

FOCUS ON SUBSPECIALTIES

Is use of breast pumps out of hand? Mothers who use 'hands-on' technique see increase in milk production



Dr. Morton

by Jane A. Morton, M.D., FAAP

Over-reliance on electric breast pumps may be associated with underproduction of breast milk, according to a study to be published in the *Journal of Perinatology*.

In the article titled "Combining Hand Techniques with Electric Pumping Increases Milk Production in Mothers of Preterm Infants," Stanford researchers report the effect on milk production of two manual techniques used by mothers of infants younger than 30 weeks' gestation. These mothers typically remain pump-dependent for weeks to months before they can rely on the breastfeeding infant to maintain their supply. This is the first report to show a steady increase in production over eight weeks, which surpassed reference levels for mothers of term infants.

Mothers first were taught hand expression of colostrum (<http://newborns.stanford.edu/Breastfeeding/HandExpression.html>). Once milk came in, they were instructed on the second technique, "hands-on pumping" (<http://newborns.stanford.edu/Breastfeeding/MaxProduction.html>).

During instructional sessions, milk was collected in bottles that were placed on electric scales, which were computer-linked to record milk removal. While simultaneously compressing their breasts and massaging firmer areas, mothers would observe sprays of milk into the tunnel of the breast shield, guiding them as to where and how to use their hands. Additionally, they could watch the computer screen display milk removal from each breast in real-time (see graph below). If study mothers were dependent solely on pump suc-

tion, stopping when the flow ended, available milk would have remained unexpressed.

Production among these preterm infant mothers, who are considered to be at high risk for impaired milk production, steadily rose over eight weeks, exceeding published averages for mothers of term infants.

Frequency of hand expression in the first three postpartum days correlated with subsequent production. The self-selected mothers who used frequent hand expression (over five times per day) and then hands-on pumping once milk came in produced an average of 955 milliliters per day (about 32 ounces) by two months. The average intake for a healthy 3-month-old breastfed term baby is approximately 27 ounces per day.

By the eighth week, mothers pumped an average of six times a day with a seven-hour uninterrupted interval for sleep.

The study underscores the long-term importance of the first three days when frequent and effective removal of colostrum is critical. Factors speculated to compromise production such as advanced maternal age, preterm delivery, high body mass index, Caesarean section delivery, *in vitro* fertilization and primiparity had no impact. Acceptance was so positive that mothers volunteered to demonstrate these techniques and share their impressions on the Stanford University Web site, <http://newborns.stanford.edu/Breastfeeding/>.

The researchers do not challenge the importance of pumps but suggest that suction alone may remove only a fraction of available milk, thus compromising production. Eighty-five percent of mothers of infants younger than 4.5 months rely on an electric pump

AAP Breastfeeding Residency Curriculum now online

A free Breastfeeding Residency Curriculum for program directors and other faculty is available at www.aap.org/breastfeeding/curriculum.

Released by the AAP Section on Breastfeeding and the Health Resources and Services Administration's Maternal and Child Health Bureau, the curriculum provides those who teach residents or have them rotate through their clinic or office with tools and resources, including clinical and cultural cases, presentations on breastfeeding management, and evaluation and tracking tools.

The curriculum was designed according to the Accreditation Council of Graduate Medical Education core competencies to help residents and appeal to program directors. In pilot testing, the multispecialty curriculum was shown to improve resident knowledge, confidence and practice patterns related to breastfeeding care.

Watch the short "how to use this site" video to learn more about this resource. For assistance with materials on the site or ideas for implementation, e-mail lactation@aap.org.

(Labiner-Wolfe J, et al. *Pediatrics*. 2008;122:S63-S68). No electric pump comes with instructions for a “hand-on” approach. In fact, the usual advice for a mother with low production is simply to pump more.

