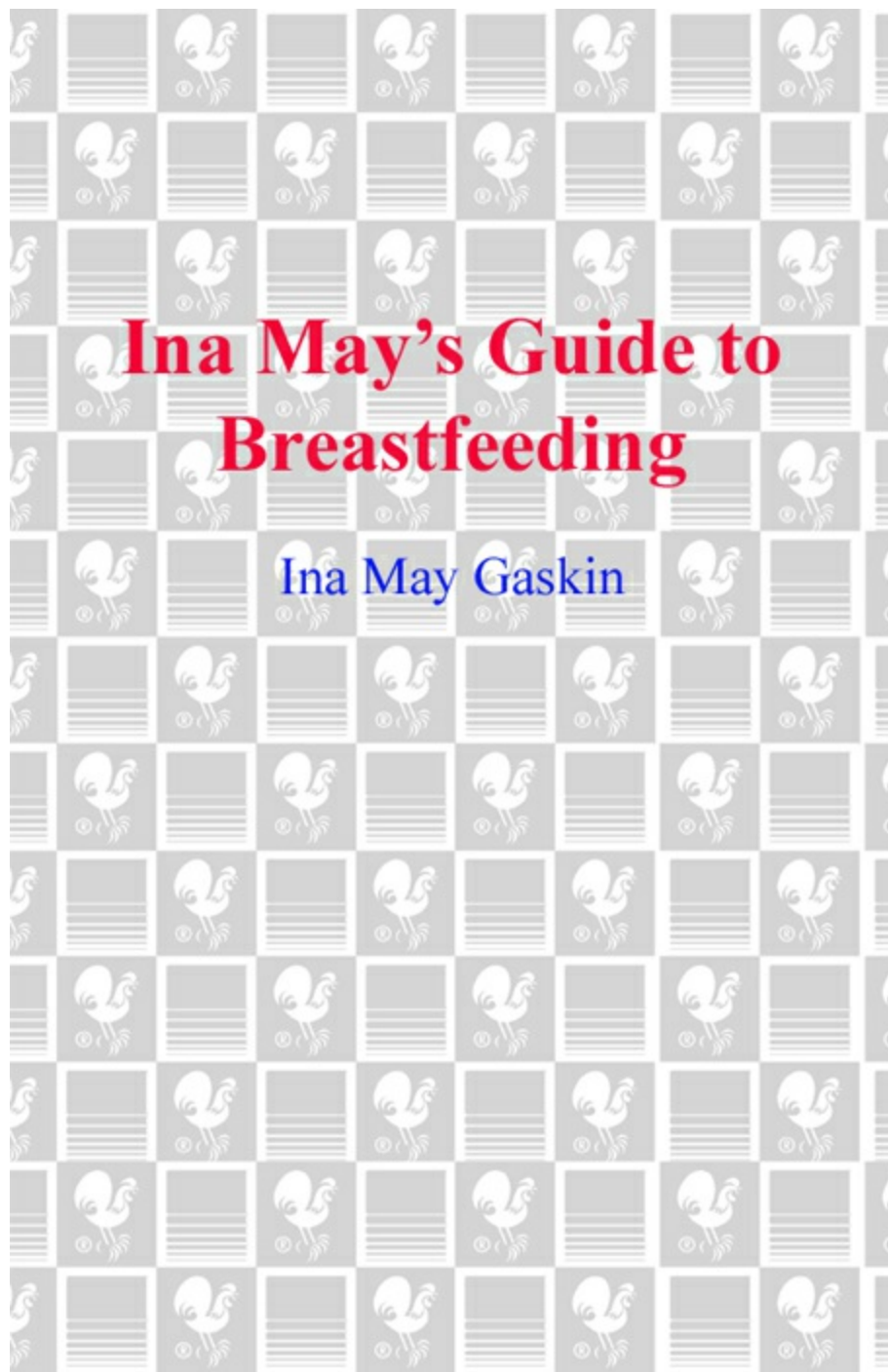




Ina May's Guide to Breastfeeding

Ina May Gaskin



ALSO BY INA MAY GASKIN

Ina May's Guide to Childbirth

Spiritual Midwifery

INA MAY'S ❧ GUIDE TO ❧ BREASTFEEDING



INA MAY GASKIN



*To al those who work to raise the status of
breastfeeding as a gift for future generations*

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INTRODUCTION: BREAST IS BEST

Pregnancy can be a time of great wonder and excitement as you prepare for the birth of your baby. One of the great blessings of pregnancy is that your body and nature take complete care of the nourishment of your little one during his time inside your body (as long as you eat well). Who could design a machine that could reproduce and nourish its offspring so beautifully as this? You don't even have to think about how to do it!

One decision that *does* merit a conscious choice on your part is the first food that will nurture your baby once he is born. Will it continue to come from you or will you buy it from the shelves of a grocery store? Does it matter? You probably wouldn't have picked up this book if you didn't already have some idea of the benefits of breastfeeding and the possible undesirable consequences of feeding artificial milks to babies as a first choice. Even so, you may be surprised to find out how much your decision matters.

Assuming that pediatricians are the accepted medical experts on the needs and health of babies and young children, let's start with what their professional organization has to say on the subject of infant feeding. The American Academy of Pediatrics issued its first policy statement in support of breastfeeding in 1977, and in 1997 it followed up with a much stronger statement. In 2005 the AAP found it necessary to replace its 1997 policy statement with a newer version, because so many important recent studies corroborated what common sense had always recognized—that breast is best. [1](#)

Excerpts from the American Academy of Pediatrics'

Policy Statement on Breastfeeding

and the Use of Human Milk

Human milk is the preferred feeding for all infants, including premature and sick newborns, with rare exceptions.

When direct breastfeeding is not possible, expressed human milk, fortified when necessary for the premature infant, should be provided.

