-down facilitates this process). So the further into the feed, the higher the fat content of the milk, as more and more fat globules are forced out. The end result is that the milk gradually increases in fat as the feeding progresses.

The fat content of milk is primarily determined by the emptiness of the breast: the less milk remaining in the breast, the higher the fat content. Because every baby varies in the amount of time it takes him to receive his fill of the higher-fat milk at the end of the feeding, it is important not to switch breasts while baby is actively nursing. Wait until baby pulls off the breast himself, goes to sleep, or stops actively sucking and swallowing. Then you can offer the other breast, although he may not be interested. It is much more important that he get the right balance of milk during the feeding than that he nurse both sides.

### Low Milk Supply "False Alarms"

Concerns about milk supply are very common for new mothers. If baby is gaining weight well on breastmilk alone and having adequate wet and dirty diapers, then you do not need to worry about your supply.

Sometimes mothers *mistakenly* think their milk supply is low if:



- **Your baby nurses frequently.** Breastmilk is digested quickly, so breastfed babies need to nurse frequently (minimum every 2-3 hours). Babies have a strong need to suck and be in close contact with mom. These needs are normal, and a baby cannot be spoiled by meeting these needs.
- **Your baby suddenly increases frequency and/or length of nursings.** This can indicate a growth spurt, lasting a few days to a week. Let baby nurse as he wishes; this will increase your milk supply to meet his growth needs.
- **Your baby doesn't nurse as long as he used to.** As babies get older, they may become more efficient at extracting milk.
- **Your breasts seem softer or don't leak anymore.** This can happen after your milk supply has adjusted to your baby's needs.
- **You never feel a let-down, or it doesn't feel as strong as before.** Some mothers never feel a let-down; this has nothing to do with milk supply.
- **You get very little or no milk from a breast pump.** The amount of milk pumped is not an accurate measure of your supply. A baby with a healthy suck, and latched-on / positioned properly at the breast, will always remove more milk than a pump.
- **Your baby is fussy.** Babies fuss for many reasons; sometimes the cause is not identified. It is normal for baby to have a fussy time during the day which may coincide with cluster feeding (frequent nursing sessions). If your baby is generally happy most other times of the day, and baby does not seem to be in real pain during the fussy period, continue to soothe him by holding him close and let him nurse as frequently and long as he will.

Don't be tempted to offer a bottle (containing expressed milk or formula) when your baby is fussy, as supplementation will tell your body that less of your milk is needed and your milk production may decline. Fussy periods are normal and common for all infants, no matter how they are fed. If you have ever offered a bottle to a fussy baby, he may have seemed to guzzle it down. Does this automatically mean you had no milk and/or your baby was truly hungry? Actually, no. Sometimes babies will seem to willingly

take a bottle during a fussy period or even after a full nursing session. When the bottle goes in the baby's mouth, his mouth fills with milk, and he is obligated to swallow and the action of



swallowing initiates another suck. The suck again fills the mouth and the cycle repeats, giving an appearance of the baby "gulping the bottle down

**If you are concerned about your milk supply, please contact your local La Leche League Group.**

hungrily". Baby may also fall asleep afterwards. This, of course, can contribute to your fear that baby wasn't getting enough at the breast, and you may be understandably tempted to offer more and more bottles.

What may have really happened is the baby has by coincidence come to the natural conclusion of the fussy spell (most parents give the bottle as a last resort which means the fussiness has been going on for awhile) and/or the baby has withdrawn because "gulping" down the bottle was actually stressful and NOT what the baby wanted but he could not stop the flow, so he falls asleep from exhaustion.

### Potential Causes of Low Milk Supply

If you are concerned about your milk supply, please contact a La Leche League Leader in your area.

If your baby is not gaining weight well, or is losing weight, you will need to stay in close contact with your baby's physician, as it's possible a medical condition could be the cause. Supplementing may be medically necessary for babies who are losing weight until your milk supply increases.

If supplementing is medically necessary, the best thing to supplement with is your own expressed milk.

