



# B reastfeeding U pdate

“Good health begins with breastfeeding.”

## VITAMIN D AND BREASTFEEDING

**Diana Lee, RD, IBCLC**

Once thought of as an eradicated disease, nutritional rickets, or severe vitamin D deficiency, has resurfaced as a public health issue. The AAP Section on Breastfeeding and Committee on Nutrition have issued new guidelines for vitamin D intake for prevention of rickets and vitamin D deficiency in infants.<sup>1</sup> (see box below). Professionals working in the area of lactation should be well informed of these guidelines and be prepared to answer the obvious question: “If breastmilk is complete nutrition, then why do I need to supplement with vitamin D?” There is valid concern that women will conclude from these recommendations that breastmilk is inferior and might either shorten their length of breastfeeding or not start breastfeeding at all.

### Prevention of Rickets and Vitamin D Deficiency: New Guidelines for Vitamin D Intake

A clinical report issued in April 2003 by the AAP recommends a supplement of 200 IU Vitamin D per day beginning within the first 2 months of life for the following:

1. All breastfed infants unless they are weaned to at least 500 mL per day of vitamin D-fortified formula or milk.
2. All non-breastfed infants who are ingesting less than 500 mL per day of vitamin D-fortified formula or milk.
3. Children and adolescents who do not get regular sunlight exposure, do not ingest at least 500 mL per day of vitamin D-fortified milk, or do not take a daily multivitamin supplement containing at least 200 IU of vitamin D.

The fact remains that breastmilk is the optimum source of infant nutrition. Human milk is uniquely

superior for infant feeding and is species-specific; all substitute feeding options differ markedly from it. The breastfed infant is the reference or normative model against which all alternative feeding methods must be measured with regard to growth, health, development, and all other short- and long-term outcomes.<sup>2</sup> It is important for health professionals to know the basis for these recommendations and understand the nutritional, social and environmental dynamics that contribute to vitamin D deficiency.

The National Academy of Sciences Food and Nutrition Board recommends 200 IU as the adequate intake (AI) of vitamin D for all infants.<sup>3</sup> Human milk typically contains a vitamin D concentration of 25 IU/L or less.<sup>4-6</sup> Therefore, the recommended adequate intake of vitamin D cannot be met with human milk alone. The biologically normal means of obtaining sufficient vitamin D is through sunlight exposure. However, there is growing concern about sunlight exposure and risk of skin cancer. In addition, regular sunscreen use recommended by cancer experts markedly reduces vitamin D production in the skin. The new AAP policy statement on vitamin D was developed due to the following:

1. The results of the North Carolina study on rickets in breastfed African American infants (Kreiter et al. 2000);<sup>7</sup>
2. The Healthy People 2010 goal of 75% of infants breastfed for the first 6 months of life (US DHHS, 2000);
3. The uncertainty about how much sun exposure is required for each infant as well as how air pollution and latitude affect sun exposure;
4. The growing concern about UV exposure in childhood and its relationship to skin cancer in later years;

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# ASK THE EXPERT

**Question:** Since I exclusively breastfeed my newborn baby, does he need to receive the routine childhood vaccines?

**Answer:** You apparently are already aware that exclusive breastfeeding of your baby provides him with far more than just excellent nutrition. Breastmilk also provides maternal antibodies or immunoglobulins as well as proteins that modulate the infant immune system and assist it to kill bacteria, viruses, and other harmful microorganisms. Breastmilk also provides live cells that assist the immunoglobulins in this killing process. The newborn infant receives the bulk of his IgG antibody (the main infection fighting antibody) from the mother via the placenta during the third trimester of pregnancy. The full term infant receives much more antibody than the premature infant for this reason. IgG is the only antibody transferred to the infant. This is a variety of specific antibodies directed against the infectious agents which the mother has experienced or been vaccinated against. Other antibodies (mainly IgA and IgM) must be generated by the infant's immune system or received in breastmilk. Together, these antibodies provide the bulk of the protection against infection the infant has at birth.

