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## **Breast Milk or Formula: Making the Right Choice for Your Baby**

New parents want to give their babies the very best. When it comes to nutrition, the best first food for babies is breast milk.

More than two decades of research have established that breast milk is perfectly suited to nourish infants and protect them from illness. Breast-fed infants have lower rates of hospital admissions, ear infections, diarrhea, rashes, allergies, and other medical problems than bottle-fed babies.

"There are 4,000 species of mammals, and they all make a different milk. Human milk is made for human infants, and it meets all their specific nutrient needs," says Ruth Lawrence, M.D., professor of pediatrics and obstetrics at the University of Rochester School of Medicine in Rochester, N.Y., and spokeswoman for the American Academy of Pediatrics.

Health experts say increased breast-feeding rates would save consumers money, spent both on infant formula and in health-care dollars. It could save lives as well.

"We've known for years that the death rates in Third World countries are lower among breast-fed babies," says Lawrence. "Breast-fed babies are healthier and have fewer infections than formula-fed babies."

Although breast-feeding is still the best nourishment for infants, infant formula is a close enough second that babies not only survive but thrive.

Commercially prepared formulas are regulated by the Food and Drug Administration.

The nutritional adequacy of commercially prepared formula is also ensured by the agency's nutrient requirements and its safety by strict quality control procedures that require manufacturers to analyze each batch of formula for required nutrients, to test samples for stability during the shelf life of the product, to code containers to identify the batch, and to make all records available to FDA investigators.

The composition of infant formula is similar to breast milk, but it isn't a perfect match, because the exact chemical makeup of breast milk is still unknown.

Human milk is very complex, and scientists are still trying to unravel and understand what makes it such a good source of nutrition for rapidly growing and developing infants.

More than half the calories in breast milk come from fat, and the same is true for today's infant formulas. This may be alarming to many American adults watching their intake of fat and cholesterol, especially when sources of saturated fats, such as coconut oil, are used in formulas. (In adults, high intakes of saturated fats tend to increase blood cholesterol levels more than other fats or oils.) But the low-fat diet recommended for adults doesn't apply to infants.

The reason is that infants have a high energy requirement, and they have a restricted volume of food that they can ingest. The way to meet these energy requirements in a restricted amount of food is to have a high amount of fat.

While greater knowledge about human milk has helped scientists improve infant formula, it has become "increasingly apparent that infant formula can never duplicate human milk," wrote John D. Benson, Ph.D, and Mark L. Masor, Ph.D., in the March 1994 issue of *Endocrine Regulations*. "Human milk contains living cells, hormones, active enzymes, immunoglobulins and compounds with unique structures that cannot be replicated in infant formula."

Benson and Masor, both of whom are pediatric nutrition researchers at infant formula manufacturer Abbott Laboratories, believe creating formula that duplicates human milk is impossible. "A better goal is to match the performance of the breastfed infant," they wrote. Performance is measured by the infant's growth, absorption of nutrients, gastrointestinal tolerance, and reactions in blood.

### Human Milk for Human Infants

The primary benefit of breast milk is nutritional. Human milk contains just the right amount of fatty acids, lactose, water, and amino acids for human digestion, brain development, and growth.

Cow's milk contains a different type of protein than breast milk. This is good for calves, but human infants can have difficulty digesting it. Bottle-fed infants tend to be fatter than breast-fed infants, but not necessarily healthier.

Breast-fed babies have fewer illnesses because human milk transfers to the infant a mother's antibodies to disease. About 80 percent of the cells in breast milk are macrophages, cells that kill bacteria, fungi and viruses.

Breast-fed babies are protected, in varying degrees, from a number of illnesses, including pneumonia, botulism, bronchitis, staphylococcal infections, influenza, ear infections, and German measles. Furthermore, mothers produce antibodies to whatever disease is present in their environment, making their milk custom-designed to fight the diseases their babies are exposed to as well.

### Benefits to Mothers

Breast-feeding is good for new mothers as well as for their babies. There are no bottles to sterilize and no formula to buy, measure and mix. It may be easier for a nursing mother to lose the pounds of pregnancy as well, since nursing uses up extra calories. Lactation also

stimulates the uterus to contract back to its original size.

A nursing mother is forced to get needed rest. She must sit down, put her feet up, and relax every few hours to nurse. Nursing at night is easy as well. No one has to stumble to the refrigerator for a bottle and warm it while the baby cries. If she's lying down, a mother can doze while she nurses.

Nursing is also nature's contraceptive--although not a very reliable one. Frequent nursing suppresses ovulation, making it less likely for a nursing mother to menstruate, ovulate, or get pregnant. There are no guarantees, however. Mothers who don't want more children right away should use contraception even while nursing. Women who are breast-feeding can use barrier methods of birth control, such as condoms and diaphragms. Hormone-containing methods are not first choice. These include injections (such as Depo-Provera), implants (such as Norplant), and birth control pills. A woman who breast-feeds should consult her doctor about which type of contraception is appropriate for her until the baby is weaned.

Breast-feeding is economical also. Even though a nursing mother works up a big appetite and consumes extra calories, the extra food for her is less expensive than buying formula for the baby. Nursing saves money while providing the best nourishment possible.

### When Formula Is Necessary

There are very few medical reasons why a mother shouldn't breast-feed, according to Lawrence.

Most common illnesses, such as colds, flu, skin infections, or diarrhea, cannot be passed through breast milk. In fact, if a mother has an illness, her breast milk will contain antibodies to it that will help protect her baby from those same illnesses.

A few viruses can pass through breast milk, however. HIV, the virus that causes AIDS, is one of them. Women who are HIV positive should not breast-feed.

A few other illnesses--such as herpes, hepatitis, and beta streptococcus infections--can also be transmitted through breast milk. But that doesn't always mean a mother with those diseases shouldn't breast-feed, Lawrence says.