The following are potential causes or contributors to a low or decreasing milk supply:

- **Supplementing.** Breastfeeding is a supply and demand process. Milk is produced as your baby nurses, and the amount that she nurses lets your body know how much milk is required. Every bottle (of formula, juice or water) that your baby gets means that your body gets the signal to produce that much less milk.
- **Nipple confusion.** Breast and bottle feeding require different oral-motor skills. Giving a bottle can either cause baby to apply inappropriate suckling techniques to the breast, or can result in baby preferring the constant faster flow of

a bottle. It is best to avoid introducing a bottle until breastfeeding is well established, or after around 4 weeks of age.

- **Pacifiers.** Pacifiers can cause nipple confusion. They can also significantly reduce the amount of time your baby spends at the breast, which may cause your milk supply to drop.
- **Nipple shields.** Nipple shields, while sometimes helpful in specific situations, can also lead to nipple confusion. They can also reduce the stimulation to your nipple or interfere with milk transfer, which can interfere with the supply-demand cycle.
- **Scheduled feedings.** Waiting a specified period of time between feedings can interfere with the supply *continued on next page*





and demand cycle of milk production and can lead to a reduced supply, sometimes several months later rather than immediately. Nurse your baby whenever she is hungry.

- **Limiting length of feedings.** Ending a nursing session before your baby ends the feeding herself can interfere with the supply-demand cycle. Also, the fat content of your milk increases later in a feeding, which helps baby gain weight and go longer between feedings.
- **Sleepy baby.** For the first few weeks, some babies are very sleepy and only demand to nurse infrequently and for short periods. Until baby wakes up and begins to demand regular nursing, nurse baby at least every two hours during the day and at least every 4 hours at night to establish your milk supply.
- **Offering only one breast per feeding.** This is fine if your milk supply is well-established and your baby is gaining weight well. If you're trying to increase your milk supply, let baby finish the first side, then offer the second side.
- **Encouraging the baby to sleep through the night.** Encouraging or "training" baby to sleep through the night can compromise your milk supply. Night feedings are the most beneficial for increasing milk supply because the levels of prolactin, the milk production hormone, rise during nighttime.
- **Health or anatomical problems** with baby can prevent baby from removing milk adequately from the breast, thus decreasing milk supply.

### Increasing Your Milk Supply

To speed milk production and increase overall milk supply, the key is to remove **more** milk from the breast and

to do this **frequently**, so that less milk accumulates in the breast between feedings.

- **Make sure that baby is nursing efficiently.** This is the "remove more milk" part of increasing milk production. If milk is not effectively removed from the breast, then your milk supply decreases. If a baby's positioning and latch-on are "off" then baby may not be transferring milk efficiently as he could be. A sleepy baby, use of nipple shields, or other issues mentioned above can also interfere with baby's ability to transfer milk. Inefficient milk transfer can lead to baby not getting enough milk or needing to nurse almost constantly to get enough milk. If baby is not transferring milk well, then it is important for mom to express milk after and/or between nursings to maintain milk supply while the breastfeeding problems are being addressed.
- **Nurse frequently** and for as long as your baby is actively nursing. Spend a couple days doing little else but nursing and resting to build your supply.
- **Try breast compressions.** Hold your breast with your thumb on one side and your four other fingers on the other side and when baby is no longer actively sucking, squeeze the breast firmly. The faster milk flow should cause baby to start nursing actively again. Rotate fingers around the breast to stimulate milk flow from different areas until this no longer keeps baby actively nursing.
- **All baby's sucking should be done at the breast.** Avoid bottles and pacifiers. If supplementation is necessary, try a spoon, cup, or dropper.
- **Give baby only breastmilk.** Avoid all other liquids (water, formula) and solids if baby is younger than six months. Any weaning from formula supplementation should be done gradually to allow adequate time for your milk production to catch up.
- **Take care of yourself.** Rest and relax as much as possible. Drink plenty of liquids to match your thirst (drinking excess water will not increase supply), and eat a well-balanced diet.