Hopefully the infant will be put to the breast very shortly after birth and thus will begin to receive colostrum which is very rich in IgA and other proteins to enhance the infant's immune system. IgA is a special protein which migrates to the lining of the respiratory system (nasal and sinus membranes, and the lungs) and the digestive system (mouth, Eustachian tubes to the ears, throat, stomach, and intestines), to link up with other IgA molecules to form a very large antibody referred to as Secretory IgA, which is an extremely effective barrier to bacteria and viruses which try to get into the body. All of these immunoactive agents result in the significantly lower rate of infection in the breastfed infant. The infections that do occur are generally milder and resolve more quickly than those in the infant who is not breastfed.

However, infections do occur in all infants and can be serious. Until the infant actively produces his own antibody, this passively received antibody is the main protection the infant has against a world of infectious agents. The higher the mother's antibody level and the greater amount of breastmilk received, the greater the amount of protection delivered to the infant. Thus it is important to ensure that the mother's vaccination status is up to date. Tetanus-Diphtheria (Td) vaccine can be given during pregnancy. Rubella vaccine can be given immediately postpartum since this weak virus does not cause infant illness. Other live vaccines are generally deferred during lactation but may be given if the risk of disease exposure is very high (determined on a case by case basis).

The initial amount of IgG antibody received before birth gradually declines and reaches a level which is just barely protective against some diseases by about 4-6 months of age, making the amount of antibody received from the mother of critical importance. Since the current recommendations are for vaccines against the most common serious infectious diseases of infancy (Tetanus, Diphtheria, Pertussis or Whooping Cough, Polio, Hemophilus influenza B, Pneumococcus) to be given not earlier than 6 weeks of age (except for Hepatitis B vaccine which may be given at birth), adherence to the recommended childhood vaccination schedule is necessary to allow the active production of antibodies by the infant to replace the disappearing maternal antibody without a gap in protection. Once the infant does produce this antibody, there is a memory in the immune system for each of these agents. While this memory wanes after some time and booster doses are needed for some vaccines, there is a rapid production of antibody on exposure to the infectious agent providing even greater protection than breastmilk alone.

In summary, early and continued breastfeeding significantly improves the ability of the infant to prevent infectious agents from entering the body and to kill infectious agents that do enter resulting in fewer and milder infections than would occur without breastfeeding. However, only vaccination (or infection) allows the infant to actively produce his own antibody and to enhance and sustain this protection indefinitely. Think of breastfeeding as your baby's first (passive) vaccination.

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*James G. Murphy, MD, trained in general pediatrics at the Naval Medical Center, San Diego, had the honor of serving as a Naval Medical Officer for 25 yrs retiring in 1995, and continues to serve as a General Pediatrician and Level 1&2 Nursery Attending at NMC San Diego. Dr Murphy maintains a special interest in immunization science and practice and promotion of breastfeeding, as a board member of the SDCBC.*

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# VITAMIN D AND BREASTFEEDING

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5. The uncertainty about the amount of sunlight needed for people with darker skin pigmentation;
6. The fact that vitamin D is not a nutrient, but a precursor of steroid hormones, that is not naturally present in any infant food, including human milk, in quantities that will meet individual needs.

Current vitamin D supplements available in the U.S. are not ideal. Solitary vitamin D preparations (containing up to 8000 IU/mL) are too concentrated to be safe for routine home use, therefore are reserved only for clinical use. Other vitamin D supplements are available as multivitamin preparations, which contain 400 IU of vitamin D per mL, but may also provide unnecessary supplementation of other nutrients including vitamin A, C, E and K or iron, zinc and B vitamins. It should be noted that although there are generic forms of the multivitamin preparations, the commercial brands Tri-Vi-Sol and Poly-Vi-Sol are produced by the two major formula manufacturers in the U.S., who routinely violate the International Code of Marketing of Breastmilk Substitutes.

In conclusion, breastfeeding remains the foundation of normal health and development, the original paradigm for nourishing and nurturing young human beings. The AAP policy recommending vitamin D supplementation in breastfed infants may appear to suggest that breastmilk is somehow inadequate. However, it is the social and environmental challenges of sunlight deficiency that may contribute to the issue of vitamin D deficiency and rickets. The decision to supplement vitamin D ultimately lies with parents or caregivers once they are presented with the facts. It is the role of the health care professionals to promote and protect breastfeeding while informing families on the risk of vitamin D deficiency.