Breastfeeding should begin as soon as possible after birth, usually within the first hour.

Except under special circumstances, the newborn infant should remain with the mother throughout the recovery period.

Procedures that may interfere with breastfeeding or traumatize the infant should be avoided or minimized.

Newborns should be nursed whenever they show signs of hunger, such as increased alertness or activity, mouthing, or rooting.

Crying is a late indicator of hunger.

Appropriate initiation of breastfeeding is facilitated by continuous rooming-in.

No supplements (water, glucose water, formula, and so forth) should be given to breastfeeding newborns unless a medical indication exists.

Exclusive breastfeeding is ideal nutrition and sufficient to support optimal growth and

development for approximately the first six months after birth.

Now let's turn to another health authority, the World Health Organization (WHO). The WHO ranks the safety of milks in the following way: first, the baby's mother's milk taken directly by the baby from the mother's breast; second, the baby's mother's milk taken from a bottle; third, the milk of another mother; and last, bottle-feeding of artificial milk formulas. Please note that the WHO does not say that artificial milk formulas shouldn't be consumed but that it is better for the baby if they are used only as a last resort.

Here is a very practical reason to begin nursing your baby.

When you choose to feed your baby this way, you are preserving your ability to have a choice about your feeding method. *You can always stop breastfeeding and switch to artificial feeding later.* What is there to lose? On the other hand, if you begin with artificial feeding and then find that your baby is allergic to several different products (which happens sometimes), it can be quite difficult to switch back to breastfeeding.

Artificial Milks Don't Measure Up to Human Milk for Babies

It should not come as any surprise that the most desirable milk for a human baby is human milk. It is the most complete and perfect food for babies, just as camel milk is best for baby camels and cow's milk is best for calves. Breast milk even tastes better to young humans than other milks do. I've met many adults who were breastfed until the age of four or five who can recall the taste of their mother's milk, and each remembers it as incredibly delicious. Do you know anyone who buys infant formula because it is so delicious or who even has fond memories of it? I don't.

The composition of breast milk varies from mother to mother, and the composition of a given mother's milk varies according to her baby's needs. This means that if your baby is born prematurely, your milk will automatically adjust itself to contain the most advantageous mix of nutrients for him at his particular stage of development. No matter how many claims a manufacturer of a substitute milk formula makes about its similarities to breast milk, any substitute milk, no matter what brand, is quite different from human milk and is an inferior food source for human babies. As the AAP says, the superiority of human milk for human babies stands whether we are talking

about the baby's growth, its development, or all other short-and long-term outcomes.

Immunologically speaking, mother's milk is medicine as well as food. It contains living cells, many of which will coat the mucous membranes of your baby's entire digestive system, protecting him against all kinds of bacteria and viruses. Artificial milk products do not contain any living cells, because anything that once lived in any formula concoction was long since killed during the production process. The protection offered by breast milk is important because, during birth, your baby leaves the sterile environment of your womb and sticks his head out into the highly contaminated environment outside. His system is not fully prepared for this shock, and he can use all the protection he can get.

Exclusive breastfeeding (meaning that a baby consumes nothing but his mother's milk) until the age of six months will continue to protect your growing baby's digestive tract, reducing the risk of allergy-causing foreign proteins entering his system. Such protection is especially important in families with a history of allergies, whether these allergies manifest as asthma, a specific

food allergy, dermatitis, or allergy rhinitis (runny nose). Some babies started on artificial milk have to be switched from brand to brand several times during the early weeks of life because of their inability to tolerate these products. After the age of six months, babies begin to produce enough of their own antibodies to protect their intestinal walls against food antigens that may cause allergies.

Another strong reason for the ideal of exclusive breastfeeding for six months is that babies' digestive systems are just not sufficiently developed before that time to digest solid foods well. Incomplete digestion can cause intestinal pain, diarrhea, gas, inconsolable crying, and, in severe cases, damage to the baby's intestinal tract.

Babies who get artificial formulas instead of mother's milk miss out on these benefits and are more open to infection. Strong evidence shows that in all populations, in both wealthy and poor countries, these babies will have a higher incidence and severity of many serious diseases, including bacterial meningitis, bacterial infection of the blood, diarrhea, respiratory-tract infection, serious gastrointestinal infection, middle-ear infection, urinary-

tract infection, and late-onset infection in premature babies. [2–13](#)

And, according to one study, preemies who are fed artificial milk formulas have a higher incidence of the kind of blindness (retinopathy of prematurity) that has long been associated with premature birth. [14–15](#) Published research has shown that more than 1,000 childhood deaths per year in the United States could be prevented through breastfeeding and that for every 1,000 bottle-fed babies in the United States, seventy-seven hospital admissions are likely to result. Compare this with the five hospital admissions that can be expected for every 1,000 breastfed babies. [16](#)

And there's more. Several studies have suggested increased rates of sudden infant death syndrome in the first year of life, as well as a higher incidence of diabetes mellitus; childhood cancers such as leukemia, Hodgkin's disease, and lymphoma; overweight and obesity; asthma and high cholesterol levels in older children and adults who were fed artificial milks compared with those who got their mothers' milk. [17–22](#)

Breastfed babies are not only healthier; there is some evidence demonstrating that they tend to be more intelligent. Several

studies on the development of intelligence in babies have shown that the feeding of artificial milks was associated with lower performance.[23–25](#) A study involving about three hundred premature babies who were too small to suckle compared those given breast milk with those who received formula through a tube. When the two groups were IQ-tested at the age of eight years and the mothers' social and educational status were taken into account, the breastfed children scored significantly higher on the IQ tests than their formula-fed counterparts did.