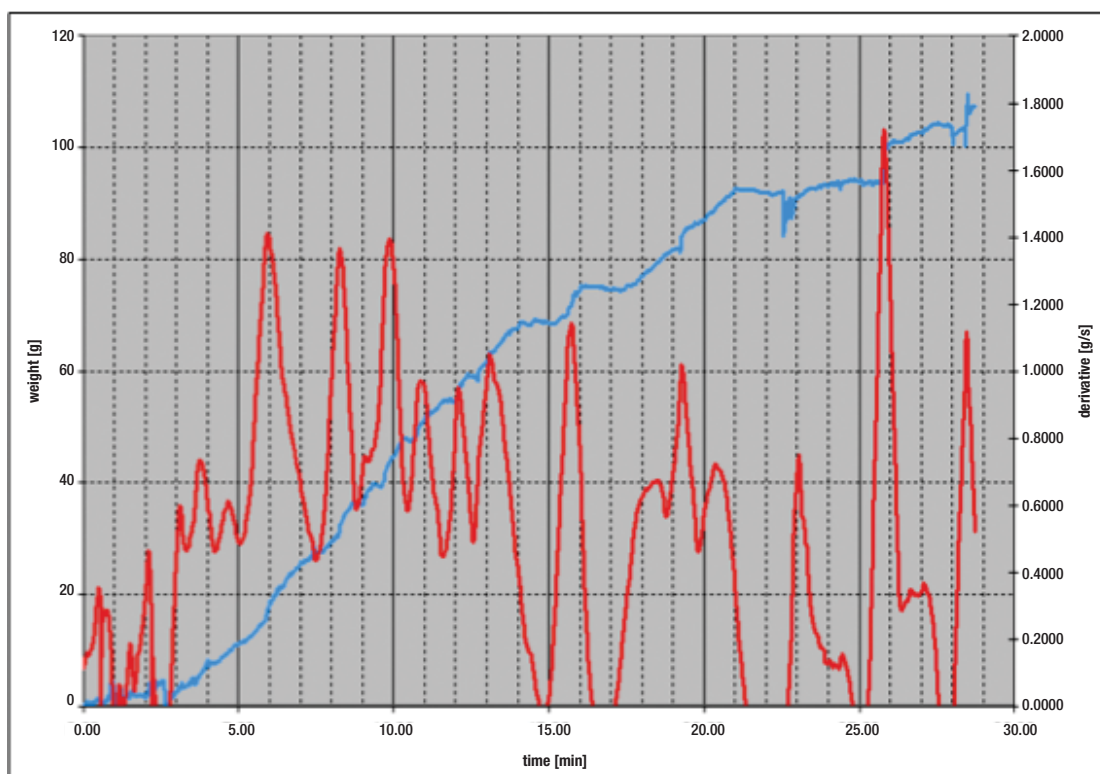
Insufficient milk supply is the most common reason mothers give for discontinuing their efforts to breastfeed during the first year (Ruowei Li, et al. *Pediatrics*. 2008;122:S69-S76). The most common reason for re-hospitalization of newborns relates to insufficient breast milk intake. Compromised production is three times more common in mothers of preterm vs. term infants.

There are many unforeseeable scenarios in which reliance on the baby or the baby plus the pump may not be enough to stimulate or maintain a robust supply. Ideally, expectant mothers could watch

the videos on the Stanford Web site to learn about the importance of the first three days and an effective technique that may prevent subsequent production problems.

Whether these preliminary findings can be duplicated to the advantage of a wider spectrum of mothers remains to be studied. Yet the solution at hand (literally) may be learning a simple skill that involves no cost, no paraphernalia, no discomfort, no drugs and no risk.

Dr. Morton is a member of the AAP Section on Breastfeeding executive committee and co-author of the study to be published in the Journal of Perinatology.



Computerized display of milk expression from one breast as a study mother is taught “hands-on pumping.” Gradual ascending line represents cumulative volume; saw-toothed line depicts rate of expression over 30 minutes. Coincident with compression over areas of full breast tissue, spikes in output are observed.