In practice, the health care professional should continue to be attentive to those breastfed infants at highest risk when recommending supplementation. This includes those individuals with darker skin pigmentation and limited sunlight exposure. Future research is needed to examine the effects of vitamin D supplementation on exclusively breastfed babies, as well as the impact of supplementation on the initiation and duration of breastfeeding.

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## Research Corner

Continued from page 8

7. The three subscores of the MAACL-R (anxiety, depression, hostility) were not correlated with salivary cortisol or  $\alpha$ -amylase, or with milk volume.
8. Both salivary  $\alpha$ -amylase and cortisol levels decreased with experience with the pumping procedure.
9. Salivary  $\alpha$ -amylase concentrations were highly negatively correlated with plasma PRL, but not with oxytocin. Salivary  $\alpha$ -amylase correlates with plasma norepinephrine as a measure of stress.

Usually, a stress response, including psychological stress, is associated with an increase in PRL. However this process may be reversed under conditions in which PRL levels are normally elevated, such as

pregnancy and lactation. As plasma PRL was decreased when salivary  $\alpha$ -amylase was elevated, the investigators hypothesized that the stress associated with preterm deliveries may result in inadequate lactation through an adrenergic mechanism.

Take home message: We don't understand all the hormonal components of milk production or stress, but more pumping is better, and double pumping may be better than single. Mothers of preterm infants should be expected to produce the same amount of milk as mothers of term infants.

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# SDCBC 2003 MEMBERSHIP DRIVE

## Your continued support is needed!

If you are interested in becoming a member or renewing your membership for 2003, please visit our website at [www.breastfeeding.org](http://www.breastfeeding.org) or contact our office for more information at (858) 966-5981 or email [sdcbc@breastfeeding.org](mailto:sdcbc@breastfeeding.org). If you would like to be listed as a lactation provider in the **2003 Resource Guide**, join as a Sponsor\* member now!

## Become a member of the San Diego County Breastfeeding Coalition!

### SDCBC Membership Levels

**Sponsor\*** - \$100 (*Business/Organization/Professional*)

**Contributing Member** - \$50 (*Individual*)

**Friends of the Coalition** - any amount under \$50

### What is the San Diego County Breastfeeding Coalition?

The San Diego County Breastfeeding Coalition is a non-profit association whose mission is to promote and support breastfeeding through education and outreach in our community.

### What are the benefits of being a San Diego County Breastfeeding Coalition Member?

As a member of the San Diego County Breastfeeding Coalition you will:

- Network with a growing body of people dedicated to the promotion and support of breastfeeding,
- Have access to lactation professionals and the most up-to-date breastfeeding resources,
- Receive a free supply of Breastfeeding Resource Guides in English and Spanish,
- Receive a discount for Coalition sponsored education programs,

- Receive a free copy of “*Selling Out Mothers and Babies: Marketing of Breast Milk Substitutes in the USA*” by Marsha Walker, if you are one of the first fifty to join,
- Have a home page or link, as appropriate, on the SDCBC's website: [www.breastfeeding.org](http://www.breastfeeding.org),
- Be listed, with a Sponsor\* membership, as appropriate, in the "Breastfeeding Resource Guide" without a fee.

### You can show your support of the San Diego County Breastfeeding Coalition by:

- Making a monetary contribution to support coalition activities.
- Donating your time by serving on a committee:

Advocacy/Political Action	Community Outreach
Fundraising	Grant Research
Membership	Professional Outreach
Research and Evaluation	Volunteer Coordination
- Attending Coalition meetings and providing your expertise and experience.

### Interested in what we do? Attend one of our meetings!

**General Coalition Meetings** are held the second Thursday of each odd month at Sharp Mary Birch Hospital for Women, 3003 Health Center Drive, San Diego, in the Grace Benbough Room, located on the 2nd floor, 3:00 – 5:00 pm. Please call (858) 541-4185 for directions. 2003 meeting dates are as follows: **July 10, September 11, November 13.**

## JOB CENTER

Volunteer Opportunities: If you want to join a motivated group and are interested in joining an active committee, the SDCBC needs you!