Does this mean that a baby who is bottle-fed on formula will not be as intelligent as his breastfed sibling? I certainly wouldn't go that far, especially if the formula-fed baby receives high-quality loving attention while being fed. It's possible that the bottle-fed babies in some of these studies received less of their mothers' touch while feeding, since bottles can be propped on pillows, leaving the mother free to do something else while her baby feeds. Babies need more than milk to thrive—they need love expressed through touch. Skin is our most sensitive organ, and touch is the first language we speak. There is a lot of evidence from studies of other mammals about how important

licking and touch are to the good health and even survival of their newly born young, and there's plenty more showing that human babies who are cuddled and given plenty of touch when young grow up to be more comfortable "in their own skins" than those who grow up deprived of touch. My opinion is that babies fed on artificial milks, particularly preemies and babies under the age of three to four months, need to be held as close to the breast as breastfed babies are, so they get the cuddling and loving touch they need and deserve. This is true as well if Dad is the one holding the bottle.

Breastfeeding is also the best analgesic for babies. Mothers who breastfeed their babies during painful procedures—for example, the heel poke to draw blood (sometimes called the PKU screening), which is generally given to babies within the first ten days of life—often find that their babies cry little if at all. [26–27](#)

The analgesic effects also extend to times when a baby has his first cold or flu and, like the rest of us, feels miserable.

Breastfeeding then becomes an especially valued comfort for both mother and baby.

Artificial Milks Are Frequently Recalled

The Food and Drug Administration (FDA) has been busy for decades issuing statements about “recalls” of artificial milk products that have been contaminated in various ways or that lack essential ingredients. See Appendix B for a list of FDA and firm recalls and warnings that took place in the United States during the first decade of the twenty-first century. Between 1982 and 1994, there were twenty-two significant recalls of various brands of artificial milks in the United States, with seven of these involving contamination or ingredients that were potentially life-threatening to babies. If you do need to use formula feeding at some point, be a smart shopper.

It’s important to remember that when certain lots of formula are listed as “recalled” on the FDA website, many packages and cans from that lot have already been bought and fed to babies.

How many mothers go to the FDA website to make sure that they’re not feeding their babies a contaminated product? Not many, but if you feed your baby formula, this is the smart thing to do. Such recalls have been going on for decades, and it seems likely that they will continue, if past experience is any indication. Need I say it? Breast milk has never had to be recalled.

Health Advantages for Mothers Who Breastfeed

As many biologists have pointed out, Mother Nature is no fool. Her design for breastfeeding provides health benefits for mothers as well as babies. One of the most important benefits has to do with the role played by the natural hormone oxytocin. It is released from the mother's pituitary gland during labor, rising to higher levels as the baby is being pushed out of the vagina and peaking with the expulsion of the placenta. When the baby stimulates the breasts by nuzzling and licking the nipple or by breastfeeding, even more oxytocin is released in the mother. It causes uterine contractions (sometimes called "afterpains"), which hasten the process of the uterus returning to its prepregnant size. When such contact between mother and baby is facilitated, the advantage for the mother is a much-reduced chance of late postpartum hemorrhage; oxytocin is nature's way of preventing hemorrhage following birth. [28](#) Women whose babies are fed on artificial milks miss out on this antihemorrhagic benefit. They also miss out on the suppression of ovulation and menstruation that accompanies unrestricted breastfeeding. At six months postpartum, women who have not had a period, are not

supplementing with artificial milk regularly, and are not going longer than four hours between daytime feedings or longer than six hours between night feedings have less than a two percent chance of becoming pregnant. [29–31](#)

Moms who breastfeed generally return to their prepregnancy weight more quickly than those who don't. [32](#) They get to eat an extra 500 to 600 calories a day and still lose weight (which is rather nice if you enjoy eating). And many studies show that if you are a working mother who decides to breastfeed, you are likely to miss fewer days of work, because your baby will be healthier.

Breastfeeding also has a positive long-term impact on women's health. Women who don't breastfeed have an increased risk of both breast cancer and ovarian cancer later on in life. [33–38](#) One of the most fascinating studies in this area involves women from fishing villages near Hong Kong who had the unusual habit of breastfeeding only with the right breast. This custom enabled researchers to compare the fate of the women's breasts. The researchers found a fourfold, highly significant increased risk of cancer in the unsuckled breast after menopause. We're talking

about the prevention of diseases that are often fatal and that are always terribly expensive in terms of human suffering and cost of health care. Moms who don't breastfeed also have a higher incidence of osteoporosis and hip fractures when they are postmenopausal.[39–41](#)

Imagine that: The breastfeeding mother is multitasking every time she feeds her baby. As she nourishes her child, she loses weight at a safe rate, gains a pretty effective contraceptive treatment, and reduces her risk of two kinds of potentially deadly cancer and the brittle bones and subsequent fractures that can occur during the period after menopause.

The Impact of Artificial Feeding on Your Time and Budget

Are you living on a tight budget? If so, you can save a significant amount of money by nursing your baby—it costs nothing beyond the slight increase in your daily caloric needs. At most, it will set you back a few extra cents per day versus the cost of feeding substitute milks. We're talking about \$1,800 to \$2,600 per year per baby, just to buy the formula. Mothers enrolled in the Women, Infants, and Children (WIC) assistance program who are not breastfeeding are often surprised to find out that their

monthly allotment of formula does not suffice and that they must pay for the rest of what they need each month at the going rate.

Those who are most strapped for funds may start diluting the formula to make it last or begin introducing solid food before their baby's digestive system is prepared to deal with it.

Formula companies have been incredibly successful for more than half a century in convincing people, including most of the medical profession, that their product is almost as good as mother's milk (while implying that breastfeeding is something that only a few lucky women can manage). Guess who pays for this propaganda? Answer: not only each family with a substitute-milk-fed baby but the entire society, because of health-care costs, the missed benefits of breast milk, and the pollution factor (more on this later). It's not a stretch to say that the U.S. government has for decades subsidized a mammoth industry that directly competes with mother's milk as a major national resource.