- **Consider pumping.** Adding pumping sessions after or between nursing sessions can be very helpful - pumping is very important when baby is not nursing efficiently or frequently enough, and can speed things up in all situations. *Your aim in pumping is to remove more milk from the breasts and/or to increase frequency of breast emptying.* When pumping to increase milk supply, to ensure that the pump removes an optimum amount of milk from the breast, keep pumping for 2-5 minutes *after* the last drops of milk. However, adding even a short pumping session (increasing frequency but perhaps not removing milk thoroughly) is helpful.
- **Consider a galactagogue.** Various substances, including certain herbs and prescription medications, can increase milk supply. Discuss these options with your healthcare provider.

Resources:

- [www.llli.org](http://www.llli.org)
- [www.askdrsears.com](http://www.askdrsears.com)
- [www.drjacknewman.com](http://www.drjacknewman.com)



La Leche League of Florida & Caribbean Islands  
<http://www.lllflorida.com/New%20Site/New%20Site.html>

To find an LLL Group near you, go to: <http://www.llli.org/>



La Leche League of Florida & Caribbean Islands



# Understanding Milk Production

*A guide for breastfeeding mothers and healthcare professionals*

## Breast milk is the normal and healthiest food for human babies, and breastfeeding creates a nurturing relationship between mother and child.

Have you ever wondered how this amazing process of milk production actually works? How does milk get into the breasts and how does it keep flowing and flowing?

Understanding the mechanics of milk production can help you appreciate even more how your body is able to support a new life. Additionally, learning how milk production works can help you avoid inadvertently decreasing your milk supply, and understand how to effectively increase your milk supply, if necessary.

### Basic Anatomy of the Breast

The lactation system within your breasts resembles a tree. The milk glands, or alveoli, are grapelike clusters of cells high up in the breast that make milk. Milk travels from the alveoli down through the milk ducts, and then empties through approximately 9 openings in your nipple.

The breast is made up of units called lobes, each one composed of a single major milk duct with multiple smaller ducts and alveoli leading into it. When the baby opens his mouth and creates

negative pressure, the milk ducts open and milk is drawn into the baby's mouth. The areola, the darker area surrounding the nipple, gets its color from the many capillaries under the skin that carry blood to the nipple.

Within the areola there are sebaceous glands (which secrete oil to soften and protect the skin), sweat glands, and Montgomery's glands, which are believed to produce a substance that lubricates the nipple and protects it from germs.

### The Role of Hormones

Milk production does not start out as a supply and demand process. During pregnancy and the first few days after birth, milk supply is hormonally driven.

A mother's breasts automatically produce colostrum during pregnancy. After birth, the amount of milk produced increases dramatically as colostrum gradually transitions into mature milk. Since this process is still controlled by hormones, the breasts begin to produce milk whether a mother is breastfeeding or not.

Prolactin is the main hormone in charge of milk production. After a mother's milk "comes in" or transitions into mature milk, it is extremely important to breastfeed often (and/or pump if the baby cannot feed well). Frequent breastfeeding in the first weeks after birth increases the

number of prolactin receptors in the breast. Having more prolactin receptors makes the breast more sensitive to prolactin, which researchers believe affects how much milk a mother is able to produce going forward.

During the establishment of a mature milk supply, the production of milk switches from endocrine (hormonal) control to autocrine (local) control. This means that continued milk production depends more on the ongoing removal of milk from the breasts than on the hormones circulating in the blood.

The "supply and demand" principle takes over. The more a mother nurses, the more milk she will produce. If she nurses less, her body will respond by slowing down milk production. In addition to stimulating the secretion of prolactin, your baby's sucking also stimulates the secretion of another hormone called oxytocin, which causes the elastic tissue around each of the many alveoli to contract, squeezing a large supply of milk through the milk ducts and out the nipple.

This is called the milk ejection reflex, or let-down. Oxytocin is referred to as the "hormone of love," since it produces a state of relaxation in the nursing mother.

*Continued inside*