Please contact the SDCBC office at (858) 966-5981 or email [sdcbc@breastfeeding.org](mailto:sdcbc@breastfeeding.org) for more info.

## BREASTFEEDING FRIENDLY WORKPLACE AWARD

The San Diego County Breastfeeding Coalition is presently accepting applications for the **Breastfeeding Friendly Workplace Award**. This annual award is presented in celebration of World Breastfeeding Week (August 1-7) to the business that shows the greatest commitment to supporting breastfeeding employees. Past recipients include: Naval Hospital, Camp Pendleton (2002), The City of Escondido, Kyocera, The San Diego Spirit (2001), Aetna US Healthcare (2000), Qualcomm, People's Organic Foods Market (1999), SeaWorld (1998), Naval Medical Center San Diego (1997), and Hewlett-Packard (1996).

If your company is contributing to the health of San Diego County by providing employees with time and facilities to express milk at work, we would like to acknowledge your accomplishments. **Please complete our on-line application at [www.breastfeeding.org](http://www.breastfeeding.org) by July 2, 2003 to nominate your employer for the Breastfeeding Friendly Workplace Award.** We will gladly provide a mail-in application at your request. For further information, please contact Teresa Echegaray, Community Outreach Chair at (858) 505-3066.

# SAVE THE DATE

## **La Leche League International Lactation Specialist Workshops**

The ongoing series of Lactation Specialist Workshops are designed for nurses, physicians and lactation specialists who work in a variety of settings including hospitals, clinics and physicians' offices.

Workshops to be held on:

- October 18-Phoenix, Arizona,
- October 20-Baltimore, Maryland,
- October 22-Braintree, Massachusetts,
- October 24-Lisle/Naperville, Illinois.

Visit [www.lalecheleague.org/ed/LactSpec03.html](http://www.lalecheleague.org/ed/LactSpec03.html) for more information.

## **La Leche League International's 31st Annual Seminar for Physicians — Hilton San Francisco, San Francisco, CA, July 1-3, 2003.**

"Breastfeeding: Renewing the Commitment through Education, Research and Practice." For more information, visit [www.lalecheleague.org/ed/PhysSem03.html](http://www.lalecheleague.org/ed/PhysSem03.html) or call (847) 519-7730 x218.

## **La Leche League International's 18th International Breastfeeding Conference — Hilton San Francisco, San Francisco, CA, July 3-6, 2003.**

"Strength through Diversity-Creating One Breastfeeding World."

For more information, visit [www.lalecheleague.org/03conf/03conf.html](http://www.lalecheleague.org/03conf/03conf.html) or call (847) 519-7730 x218.

## **2003 International Lactation Consultant Association (ILCA) International Conference & Meeting — Sydney Convention & Exhibition Centre, Darling Harbor, Sydney, Australia, July 31-August 3, 2003.**

"Milk, Mammals and Marsupials: An International Perspective."

For more information, go to [www.ilca.org](http://www.ilca.org) or call 919-861-5577.

## **8th Annual International Meeting of the Academy of Breastfeeding Medicine & 3rd Annual Health Team Members Meeting — Millennium Knickerbocker Hotel, Chicago, IL, October 16-20, 2003.**

"Physicians & Breastfeeding: Controversy, Challenge & Change."

For information, visit [www.bfmed.org](http://www.bfmed.org) or contact the ABM office: Academy of Breastfeeding Medicine, 191 Clarksville Rd, Princeton Junction, NJ, 08550, USA; Tel (toll free) (877) 836-9947; International (609) 799-6327; FAX (609) 799-7032; email: [gfooster@cmasolutions.com](mailto:gfooster@cmasolutions.com). Program Chair: Nancy E. Wight MD, FAAP, IBCLC; [wightsd@aol.com](mailto:wightsd@aol.com).

# BOOK REVIEW

## **Fresh Milk**

**Written by Fiona Giles**

**Published by:**

**Simon and Schuster, April 2003**

**Reviewed by:**

**Leslie Wynn, RN, PHN**

Fresh Milk, written by author Fiona Giles, is a compilation of stories about women and their experiences in breastfeeding. The stories she writes about were taken from anonymous surveys, friends, family, and her own personal experience in breastfeeding her two sons. The stories elicit many emotions from humor to sadness, frustration to shock.