Breast milk is always available and never requires sterilization or heating—a huge advantage for you. Have you thought about how much time and energy this can save? I remember one father-to-be who wondered how much trouble it was going to be for his

wife to sterilize her nipples before each feeding! If you have anyone with similar worries in your family, I suggest that you tell them about nature's design—special oil glands create an antimicrobial environment around your nipples.

Better yet, breast milk is naturally organic. Almost all of the artificial milks for babies on the market are not organic, which means that they are likely to contain toxic chemicals, antibiotics, and bovine growth hormone if produced in the United States. It *is* possible to buy organic cows' milk or soy formulas, but, as you might expect, these are more expensive and harder to find. And even an organic product may contain ingredients (corn syrup is an example) that you may not want your newborn to eat because of its negative effects on babies' general health.

Environmental Impact

Artificial milks are incredibly wasteful when produced on a mass scale. The following information comes from the website of the World Alliance for Breastfeeding Action:

Packaging of baby milks wastes resources such as tin, paper, and plastic. If every baby in the United States was bottle-fed, almost 86,000 tons of tin

plate would be used each year in the required 550 million discarded tin cans. Another 1,230 tons of paper would be used if these tin cans had paper labels.

Feeding bottles, teats (nipples), and related equipment require plastic, glass, rubber, and silicon. In 1987, 4.5-million feeding bottles were sold in Pakistan alone. The number per baby is even greater in industrialized countries (most babies in the United States have at least six bottles).

Furthermore, Western hospitals and consumers are increasingly using “one-trip” disposable bottles and nipples.

Waste materials from the production of baby milks are rarely recycled, so they increase our disposal problems. The two most common disposal methods, landfill and incineration, cause their own pollution.

Baby milks are the end product of a number of industrial processes. The energy used to create the temperatures needed for these processes and the

mechanical procedures used for production cause air pollution (acid rain and greenhouse gases) and also use natural resources in the form of fuel.

The milk and packaging materials often travel considerable distances before processing, and, once ready for the market, baby milks have to be transported to the consumer. Many countries import baby milk from thousands of miles away, causing considerable unnecessary pollution.

Ecuador, for example, imports baby milks from the United States, Ireland, Switzerland, and the Netherlands.

Water, bottles, and nipples have to be sterilized before use. Water and the energy to boil it are normally easily available in the Northern Hemisphere, but this is no reason to waste them.

The energy usually comes from polluting nuclear and conventional power stations. In the Southern Hemisphere, water and fuel are often precious resources. A three-month-old bottle-fed baby needs

more than one quart (one liter) of water a day for mixing with formula, and each artificially fed baby needs at least an extra 1,500 pounds (73 kg) of firewood or its equivalent per year.

Manufacturers use huge amounts of paper and other resources to promote their baby milks.

All that, and we still have to count the environmental costs of maintaining the cows to produce the milk. The tremendous amount of land and resources used by the dairy industry are a major contributor to the pollution of our environment.

Let's compare this with the environmental impact of breastfeeding:

Breast milk produces no waste: It is produced in the right amounts for the baby's needs.

Mothers need only the smallest amount of extra energy to produce milk, which is often taken from body fat (even malnourished mothers can produce enough quality breast milk to feed a baby).

Breast milk needs no extra packaging.

Breast milk is ready to use at the right temperature.

Breast milk does not have to be shipped around the world. A mother has a ready supply wherever she goes.

Most women do not menstruate when breastfeeding and therefore need fewer sanitary pads, tampons, or cloths. This reduces the need for fibers, bleaching, packaging, and disposal. If a baby is unrestrictedly breastfed for six months and breastfeeding continues into the second year, the average mother will not have a period until her baby is at least fourteen months old.

What other human activity would permit you to give your baby the best possible nurturing and health protection at the same time that you enhance your own long-term health, provide the most economical infant food possible, and protect the natural environment?

Times of Crisis

Many families these days take the trouble to pack an emergency kit in case of a tornado, flood, hurricane, earthquake, or other natural disaster. Breastfeeding mothers have an obvious

advantage here, because the perfect food for their babies is with them at all times.

A couple of weeks after Hurricane Katrina devastated New Orleans and the Gulf Coast in 2005, another powerful hurricane, Rita, appeared to be heading for Houston, Texas. The mayor of the city ordered everyone to evacuate, and within hours, a million and a quarter Houstonians were in their cars, inching along a freeway that was not designed to accommodate anything like this volume of traffic. It wasn't long before tens of thousands of radiators were boiling over. According to the news reports, many families, having failed to anticipate the major traffic jam, had neglected to bring enough water or other drinks along with them. I think I would have preferred to be a breastfeeding mother that day rather than one who depended on manufactured milks.

In late November 2006, a California family became stranded in their car in the Oregon mountains during an unusual series of heavy snow-and rainstorms. They waited for more than a week to be rescued. Finally, James Kim, the father, built a fire for his wife, their four-year-old, and their seven-month-old baby, and

began hiking out to find help. Sadly, Mr. Kim died of hypothermia before he could reach help, but his family was rescued alive. His wife had managed to sustain the two children by breastfeeding them. “The fact that Kati Kim was able to breastfeed both of her children for the amount of time that they were stranded most likely was lifesaving for them.... Breast milk not only provides the calories needed to sustain life, it also helps prevent dehydration,” said Dr. Sheela Geraghty, assistant professor of pediatrics and medical director at the Center for Breastfeeding Medicine at Cincinnati Children’s Hospital Medical Center.