"Each case must be evaluated on an individual basis with the woman's doctor," she says.

Breast cancer is not passed through breast milk. Women who have had breast cancer can usually breast-feed from the unaffected breast. Studies have shown, however, that breast-feeding a child reduces a woman's chance of developing breast cancer later.

Silicone breast implants usually do not interfere with a woman's ability to nurse, but if the implants leak, there is some concern that the silicone may harm the baby. Some small studies have suggested a link between breast-feeding with implants and later development of problems with the child's esophagus. Further studies are needed in this

area. But if a woman with implants wants to breast-feed, she should first discuss the potential benefits and risks with her child's doctor.

#### Tough but Worthwhile

For all its health benefits, breast-feeding isn't always easy. In the early weeks, it can be painful. A woman's nipples may become sore or cracked. She may experience engorgement more than a bottle-feeding mother, when the breasts become so full of milk they're hard and painful. Some nursing women also develop clogged milk ducts, which can lead to mastitis, a painful infection of the breast. While most nursing problems can be solved with home remedies, mastitis requires prompt medical care (see "Tips for Breast-Feeding Success").

Women who plan to go back to work soon after birth will have to plan carefully if they want to breast-feed. If her job allows, a new mother can pump her breast milk several times during the day and refrigerate or freeze it for the baby to take in a bottle later. Some women alternate nursing at night and on weekends with daytime bottles of formula.

In either case, a nursing mother is physically tied to her baby more than a bottle-feeding mother. The baby needs her for nourishment, and she needs to nurse regularly to avoid getting uncomfortably full breasts. But instead of feeling it's a chore, nursing mothers often cite this close relationship as one of the greatest joys of nursing.

If a woman is unsure whether she wants to nurse, she can try it for a few weeks and switch if she doesn't like it. It's very difficult to switch to breast-feeding after bottle-feeding is begun.

If she plans to breast-feed, a new mother should learn as much as possible about it before the baby is born. Obstetricians, pediatricians, childbirth instructors, nurses, and midwives can all offer information about nursing. But perhaps the best ongoing support for a nursing mother is someone who has successfully nursed a baby.

A breast-fed baby's digestive tract contains large amounts of *Lactobacillus bifidus*, beneficial bacteria that prevent the growth of harmful organisms. Human milk straight from the breast is always sterile, never contaminated by polluted water or dirty bottles, which can also lead to diarrhea in the infant.

Human milk contains at least 100 ingredients not found in formula. No babies are allergic to their mother's milk, although they may have a reaction to something the mother eats. If she eliminates it from her diet, the problem resolves itself.

Sucking at the breast promotes good jaw development as well. It's harder work to get milk out of a breast than a bottle, and the exercise strengthens the jaws and encourages the growth of straight, healthy teeth. The baby at the breast also can control the flow of milk by sucking and stopping. With a bottle, the baby must constantly suck or react to the pressure of the nipple placed in the mouth.

Nursing may have psychological benefits for the infant as well, creating an early emotional attachment between mother and child. At birth, infants see only 12 to 15

inches, the distance between a nursing baby and its mother's face. Studies have found that infants as young as 1 week prefer the smell of their own mother's milk. When nursing pads soaked with breast milk are placed in their cribs, they turn their faces toward the one that smells familiar.

Many psychologists believe the nursing baby enjoys a sense of security from the warmth and presence of the mother, especially when there is skin-to-skin contact during feeding. Parents of bottle-fed babies may be tempted to prop bottles in the baby's mouth, with no human contact during feeding. But a nursing mother must cuddle her infant closely many times during the day. Nursing becomes more than a way to feed a baby; it's a source of warmth and comfort.

La Leche League, an international support organization for nursing mothers, has chapters in many cities that meet regularly to discuss breast-feeding problems and offer support.

Most La Leche League chapters allow women to come to a few meetings without charge. League leaders offer advice by phone as well. To find a convenient La Leche League chapter, call 1-800-LA-LECHE (1-800-525-3243) or contact the organization's world wide web site at <http://www.lalecheleague.org/>.

### Formula Choices

If the mother cannot or chooses not to breast-feed, normal, full-term infants should get a conventional cow's-milk-based formula, according to John N. Udall Jr., M.D., chief of nutrition and gastroenterology at Children's Hospital of New Orleans. However, adverse reactions to the protein in cow's milk formula or symptoms of lactose intolerance (lactose is the carbohydrate in cow's milk) may require switching to another type of formula, he says.

Symptoms that may indicate an adverse reaction to cow's milk protein include vomiting, diarrhea, abdominal pain, and rash. With lactose intolerance, the most common symptoms are excessive gas, abdominal distension and pain, and diarrhea. Since some of the symptoms overlap, a stool test may be necessary to determine the culprit. Usually, lactose intolerance will produce acidic stools that contain glucose. If the protein is the problem, stools will be nonacidic and have flecks of blood.

The main alternative to cow's milk formula is soy formula.

The carbohydrates in most soy formulas are sucrose and corn syrup, which are easily digested and absorbed by infants. However, soy is not as good a protein source as cow's milk. Also, babies don't absorb some minerals, such as calcium, as efficiently from soy formulas. Therefore, according to the American Academy of Pediatrics, "Healthy full-term infants should be given soy formula only when medically necessary."

For a child who can't tolerate cow's milk protein, William J. Klish, M.D., a Baylor College of Medicine pediatrician and former chairman of the American Academy of Pediatrics Committee on Nutrition recommends the use of hydrolyzed-protein formula. Although hydrolyzed-protein formulas are made from cow's milk, the protein has been

broken up into its component parts. Essentially, it's been predigested, which decreases the likelihood of an allergic reaction.