One particular story that really touched me was about a woman whose 5-month-old daughter died very suddenly after contracting streptococcal meningitis. She was breastfeeding her daughter at the time and after her daughter's death she continued to pump to relieve the engorgement. She would tearfully pour the milk down the drain each time. One day she remembered reading about milk banks and decided to call them to see if she could donate her unused milk. I was very moved by this

woman's strength to continue to pump daily for the next 5 months. She stated that by continuing to pump she felt that she still had a connection with her daughter, that it helped her talk about her daughter, share her grief, and that something good could still come out of a very tragic situation.

Fiona writes with sarcastic humor. She tackles very touchy subjects in a very matter-of-fact way. She challenges the reader to look beyond the "normal" breastfeeding experiences and reminds us all that we are still human, nurturing, and sexual beings -- sometimes all at the same time. The interviewees took great risk in divulging personal experiences on some very controversial topics, such as, fantasies about breastfeeding an adult partner, breastfeeding an older child, wet nursing with and without the mother's consent, breastfeeding an adopted child, and more. She explores deeper feelings of adults who felt something was missing because they were not breastfed.

The stories are thought provoking and humorous. She allows the reader to look past the fear and stereotypes to be open and even a little bit curious. A quote from Ms. Giles, says it all, "Like tears, milk is functional, but it also has a lot to say about us."

# COMMUNITY SPOTLIGHT

# COUNTY UPDATES

## **Breastfeeding at the Naval Medical Center, San Diego** **By LCDR Nancy Paulsen, USN**

## **Cindy C. Fessier, RN, Perinatal Services Coordinator,** **County of San Diego**

Until 12 November 2002, breastfeeding assistance at Naval Medical Center was a heroic labor of love, done as a collateral duty by a volunteer network of nurses and a few physicians who took turns answering helpline phone calls and seeing inpatients; outpatient consults were available only one day a week.

In November, the Lactation Program officially stood up. Four full-time positions are filled by five lactation consultants (two LCs share one position). Monday through Friday, at least two or three consultants are on the inpatient floor, with one consultant primarily designated to answer the helpline and see outpatients. Outpatient visits are a covered benefit, and most weekdays have at least two outpatient visits, often four or more. On the weekends, only one lactation consultant is on duty, and only urgent outpatient consults are done. We have a great group of consultants with a terrific variety of experience who provide a wonderful quality of care to our patients.

Perinatal Care Network, Health and Human Services Agency, County of San Diego continues to promote breastfeeding by providing breastfeeding reference guides to new Comprehensive Perinatal Services Providers in San Diego County. These providers are committed to providing prenatal and post-partum care for Medi-Cal eligible women. The guides that are being distributed are **La Leche League International's, The Breastfeeding Answer Book**, and **Thomas Hale's Medications and Mothers' Milk**. On **Festival of Health 2003** held on **April 5**, at the Nazarene Church in Mid-City, the **County and Mid-City Community Advocacy Network** collaborated with the **Breastfeeding Coalition** and promoted breastfeeding. There were many types of health promotions present, but we were the only breastfeeding information and resource booth. Outreach was provided to over a hundred local families of different cultures and to at least 20 Point Loma Nazarene University Nursing Students.

# POLITICS, ADVOCACY AND LEGISLATION

## **Teresa Echeagaray, RD, CLE**

The US Department of Health and Human Services Office on Women's Health (OWH) has been funded to carry out the recommendations of the *HHS Blueprint for Action on Breastfeeding* into a National Breastfeeding Awareness Campaign. The overall goal of the campaign is to increase the proportion of mothers who breastfeed their babies in the early postpartum period to 75%, and those within 6 months postpartum to 50% by the year 2010. The campaign aims to empower women to commit to breastfeeding and to clearly illustrate the consequences of not breastfeeding. Besides trying to raise initiation rates, the campaign will also stress the importance of exclusive breastfeeding for at least 6 months.