Given all of the health benefits for babies and mothers that come with exclusive breastfeeding, you might wonder whether any countries have enacted national policies to make breastfeeding easier for mothers. The answer is yes. Norway, for instance, is a highly developed, wealthy country that has managed to successfully reclaim breastfeeding as the norm for babies. In 1970, only twenty percent of Norwegian babies were breastfed, a similar proportion to U.S. babies at the same time. Today, almost all Norwegian babies get their mothers’ milk as their first food,

and eighty percent of these babies are still being nursed by their mothers six months later. It is important to recognize that Norway accomplished this major change in its health policy without keeping mothers of young children confined to their homes or setting women with different viewpoints against one another. Much of that country's success can be attributed to wise public policies created by a coalition of physicians, feminists, and legislators, who all agreed that the lost art of breastfeeding ought to be revived for the good of babies and their mothers. See Chapter 15 for more information on how Norway learned to make breastfeeding easier for its mothers.

Closer to home is a Tennessee village called "The Farm," where I have lived and worked as a community midwife for several decades. Since the beginnings of my village, in 1971, virtually every woman there has breastfed her baby for at least the first several months. Of the first group of almost a thousand women, everyone nursed for at least a year, with only a handful of exceptions. At The Farm today, every woman expects to be able to breastfeed, because she knows literally hundreds of women who nursed their babies as long as they wished.

Were the women in my village a favored type of human to have had such success at breastfeeding when so many experience various difficulties in other parts of the United States? Actually, our breastfeeding mothers have always been an ordinary mix of young adults, as far as physical attributes go. What was unusual about us was that as a group, in the pioneering days of our community—when we were laying down the foundations and values of our lifestyle—we put ourselves into a situation that *required* every woman to breastfeed for the health and safety of her baby. During these early years, we had neither electricity nor running water, so it was virtually impossible to feed our babies with formulas. It turned out that the women in our group were able to reliably produce enough milk to fully nourish their babies—real-life evidence that breastfeeding works very well when conditions are right and small challenges are addressed before they become big problems. This allowed each new mother to begin nursing without the fear of failure.

My hope is that it is reassuring for you to know that a sizable group of women has had nearly one hundred percent success in breastfeeding in the modern world. This should let you know that

there's nothing wrong with nature's design. Our experiences living as a community at The Farm provided us with some valuable insights about women's and babies' needs in the time after birth. What I consider most valuable about our circle of women's experience in recovering the female capacity to breastfeed is that it demonstrates what might be needed to reestablish a culture of breastfeeding in areas of the world where such a culture no longer exists. I will bring up this community experience in later discussions throughout the book, because of the lessons that can be drawn from it for people living in entirely different circumstances.

Millions of people have been and still are negatively affected by the huge loss in breastfeeding in the United States during the first half of the twentieth century. My aim in this book is to inform you as well as possible in order to insulate you against the negative influences and senseless taboos that have become part of North American culture over the last few decades. At the same time, I hope to provide you with practical information about how breastfeeding works, making it easier and more enjoyable for you and your baby.

A Note About Gender

In alternate chapters, I will switch between using feminine or masculine pronouns when referring to your baby.

A Note About Etiquette

Although I strongly advocate that new parents make every effort to nurse their babies, as a matter of compassion I also believe it's important for those of us who breastfeed to refrain from being judgmental of those who do not. How would it make you feel for someone to make comments about a way of feeding that you have no way to reverse? It is possible to educate without issuing statements that make people feel criticized.

1

HOW BREASTFEEDING WORKS, AND HOW IT RELATES TO MOTHERING

We women are all born with the right equipment for breastfeeding. Big breasts, tiny breasts, long nipples, flat nipples, light nipples, and dark nipples all work very well for milk-making and breastfeeding. The basic milk-producing equipment is present in all the variations that we see in the human female. Why, then, is it so much easier for some women to breastfeed than it is for others? This

chapter is intended to give you a foundation for understanding why this is so. There are external factors that can interfere with your innate ability to nurse your baby, but the important thing for you to remember is that these have nothing to do with the body you are dealt at birth, which has the capacity to work right.

Breasts are amazing, complex organs, which are able to produce, secrete, and deliver the most perfect food possible to your baby, who is hardwired to take it in. Your breasts are even talented enough to adjust the composition of your milk according to the gestational age of your baby at birth and to the amount of heat and humidity in your environment at any given moment.

Let's take a quick look now at the different kinds of tissues that make up your breasts. First there is the glandular tissue of your breasts, the network of grapelike clusters (alveoli) and ducts that make the milk and move it along. Next, your breasts contain a web of ligaments that help to support their weight. Then there are the nerves of the breast and nipple, which make them sensitive to touch. It is this network of nerves that responds to your baby's nuzzling, suckling, head-bobbing, and caressing, by sending the message to your pituitary gland to secrete pro-lactin, the hormone that signals

your breasts to make milk. You'll probably learn later on that your baby's cry and even the thought of your baby can do the same thing. The rest of your breast tissues are the more-liquid components: the blood, which nourishes all the rest of the tissues and provides the nutrients needed to make milk, and the lymph, which removes wastes.

By the way, none of the tissues mentioned so far has anything to do with the size of your breasts. Breast size depends upon the amount of fatty tissue in your breasts, not upon the amount of glandular (milk-making) tissue. Some of us have a lot of fat in our breasts, while others have more-moderate amounts or very little. The amount of fat has no effect on our ability to make milk. Pregnancy means dramatic breast growth in some women, but women who still have tiny breasts at the end of pregnancy are quite able to fully breastfeed their babies. Your nipple sticks out from your areola; it is in the middle of the darker-colored part of your breast. Both nipple and areola contain erectile muscle tissue. When your nipple is stimulated by touch, cold, or a visual or auditory cue, these muscles contract, and your nipple becomes hard and erect. Once your baby takes it into her mouth properly, it will take on an entirely different shape, doubling in

length and conforming to the shape of your baby's mouth cavity.

