

# Breast Massage

## A “Handy” Multipurpose Tool to Promote Breastfeeding Success

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*Breast massage is not new. It is a “handy” technique that has been studied for decades and praised for its many uses in establishing and sustaining lactation, overcoming breastfeeding difficulties, and preventing or treating maternal and infant problems. This article reviews some of the studies examining various breast massage and breast-compression techniques, and proposes possible indications for their use.*

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*One of the most powerful stimulants to the secretion of milk is massage of the breasts.*

L. Emmett Holt, MD, 1899

For over a century there has been concern for early failure of breastfeeding, and attempts have been made to prevent the problems that precipitate that failure. The purpose of this article is to review the literature associated with the use of breast massage, and to summarize indications for its use.

Several mechanisms are believed to be responsible for the beneficial effects of breast massage on lactation. Because blood flow is closely correlated with the rate of milk secretion (Neville & Neifert, 1983), stimulating mammary blood flow with massage may enhance milk yield. Massage and/or compression may mechanically move the milk out of the glands and ducts toward the nipple ensuring the subsequent production of milk. Various studies over the years have contributed to the evidence base related to breast massage.

Waller (1946) identified engorgement as a leading cause of early breastfeeding failure. To prevent engorgement and subsequent pressure involution, he proposed the use of breast massage and manual expression. Building on Waller's work, Iffrig (1967) used breast massage and putting the baby back to breast if the mother's breasts were still firm and tender after a feeding. This procedure resulted in softer, more comfortable breasts, and more satisfied babies. The fact that many babies fell asleep before nursing again at both breasts led to the development of Alternate Breast Massage. This technique allows the baby to nurse while the mother observes the feeding pattern. When the nutritive sucking movements are long, slow, and rhythmic, accompanied by swallowing, the baby effectively removes milk and avoids production of sustained negative pressure that causes nipple injury. Iffrig suggests when the sucking changes to a rapid and shallow non-nutritive sucking pattern followed by prolonged pauses, indicating slowed milk flow, the mother can start alternating breast massage with the baby's sucking. With the baby still latched on, the mother gently massages the breast until the baby again sucks and swallows. She then suspends the massage until the baby resumes the non-nutritive sucking pattern. Thus the breast massage is alternated with the bursts of the baby's sucking. When one area softens she moves her fingers to a new position and continues alternating the massage with the baby's nursing until the entire breast has softened.

To study the effectiveness of Alternate Breast Massage, Iffrig (1968) took two groups of 30 mothers each: one group was taught the massage, and the other group was not taught the technique. The babies of mothers in both groups were weighed before and after feeding to determine the amount of milk ingested. Babies in the massage group consumed an average of 22.3 gm more per feeding than the babies in the non-massage group. When the daily totals were compared, the babies in the experimental group received an average of 4.5 ounces of milk more than the babies in the control group. Iffrig also observed that 97 of 100 mothers using the massage technique experienced neither painful breasts nor sore nipples. No control group was utilized in the latter phase of this study.

### Breast Massage Videos

#### Marmet

- <http://www.ivillage.com/learn-how-hand-express-breastmilk/6-a-127422?p=2>

#### Morton & Colleagues

- <http://newborns.stanford.edu/Breastfeeding/HandExpression.html>
- <http://newborns.stanford.edu/Breastfeeding/MaxProduction.html>

#### Newman & Kerneman

- <http://www.drjacknewman.com/help/Breast-compression.asp>

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Inspired by the Iffrig study, Bowles, Stutte, and Hensley (1987/1988) recruited pregnant women from prenatal classes, which included a two-hour class on breastfeeding. Every other class was taught the Alternate Breast Massage technique. This resulted in 22 experimental and 29 control subjects. All babies were weighed at four-to-six week pediatric check-ups. Babies in the breast-massage group averaged weight gains of 10.33 gm/day more than infants in the non-massage group, or nearly a pound more over the four-to-six week period. None of the mothers in the experimental group reported breast or nipple discomforts compared to 3% in the control group. Only 27% of mothers in the massage group expressed any concern for underproduction of milk compared to 59% of mothers in the control group.

Realizing that the breast was the research subject, not the mother or baby, Stutte, Bowles, and Morman (1988) had lactating women pump their breasts simultaneously using an electric breast pump, while massaging only one breast and utilizing the other breast as a control. The procedure was repeated the following day with the women massaging the opposite breast. This resulted in 36 pairs of samples for comparison. Mean volume of milk pumped from the massaged breast was 4.8 ml greater than that from the non-massaged breast. Mean creatinocrit from the massaged breast was 1.92% higher than from the non-massaged breast. These results indicate that breast massage can increase volume and fat content of breast milk. Increasing fat content coincidentally increases caloric value.

Several researchers studied the effects of breast massage on hormone levels and breast-milk composition. Acknowledging that suckling is the most powerful stimulus for lactation, Yokoyama et al. (1994) compared the secretion of oxytocin and prolactin in response to suckling and breast massage. Six subjects received 20 minutes of their infant's suckling stimulus during breastfeeding, and six more received only breast massage and manual expression by a midwife. Blood samples for oxytocin and prolactin were drawn every two minutes from 10 minutes before the stimulus to the end of the stimulus period. In the suckling group, oxytocin was released in a pulsatile manner, but the difference in oxytocin level before and after suckling was low. In the breast-massage group, oxytocin levels stayed steady at high levels during the breast massage. Prolactin levels increased during sucking but not during breast massage. In view of these findings, the authors recommend breast massage as an adjunct to infant suckling during breastfeeding.