As a part of the National Breastfeeding Campaign, OWH will partner with the Ad Council to implement a comprehensive 3-year media campaign to be launched in August 2003. The media campaign will primarily target first-time parents who would not normally breastfeed. The focus will be on the general market audience but because breastfeeding rates are lowest in the African American community, the campaign will also target African American women. State-of-the-art communication techniques will be employed through a variety of strategies such as public service announcements (television and radio), bus stop posters, billboards, educational pamphlets, and articles in magazines and community newspapers. Eighteen community-based demonstration projects (CDPs) throughout the US will work in coordination with the OWH and Ad Council to implement the campaign at the local level. Two of these

CDPs are located in California, in Los Angeles and San Francisco.

In preparation for the campaign, extensive research was conducted in Chicago, San Francisco, and New Orleans via a series of 36 focus groups. The research shed light on the fact that low breastfeeding rates are not necessarily due to a lack of awareness, given that many of the participants appeared somewhat knowledgeable about the positive benefits of breastfeeding. A major contributing factor is that many see formula as the standard or the norm in feeding a baby or a young child. Breastfeeding is viewed as having "added benefits" or as "a better option." It is therefore not a matter of increasing awareness of breastfeeding; it is a matter of changing behaviors. The findings also demonstrated the need to clarify an attainable goal for duration and to create a sense of personal empowerment so mothers feel more comfortable and committed to breastfeeding their children.

What does this mean for healthcare professionals? The OWH encourages us to approach the press in our community and serve as spokespeople for the campaign and the importance of breastfeeding. The National Breastfeeding Awareness Campaign will open opportunities for dialogue as women will be asking more questions of nurses and doctors. Patients can be directed to a new breastfeeding helpline and website to help mothers with common breastfeeding problems and challenges. La Leche League-trained Breastfeeding Information Specialists are available to answer emails and assist callers with a variety of issues. The number and website (1-800-994-WOMAN (9662), TDD 1-888-220-5466, [www.4woman.gov](http://www.4woman.gov)) are available in English and Spanish and are open Monday through Friday from 9 am - 6 pm, EST.

# BREASTFEEDING AND SORE NIPPLES

## **Changing How We Practice: Moist Wound Healing for Sore Nipples**

**Gini Baker, RN, MPH, IBCLC**

**Program Coordinator, Perinatal Health Programs, UCSD Extension**

As healthcare professionals we have used expressed breastmilk on sore nipples to help them heal. We know that the many properties of human milk promote the healing of broken skin. What we may not have known was that we are also practicing the art of “wet wound healing” or “moist wound healing”. Unfortunately, at the same time, many lactation protocols call for “air drying” or “blow drying” a sore nipple, seemingly contradictory advice.

When considering management and treatment of sore nipples it is important to ascertain why the nipple is sore, and to note whether the nipple skin is broken. There are 3 main reasons a breastfeeding woman may have a sore nipple: structural concerns with mom, baby or both; abrasion to the nipple; or environmental.

The lactating woman may have a structural problem with the breast that does not allow for deep attachment of the infant mouth onto the breast. This can lead to abrasion on the nipple tip and breakdown of the nipple skin. These maternal structural problems include short shanked nipples or an inverted nipple. The structural problem may be with the infant. The baby may have a short frenulum or a tonic bite, again leading to nipple abrasion. Any type of abrasion to the nipple may cause a skin break.

There could be environmental reasons why a breast is sore. When skin is constantly exposed to moisture there is a tendency for it to cause maceration. Constant wet breast pads on an otherwise healthy breast and nipple have been known to cause skin breakdown. This is the reasoning that directed the treatment suggestion of air drying the nipple. If too much wetness is the cause of the sore nipple and skin breakdown, then keeping the breast dry is appropriate. The condition of over wetness is quite rare, but its treatment is very common. This leads to the incorrect treatment modality for most sore nipples.

Another environmental cause of sore nipples is the presence of thrush or candidiasis. The usual symptoms are pink to red nipples with a burning sensation in the skin. The infant may or may not have white patches in his mouth. This is a situation that usually occurs after the first 10 days of breastfeeding and needs comprehensive evaluation and management. Furthermore, wet wound treatments possibly encourage yeast growth.

Each sore nipple situation should be evaluated as to the cause of nipple soreness, and the treatment based on whether there is a break in the skin. We need to both correct the cause of the sore nipple and treat the wound or soreness. When a woman complains of soreness and there is no skin break, correcting the latch and using Lanolin after each feed have proven effective. This breast should be kept dry, or rather, not over wet and watched for a chapping effect.