Hormones That Affect Lactation and How to Elicit Them

It takes more than the right “equipment” to make milk—it is also necessary for that equipment to get the signal that it is time to start producing and releasing the milk. This is the job of certain hormones that are produced in the body, hormones that may rise or fall according to the mother's stress level and the atmosphere in which she first starts suckling her baby.



Oxytocin

The hormone oxytocin plays as large a role in lactation and mothering as it does in the process of labor and birth. When you feel your uterus contract during or after labor, you are feeling just one of the many effects of oxytocin: in this case, the ability to expel

something from a bodily organ. Oxytocin not only stimulates the muscles of the uterus to expel the baby at the culmination of labor, it also stimulates the muscles of the breast to expel milk during nursing in what is called the “letdown reflex.”

Oxytocin has been called the “hormone of calm, love, and healing” because of the kinds of feelings it causes in the mother and the interactions with her baby that often trigger its release. [1](#) For instance, it has been found that a newborn baby can cause additional oxytocin release in the mother’s bloodstream by massaging, nuzzling, or licking her nipple. Both skin-to-skin contact and eye-to-eye communication between mother and baby also trigger the release of oxytocin. Under the influence of high oxytocin levels, mother and baby tend to stare at each other lovingly, provided that skin-to-skin contact—or only light clothing between them—is the norm just after birth and there are no distractions or interruptions.

Mom and baby under the influence of oxytocin

Extremely high levels of oxytocin persist in the bloodstreams of mother and baby for about an hour after vaginal birth, giving both a feeling of well-being and gratitude. Higher levels than usual will persist throughout the nursing period, as long as the mother doesn’t

have extremely high levels of stress (since high levels of stress hormones inhibit the secretion of oxytocin).

And though severe stress can sometimes inhibit the release of oxytocin, research has also shown that oxytocin often *lowers* stress in lactating women by slowing the heart rate and reducing blood pressure. There is evidence that the powerful calming effect that breastfeeding can have on a mother during the early weeks of life is long-lasting: Dr. Kerstin Uvnäs Moberg, a Swedish oxytocin researcher, found that women who breastfed their babies for the first seven weeks were calmer when their babies were six months old than women who never breastfed. Her research team also found that small amounts of oxytocin reduce anxiety and increase curiosity and a willingness to relate with another being. In Moberg's words, "Oxytocin is physiology's 'forget-me-not' that makes recognition and bonding reverberate in the nerves' pathways." Larger amounts of oxytocin, such as that which a mother and baby might experience during a longer nursing session, produce a more pronounced calming effect—a tendency to move around less, to relax and rest. The same research team discovered that oxytocin also alleviates pain. When a rat is given repeated oxytocin injections, it will take longer than usual

to pull its tail out of water that is too hot. Oxytocin's ability to reduce pain applies to both mother and baby and is a blessing that is quite noticeable when a breastfed baby must undergo a painful medical test or a new mother is healing after a cesarean.[2](#)

Are you surprised that one hormone can do so many different things related to nurturing and parenting? Actually, it can do all that and more. To illustrate what I mean, it is worth knowing that we women have the ability to produce oxytocin even when we aren't pregnant. (Men can produce it, too, but its effects are more pronounced in females.) Oxytocin levels in the body rise when we enjoy a good meal (when we take the time to focus on it), whether alone or in the company of people we enjoy. It is no accident that business people consummate so many deals around a shared meal, as eating together causes oxytocin levels to rise, thus instilling a sense of calm and trust that makes it easier for people to cooperate with one another.

Another stimulus to oxytocin release in both sexes is pleasant, rhythmic touch. Much research has confirmed that oxytocin levels rise when we receive a hug from someone we care for or a soothing massage, as well as during meditation, a warm bath, or sexual

arousal. As oxytocin levels rise, blood pressure drops, heart rate slows, and the digestive system functions at maximum efficiency. The same goes for healing: Our bodies heal better when oxytocin levels are high and our stress hormones are at a low ebb. When we are under the influence of oxytocin, problems that may have been bothering us previously tend to move into the background, and we may view our situation in a more positive way. We may also feel an enhanced sense of closeness to others and an impulse to greater generosity.

Consider the experience of Jiang Xiaojuan, the twenty-nine-year-old Chinese policewoman who was called a national hero by the media after the Jiangyou earthquake of May 2008. Officer Xiaojuan nursed nine babies whose mothers were injured or killed in the earthquake. For Officer Xiaojuan, whose own son was six months old, it was a simple matter. “I am breastfeeding,” she said, “so I can feed babies. I didn’t think of it much. It is a mother’s reaction and a basic duty as a police officer to help.”

While she was bemused about the media fuss over her actions, she did allow that she felt something special for these little ones: “I feel about these kids I fed just like my own. I have a special feeling for

them. They are babies in a disaster.” I’m sure that this policewoman’s actions were prompted not only by a sense of duty but also by the increased level of oxytocin that she experienced when she encountered the hungry babies. Her milk flowed in greater quantities



than usual because she felt a need to feed these helpless little ones. All mammals share the ability to produce oxytocin, and expressions of maternal kindness and generosity are not limited to our own species. The Sriracha Zoo near Bangkok, Thailand, has attracted a lot of media attention in recent years for its cross-species suckling arrangements. Zookeepers there apparently do a certain amount of intentional “baby-snatching,” which is then followed by successful foster relationships that zoo visitors find entertaining. From this, we get the improbable sight of a sow suckling tiger cubs or of a six-year-old royal bengal tigress (who was suckled by a pig for her first four

months of life) suckling six piglets and behaving as any loving, protective mother would toward her charges. Clearly, the zookeepers rely on the power of oxytocin to pull off such stunts.

