

## What are the LLLI guidelines for storing my pumped milk?

Your milk is a living substance so precious some call it "white blood". It is essential to store your expressed (pumped) milk properly to maximize its nutritional and anti-infective qualities. Human milk actually has anti-bacterial properties that help it to stay fresh. Giving your baby the freshest milk you have pumped ensures its high quality.

This information is based on current research and applies to mothers who:

- have healthy, full-term babies;
- are storing their milk for home use (as opposed to hospital use);
- wash their hands before expressing;
- use containers that have been washed in hot, soapy water and rinsed.

### Storage Guidelines

All milk should be dated before storing. Storing milk in 2-4 ounce amounts may reduce waste. Refrigerated milk has more anti-infective properties than frozen milk. Cool fresh milk in the refrigerator before adding it to previously frozen milk.

Preferably, human milk should be refrigerated or chilled right after it is expressed. Acceptable guidelines for storing human milk are as follows. Store milk:

- at room temperature (66-78°F, 19-26°C) for 4 hours (ideal), up to 6 hours (acceptable) (Some sources use 8 hours)
- in a refrigerator (<39°F, <4°C) for 72 hours (ideal), up to 8 days (acceptable if collected in a very clean, careful way)
- in a freezer (-0.4 to -4°F, -18 to -20°C) for 6 months (ideal) up to 12 months (acceptable)

#### *What Type of Container to Use*

The best options for storing human milk:

- are glass or hard-sided plastic containers with well-fitting tops
- containers not made with the controversial chemical bisphenol A (BPA)
- are containers which have been washed in hot, soapy, water, rinsed well, and allowed to air-dry before use
- containers should not be filled to the top - leave an inch of space to allow the milk to expand as it freezes
- freezer milk bags that are designed for storing human milk
- put only 60 to 120 ml (two to four ounces) of milk in the container (the amount your baby is likely to eat in a single feeding) to avoid waste

Disposable bottle liners or plastic bags are not recommended. With these, the risk of contamination is greater. Bags are less durable and tend to leak, and some types of plastic may destroy nutrients in milk. Mark the date on the storage container. Include your baby's name on the label if your baby is in a day care setting.

#### *How to Warm the Milk*

Frozen milk: thaw in the refrigerator overnight or under cool running water. Gradually increase the temperature of the water to heat the milk to feeding temperature.

Refrigerated milk: Warm the milk under warm running water for several minutes. Or immerse the container in a pan of water that has been heated on the stove. Do not heat the milk directly on the stove. Some babies accept milk right from the refrigerator.

Do not bring temperature of milk to boiling point.

Human milk may separate into a milk layer and a cream layer when it is stored. This is normal. Swirl it gently to redistribute the cream before giving it to baby.

Do not use a microwave oven to heat human milk. It may cause the loss of some of the beneficial properties of the milk. Microwaves do not heat liquids evenly and may leave hot spots in the container of milk. This could be dangerous for infants.

Sometimes thawed milk may smell or taste soapy. This is due to the breakdown of milk fats. The milk is safe and most babies will still drink it. If there is a rancid smell from high lipase (enzyme that breaks down milk fats) activity when the milk has been chilled or frozen, the milk can be heated to scalding (bubbles around the edges, not boiling) after expression, then quickly cooled and frozen. This deactivates the lipase enzyme. Scalded milk is still a healthier choice than commercial infant formula.

If you or your baby has a thrush or yeast/fungus infection, continue to breastfeed during the outbreak and treatment. While being treated, you can continue to express your milk and give it to your baby. Be aware that refrigerating or freezing milk does not kill yeast. After treatment is finished, any leftover milk that was expressed during the infection should be discarded.

### *Thawed Milk*

Previously frozen milk that has been thawed can be kept in the refrigerator for up to 24 hours. While there is limited evidence to date that milk thawed for a few hours may be refrozen, this results in further breakdown of milk components and loss of antimicrobial activity. At this time, the accepted practice is not to refreeze thawed milk. While some mothers and caregivers reheat expressed milk that was leftover and refrigerated after a previous feeding, there is no research on the safety of this practice. There is also no research about whether freshly expressed milk left unfinished at room temperature should be discarded, or can be saved for a short time (perhaps up to one hour as reported by some mothers and caregivers) to finish the feeding if the baby awakens from having fallen asleep or still appears hungry.

According to THE BREASTFEEDING ANSWER BOOK, page 228, research indicates that human milk has previously unrecognized properties that protect it from bacterial contamination. One study, Pardou 1994, found that after 8 days of refrigeration some of the milk actually had lower bacterial levels than it did on the day it was expressed.

Expressed milk can be kept in a common refrigerator at the workplace or in a day care center. The US Centers for Disease Control and the US Occupational Safety and Health Administration agree that human milk is not among the body fluids that require special handling or storage in a separate container.

## **Resources**

Attend a La Leche League Group meeting in your area for additional information and support. To find a Leader of a local Group, visit [Finding a Local LLL Group](#).

Additional information on pumping and milk storage can be found on our [milk storage](#) and [pumping](#) resource pages.

*These items may be available from [the LLLI Online Store](#) or from your local Leader:*

**[THE WOMANLY ART OF BREASTFEEDING](#)**, published by La Leche League International, is the most complete resource available for the breastfeeding mother.

***Nursing Mother, Working Mother***, by Gale Pryor: Mothers who have decided to combine breastfeeding with working will find this an immensely helpful and reassuring book. The author includes practical information about planning for and returning to employment, clear concise tips on breastfeeding, pumping, storing, and transporting milk, and possible alternatives to full time employment such as job sharing, working from home, and budgeting to stay home full time. The book suggests numerous ways that mothers can build and maintain closeness with their babies in spite of separation.

Storing Human Milk: Describes the procedures taken when storing human milk. (Pad of 50 tear-off sheets)

Expressing Your Milk: Includes two pamphlets helpful to mothers who need to pump or express their milk: "The Balancing Act" and "A Mother's Guide to Pumping Milk." Also contains two tear-off sheets: "Manual Expression of Breast Milk -- Marmet Technique" and "Working and Breastfeeding."

*Our FAQs present information from La Leche League International on topics of interest to parents of breastfed children. Not all of the information may be pertinent to your family's lifestyle. This information is general in nature and not intended to be advice, medical or otherwise. If you have a serious breastfeeding problem or concern, you are strongly encouraged to talk directly to a [La Leche League Leader](#). Please consult health care professionals on any medical issue, as La Leche League Leaders are not medical practitioners.*

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