Once the skin is broken the healthcare provider should use moist wound healing techniques and not drying techniques. Wet wound healing has been used for some time by enterostomal therapists and wound management experts. When the wound is kept moist and warm, scab formation is prevented and healing accelerates. By adding lanolin and/or hydrogels to the wound healing process you get increased “moist wound healing” and a healing situation known as “chamber healing”.

Any purified lanolin works to maintain the skin’s natural moisture and protect the nipple skin from further abrasion. Lanolin is absorbed into the upper layers of the epidermis and should not be removed before breastfeeding. It also forms the slight barrier and chamber that promotes the antibiotic and bacterial action of expressed milk. For an excellent in-depth discussion on wet wound healing visit [www.breastfeeding.org](http://www.breastfeeding.org) and the article by Allison F. Wren entitled “Moistness: The secret of healing sore and cracked nipples”.

Hydrogels are dressings that use a saline-based hydrophilic polymer or a glycerin based gel to create a thick gelatinous patch. They have been used in the wound care management field for approximately 20 years but are just now making their way to the breastfeeding field. Opsite® was the first to use this technology. These dressings create a moisture chamber and bacterial barrier at the breast wound. This produces an environment that supports healing. It is important that the hydrogel is a semi-permeable film that allows excess moisture to escape yet keeps humidity at the wound bed.

One popular hydrogel in the breastfeeding market is “Soothies” by Puronyx Corporation. They are 65% glycerin 17-1/2% water and 17-1/2% polymer matrix, all of which are non-toxic to the mother and baby. “MaterniMates” are now called “ComfortGel” hydrogels and are sold by Ameda. They contain no glycerin.

When dealing with sore nipples that have become wounds, healthcare providers need to consider treatments that are baby friendly. It is important to take into consideration that sore nipples are wounds on the infant’s dining table. The use of bacterial ointments are sometimes necessary, but should be used with caution.

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# B reastfeeding U pdate

## “Breastfeeding Management”

SDCBC's Newsletter for June 2003



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“Good health begins with breastfeeding.”

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## RESEARCH CORNER

### Stress and Milk Production in Mothers of Preterm Infants

*Nancy E. Wight MD, FAAP, IBCLC*

Mothers of preterm infants often have difficulty establishing and maintaining their milk supply. Many times this difficulty is attributed to the psychological “stress” of having an ill infant in the neonatal intensive care unit. In addition, these mothers are not getting the normal physiologic stimulation of a vigorous infant at the breast, but instead have to rely on mechanical pumping devices.

Chatterton et al <sup>1</sup> addressed these issues in a prospective study of 39 mothers delivering preterm infants (<1500 gms and 30 wks gestation at birth) who were approached within 48 hrs after delivery and carefully instructed on a standardized milk pumping protocol either with a single or double collection kit and a Medela 016 Lactina breast pump. The purpose of their study was 2-fold: 1) to determine the relationship between milk production and prolactin (PRL) and oxytocin levels over time during mechanical breast stimulation, and 2) to examine the relationship between milk production, PRL, and oxytocin levels and measures of stress (salivary cortisol and  $\alpha$ -amylase, Multiple Affect Adjective Checklist-Revised (MAACL-R)) up to 6 weeks post-partum.

They found:

1. Milk production in the first week of breast pumping was not related to gestational age at delivery and was similar to milk production after a term pregnancy.
2. Milk production increased significantly across the 6-week period, but the variation was extremely wide.
3. In the 6th week of the study the women producing the most milk were pumping 42.3 times per week (~ 6 times/day) versus 30.6 times per week (~4.4 times/day) for women producing less.
4. When graphed, double pumping appeared to produce more milk at each time period (1-6 weeks), but the difference was not statistically significant. Double-pumping did significantly increase PRL concentrations (43 ng/mL vs. 73 ng/mL ( $p=0.002$ ) after 20 minutes of pumping. Oxytocin was increased by double pumping at week 6.
5. There was no correlation between PRL levels and milk volume.
6. There was a positive correlation between oxytocin and milk volume, but no correlation with measures of stress.

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