Oxytocin-induced relationship of nurturing and trust

Who wouldn't want to have high oxytocin levels during pregnancy and birth? This is best accomplished by having as much contact with your baby as possible right after birth. As mentioned, skin-to-skin contact is best, but even with clothes on and your baby wrapped in a receiving blanket, your oxytocin levels can be enhanced by just holding and caressing her. If you have had a stressful birth, holding and cuddling your baby will usually improve the way you feel almost instantly. One of the few exceptions to this would be if you feel so weak following birth that you are on the point of fainting. Common sense, of course, should rule in these matters. The amount of contact you have with your baby just after birth may vary according to whether you gave birth vaginally and whether your perineum needs stitching. However, women who have cesareans or need perineal repair will also benefit by both seeing and touching their babies as much as possible in the moments soon after birth.

More generally, the way to have a high level of oxytocin after birth

is to avoid stress. Here I'm not referring to the work or even the pain of birth. Rather, this means any factor—including the people assisting your birth—that interferes with your ability to connect with your baby once her breathing is spontaneous and unassisted. This is especially important during your child's first hour of life—a period of extraordinary sensitivity for both you and your baby, when your respective systems are meant to be in attunement.

Beta-endorphin

Beta-endorphin is another hormone that has an important function around the time of birth and breastfeeding. From ancient times, humans have known about opiates (drugs derived from the opium poppy) and their ability to kill pain and produce ecstatic states of consciousness. However, it wasn't until the mid-1970s that researchers discovered that the human body produces its own opiate: beta-endorphin. It is secreted by the pituitary gland and the hypothalamus in circumstances of stress, muscular effort, excitement, orgasm, and pain. Its properties are similar to those of morphine, heroin, and meperidine (Demerol), a painkiller commonly used in maternity wards in the United States, and it works on the same receptors of the brain. Anyone who follows sports closely is aware of

the phenomenon that occurs when an athlete is injured on the playing field but is able to continue playing without feeling much pain. High levels of beta-endorphin are very effective at blocking pain receptors. Beta-endorphin has another function: It facilitates the release of the



hormone prolactin during labor, which prepares the mother's body for lactation and helps the baby's lungs finish their maturation process. Beta-endorphin is present in high levels for about three days following birth and then returns to its former level. However, it remains present in breast milk, which helps to account for the blissful expression we see on the faces of babies who have just enjoyed a good session at the breast.

Breastfed newborn just after feeding

Prolactin

Now we come to prolactin, which has been called the “mothering” or “nesting” hormone. *Pro lacticin*, incidentally, means *for milk* in Latin. It is released by the pituitary gland during pregnancy and lactation and prepares the pregnant woman’s breasts for lactation by causing the maturation and proliferation of the mammary ducts and alveoli. High levels of the hormone progesterone inhibit the production of milk during pregnancy (though, in many women, not to the point of suppressing lactation if they are still nursing an older child).

Progesterone and estrogen levels drop abruptly after birth, and prolactin causes the milk-producing cells in the mother’s breasts to begin producing first colostrum and then milk.

Prolactin is related to other forms of mothering behavior as well. It has to do with nest building, grooming, and comforting. Michel Odent has written that while oxytocin creates a need to love, prolactin creates a tendency “to direct the effects of the love hormone toward babies.” [3](#) Prolactin is likely to be the hormone that urges the mother to put her baby’s needs first and foremost.

Other effects of prolactin include stimulating the secretion of oxytocin and natural painkillers such as beta-endorphin, and the

suppression of fertility. Like oxytocin, prolactin also helps reduce stress—for both mother and baby.

Interestingly, men and women have similar prolactin levels when there is no pregnancy. [4](#) Studies have shown that fathers-to-be have increased prolactin levels, paralleling the increased levels of their partners. Holding babies appears to raise prolactin levels in men as well as women, and new fathers' prolactin levels also increase when they hear their babies' cries.[5–6](#) New fathers with high prolactin levels tend to be more responsive to their newborns' cries.

To sum up this discussion about the hormones that facilitate lactation, ease of breastfeeding is directly related to having high levels of oxytocin, beta-endorphin, and prolactin in the bloodstream around the time of birth. Nature endows each woman with the equipment to produce these hormones, but in stressful environments it can become more difficult for her to secrete them in the necessary amounts. This will be discussed later on in the chapter.

Colostrum

Baby's first drink, colostrum, is the thick yellowish milk that your breasts begin to produce—usually, but not always, in small amounts—during the last half of your pregnancy and for the first two or three


days after birth. Colostrum is protein-packed. It gives way to what usually seems like more than enough milk in a day or two (sometimes three or four) after giving birth.

Do not worry about whether you can produce colostrum. Barring some sort of serious injury or radical surgery, it would be impossible for you not to.

Colostrum is full of antibodies, immune factors, enzymes, and other goodies that help to get your baby started well in life outside your body. Partly a laxative, it helps your baby expel the dark meconium, which is your baby's first poop. This action gets your baby's digestive system ready to receive the greater quantities of milk that will soon begin to fill your breasts.

Exclusive suckling from the mother (that is, no supplemental feeds or drinks of other kinds) works best for human babies. Most exclusively breastfed babies who have unlimited access to their mother's breast will drink only about an ounce during the first twenty-four hours after being born. That's about two tablespoons, or one-eighth of a cup. If you are not used to U.S. cooking measurements, the amount is less than what would fill an egg cup. Colostrum's function is, in a way, more medicinal than nutritive. It

is so important to newborn babies that even the mother who plans to bottle-feed her baby on an artificial milk would be well advised to give her baby only the colostrum from her breast for at least the first three days of life. Dr. Ruth Lawrence's research has shown significant correlations between increased asthma, urinary-tract and respiratory infections, gastrointestinal disease, later obesity, and juvenile-onset insulin-dependent diabetes when artificial formula is given to babies soon after birth. [7](#) When your baby swallows several mouthfuls of colostrum while nursing during the first two days, this small amount will maintain her blood sugar at the ideal level. It's good to remember that your newborn baby is still making the transition from being fed by the placenta to actively feeding at your breast, at the same time that your body is making the transition from pregnancy (storing food



in your baby's vital organs) to lactation (producing food for your baby).