Matthiesen et al. (2001) videotaped mother-infant dyads from birth through the first feeding and assessed infant hand movements and sucking behavior every 30 seconds. Blood samples were collected for oxytocin levels every 15 minutes. This study concluded that infants used their hands to explore and stimulate the breast in preparation for breastfeeding. A coordinated pattern was identified during nursing in which the infants alternated sucking and massage-like hand

movements. Elevation in oxytocin levels followed periods of hand movements.

Foda, Kawashima, Nakamura, and colleagues (2004) took milk samples immediately before and after breast massage from healthy, exclusively breastfeeding mothers. Breast massage significantly increased total solids, lipids, casein concentration, and gross energy. Lactose was not significantly changed by breast massage. Foda and Oku (2008) studied the effect of breast massage on breast-milk protein. Analyzing milk samples from 39 healthy breastfeeding mothers, they demonstrated a significantly increased whey protein concentration following breast massage.

Jones, Dimmock, and Spencer (2004) compared sequential and simultaneous breast pumping on volume and fat content of expressed milk, as well as the effect of breast massage on milk volume and fat content. Their results showed that simultaneous pumping is more effective in producing milk than sequential pumping, and that breast massage has an additive effect, improving milk expression by both methods.

The effect of breast massage on maternal comfort has also been studied. To test the effectiveness of preparation methods for breastfeeding, Storr (1987) studied 25 subjects who served as their own controls by preparing only one nipple and massaging one breast. Nipple tenderness and breast engorgement were assessed. Results indicated that tenderness and engorgement were decreased on the prepared and massaged breast. Examining the effects of alternative therapies to support breastfeeding, Ayers (2000) utilized breast massage consisting of moderate, even pressure to the breast from the base to areola by encompassing the breast with both hands and sliding them forward several times. This resulted in significantly less engorgement of the massaged breast.

Morton and colleagues (2009 a&b) described a hands-on pumping technique in which the mother used bilateral pumping with an electric breast pump while simultaneously compressing the breasts and massaging firmer areas. They demonstrated that pump-dependent mothers of preterm infants, and mothers otherwise at risk for insufficient milk production can attain and sustain good milk volumes using hands-on pumping and breast massage. They concluded that increased milk production results from more effective breast emptying rather than increasing the frequency or duration of the pumping sessions. They recommended that studies of pumping effectiveness should factor in the use of breast massage. Morton's video, [Hand Expression of Breastmilk](#), demonstrates the use of gentle breast massage before hand expression to stimulate the flow of milk (Morton, 2009a). The video, [How to Use Your Hands When You Pump](#), demonstrates the use of breast massage and compression during pumping to improve emptying of the breast to increase milk production. This technique emphasizes the importance of massaging the entire breast including the periphery (Morton, 2009b).

Descriptions of popular breast massage techniques can be found on the internet. The [Marmet Technique](#) of manual expression recommends assisting the milk-ejection reflex by massaging the milk producing cells and ducts in a circular motion similar to that used in a breast examination. This massage technique is used in conjunction with light stroking motions from the base of the breast to the nipple and shaking the breast while leaning forward so gravity will help the milk eject (Marmet, 1999).

Newman and Kernerman (2008) propose that in the early weeks of life, infants tend to fall asleep when the milk flow slows, even if they have not had a good feeding. They describe a variation of Alternate Breast Massage, called [Breast Compression](#), to continue the flow of milk when the baby pauses during nursing. This works especially well to assist the baby to get more colostrum in the early days of nursing.

## Summary

Breast massage is not new. It is a “handy” technique that has been studied for decades and praised for its multiple uses for establishing and sustaining lactation, overcoming breastfeeding difficulties, and preventing or treating maternal and infant problems. It can stimulate the milk-ejection reflex and improve the caloric content and volume of the milk supply. This may enable the mother to supplement her infant at the breast with her own breast milk, preventing unnecessary formula supplementation, and the premature weaning that inevitably results. Other potential indications are listed in the accompanying table. However, the greatest benefit of this versatile, multipurpose technique is empowering the mother to respond to her own and her infant’s needs, confident that through breastfeeding she is doing the very best for herself and her infant.

### Summary of Reasons to Try Breast Massage

Goals	Possible Indications
To enhance normal breastfeeding:	All breastfeeding mother/baby dyads.
To maximize colostrum intake to prevent:	Hypoglycemia Jaundice from delayed stooling
To promote efficient drainage/emptying of the breast during:	Engorgement Plugged ducts Mastitis Sore nipples
To establish and maintain the milk supply using a breast pump for:	Induced lactation/re-lactation Premature infants Gavage-fed infants Temporary suspension of breastfeeding due to breast milk jaundice, maternal medication, hospitalization, etc.
To increase milk production and transfer for:	Failure to thrive Slow weight gain Growth spurts Sleepy infants Placid, “happy to starve” infants

To facilitate milk removal with minimal sucking effort for:	Sore nipples Craniofacial abnormalities Neurological defects Cardiorespiratory impairments
To maximize breastfeeding when there are negative effects from:	Hormonal contraception Smoking Supplementation Skipped feedings or baby sleeping all night Return to employment Nipple shield use Hemorrhage or anemia Retained placental fragments

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U.S. Breastfeeding Committee published a new [Statement on Infant/Young Child Feeding in Emergencies](#).