My friend who grew up on a farm, where her family raised sheep, told me that sometimes a ewe would give birth to the first of twins, and the firstborn would be too weak to get to its feet to reach its mother's teat. My friend learned to milk a small amount of colostrum

into her palm and drip it into the weak lamb's mouth. Almost immediately, she said, the lamb would begin to suck on her fingers, and dull eyes became bright and weak legs strengthened—more evidence of the powerful effect that comes from even the tiniest amount of colostrum.

Sonja's story shows how colostrum also has immediate benefits for sick human babies:

Sonja: *When I learned I was pregnant, I already knew I wanted to have a natural birth. I couldn't wait to have a beautiful birth experience that would give my baby the best start into this world. When I ended up with an emergency C-section, I had the most difficult time in my life instead. My baby boy was taken to the neonatal intensive care unit (NICU), and it was a long ten hours after his birth before I could even hold him in my arms for the first time.*

I felt completely down when Eleanor, the breastfeeding consultant working for the hospital, entered my room and started talking to me about breastfeeding. She also showed me how to use the breast pump that was available in every room to stimulate milk production. Her words, her voice, and her calm energy were exactly what I needed to bring my focus back to being a mom for my baby. After my little baby boy latched on to

my breast with ease, I gained a new powerful sense of motherhood. I still had something that only I could give to my precious boy—something that would help make him grow and get stronger.

I remember how later on, while I was breastfeeding my baby in the NICU, Eleanor went into my room to get the leftovers of my colostrum from the collection bottles. What I thought was just a few drops (not worth saving) amounted to a whole syringe full of colostrum. She brought it down to the neonatal care unit to store it in the refrigerator, explaining to the nurses the importance of breast milk, especially for the babies treated there. She said every drop was precious and mentioned that colostrum may even be used as a lotion for a baby's dry skin. As a result, I asked the nurses to call me every time my boy needed a shot or a new IV, so I could breastfeed him before each procedure. This greatly eased his discomfort—to the point that he sometimes ignored the pain completely and did not cry at all.

Thanks to Eleanor, I had enough strength to be there for my little boy during those long seven days in NICU. And now I cherish each moment I can hold my son in my arms while I feed him, calm him, and comfort him. The connection I feel when I nurse him helps me forget the difficult past and gives me a feeling I would not trade for anything in the world.

The Beginning of Milk Production

On day two or three after most births, your milk will come in. You'll know when this happens by the following signs: Your breasts will become warm and firm to the touch, and they will swell. Your baby, who suckled quietly when there was only colostrum in your breasts, may have to gulp at a fast rhythm to keep up with the flow. She will begin to pee larger amounts, and her poop will begin to change from the sticky dark meconium that clings to her skin to something that looks more like yellowish cottage cheese curds in yellow liquid. Breastfed-baby poop, unlike meconium, smells, but it's not really stinky.

Your milk may come in either sooner or later than expected without there being an abnormality. For example, milk usually comes in earlier in women who have breastfed a previous baby, and it often comes in a day or so later when birth takes place in a hospital (especially when the mother has had little close contact with her baby or has been able to suckle her baby only according to scheduled times rather than by the baby's cues).



Most women have the capacity to produce considerably more milk

than one baby needs. Milk supply is directly related to the amount of milk that is removed and the frequency with which this happens—demand regulates supply. Your breasts don't know whether they will need to produce for one, two, or three babies, and, as with certain other mammals, nature has provided you with the capacity to feed two babies simultaneously. It may also reassure you to know that research has shown that even women who are themselves malnourished are able to produce a sufficient supply of good-quality milk for their babies. They need only drink to satisfy thirst in order to produce enough milk. The rest of the job is about releasing that milk. To keep producing milk, though—once your breasts really go into full production and your baby's appetite is fully aroused—your breasts must receive the message of stimulation and, equally important, the removal of milk by suckling, manual expression, or pumping. If there is no frequent stimulation and removal, your milk will dry up over a few days.

The Letdown Reflex

When your baby suckles at your breast, the level of prolactin in your blood rises and stays high for the better part of an hour. This additional prolactin triggers the appropriate cells in your breast to

make milk. Then comes a surge of oxytocin, which causes the contraction of the bandlike cells that surround the milk-making glandular tissue in your breast, squeezing the newly made milk into the duct system and out of your body. First-time mothers—like Franki, whose story is below—may be surprised and delighted to find out that they can shoot their milk several feet.

Franki: *My first baby was three weeks old. I left for less than two hours to run some errands by myself, leaving the baby safe at home with Daddy. There I was in the grocery line, waiting to check out, fully armed with clothes, a good nursing bra, and breast pads, because my milk supply was bountiful from the time it came in. A lady and child behind me were arguing over gum, and the kid started crying and wailing, as some of them do at a time like that. Hearing that cry started my milk flowing, and by the time I got to the cashier, I was completely wet all the way through. My letdown was so strong I was actually tossing spots of milk on the floor and grocery conveyor belt as I unloaded my cart. The only thing that saved me from total embarrassment was that I knew the cashier, and we just laughed and laughed.*

Some women feel the letdown reflex, while others don't. Those who do feel it often describe it as a pleasurable sensation of warm tingling