Chapter 1

Deciding to Breastfeed

In This Chapter

- Distinguishing between formula and breast milk
- Understanding how your breasts produce milk
- Weighing your feeding options

If this were the year 2000 BC rather than 2000+ AD, this book wouldn't be necessary. If you wanted your baby to survive more than a week or two, you'd have to breastfeed, unless you had a friend who was willing to do the job for you.

Somewhere in the last 4,000 years, however, the idea took root that breastfeeding a baby was a distasteful task, better left either to a hired nurse or to anyone willing to wield a rubber nipple. Chances are that your great-grandmother breastfed her children, but your mom and grandma probably didn't. That's because in the early twentieth century, most doctors told their patients that baby formula was a more modern and better way to feed a baby.

Now the pendulum is swinging back to breastfeeding as the best feeding method. You may have friends who are fervent — and vocal — proponents of either breast or bottle. But your friends can't make your decision for you; only *you* can determine if breastfeeding is the right choice for you and your child. This book can help you make that decision.

In this chapter, we offer an overview of breastfeeding, including a look at some differences between breast milk and formula, a lesson in how your breasts make milk, and a brief discussion of some of the advantages and disadvantages of breastfeeding (which we discuss in detail in Chapters 2 and 3). We hope the information here is food for thought, whether you may be planning to breastfeed for three days or three years.

Comparing Formula and Breast Milk

One of the first issues to consider when deciding how to feed your baby is the quality of the food itself. Perhaps you've heard that breastfed babies get hungry sooner than bottle-fed babies. Does that mean formula sustains babies better than breast milk? Maybe you've read that formula contains more protein than breast milk. Does that mean your milk is somehow deficient?

In this section, we soothe concerns you may have about the quality of milk your body produces, and we address misconceptions about the differences between breast milk and formula.

A lesson from Little Miss Muffet

You may remember the old nursery rhyme about Little Miss Muffet, sitting on a tuffet, eating her curds and whey. Looking at curds and whey is a good place to start as we examine the differences between breast milk and formula.

Most baby formulas are derived from cow's milk (although dairy-free formulas are also available). When milk — from the breast or from a cow — is digested, it breaks down into two byproducts: curds and whey. The *curd* is white and rubbery, and the *whey* is liquid.

When cow's milk breaks down, the curd that forms is hard for human babies to digest. Breast milk, on the other hand, forms more whey than curd, and the curd is softer and more easily digested. Because the baby can digest breast milk more easily than cow's milk, he's less likely to decorate your favorite sweater with spit-up.

Formula makers are striving to make their formulas contain more whey and less curd, so they can be digested more like breast milk. Some formulas, like Nutramigen and Alimentum, are made of *hydrolyzed* protein, which is already broken down, so they are more easily digested than standard cow's milk or soy formulas. In all cases, breast milk is still the gold standard that formula companies are continually trying to match!

Custom-made nutrition

Formula and breast milk look very different; formula is creamier and looks richer than breast milk. This may lead you to believe that formula is more nutritious for your baby, but that's not the case.

One of the most amazing things about breast milk is that *your* milk is specially formulated to have the right composition for *your* baby, and to contain exactly the right amounts of nutrients. Bottle-fed babies receive the exact same nutrients every time they eat. Breast milk, on the other hand, continually changes in composition so that your baby gets what he or she needs at any age.

Considering colostrum

The first liquid the breasts produce (starting a few months before the baby is born) actually doesn't even look like milk. *Colostrum,* which is yellow and thicker than breast milk, is a great example of how your body custom-makes the right nutrition for your baby. Here are some of its benefits:

- Colostrum has a high concentration of antibodies, especially *IgA,* an antibody that helps protect the lungs, throat, and intestines.
- Colostrum helps "seal" the permeable newborn intestines to prevent harmful substances from penetrating the gut.
- Colostrum is very high in concentrated nutrition.
- Colostrum has a laxative effect, which helps the baby pass the first bowel movements (and prevents newborn jaundice).
- Colostrum is low in fat, high in proteins and carbohydrates, and very easy to digest.

Within a few days after delivery, your body begins to produce mature milk that takes over the work of giving your baby the necessary ingredients for healthy growth. Colostrum is still present for around two weeks; the milk produced during this time is called *transitional* milk.

Comparing ingredients

Breast milk contains more than 100 ingredients that the formula industry simply can't duplicate. For example, breast milk is full of antibodies that protect babies from illness and help them develop their own immune systems. Some other key differences between the ingredients in breast milk and formula include the following:

- Formula has a higher protein content than human milk. However, the protein in breast milk is more easily and completely digested by babies.
- Breast milk has a higher carbohydrate content than formula and has large amounts of *lactose,* a sugar found in lower amounts in cow's milk. Research shows that animals whose milk contains higher amounts of lactose experience larger brain development.

Minerals such as iron are present in lower quantities in breast milk than in formula. However, the minerals in breast milk are more completely absorbed by the baby. In formula-fed babies, the unabsorbed portions of minerals can change the balance of bacteria in the gut, which gives harmful bacteria a chance to grow. This is one reason why bottle-fed babies generally have harder and more odorous stools than breastfed babies.

Table 1-1 summarizes these and other significant differences between breast milk and formula.

Table 1-1 Breast Milk and Formula at a Glance

Breast Milk	*Formula*
Contains proteins that don't cause allergies	Contains dairy-based proteins, which some babies are allergic to or may have difficulty digesting
Forms a softer curd and more whey	Forms larger, harder-to-digest curd
Contains growth-promoting hormones	Contains less-easily digested growth-promoting hormones (or sometimes none at all)
Contains lactose as its main sugar	May contain less lactose than breast milk
Gives baby more carbohydrates	Gives baby fewer carbohydrates
Contains oligosaccharides, good for a healthy gut	Deficient in oligosaccharides
Has a higher fat content	Has a lower fat content
Contains *lipase* (which helps to break down fats) and *cholesterol* (which is important for brain and nerve development)	Does not contain lipase or cholesterol
Is broken down and absorbed more easily than formula	Is more difficult to digest than breast milk, which means more is excreted
Contains DHA for nervous system development	May or may not contain DHA
Offers babies antibodies that protect them from disease	Does not contain antibodies
Contains lower amounts of vitamins and minerals, because they are easily absorbed	Contains higher amounts of vitamins andminerals to offset poor absorption

Who is breastfeeding today?

More women are choosing to breastfeed today than at any time in the last 70 years. Who is most likely to breastfeed in the United States today? One study conducted by Abbot Laboratories yielded the following statistics about women who breastfeed while they are in the hospital.

Maternal age:

- Less than 20 years old: 54%
- 20–24 years old: 62%
- 25–29 years old: 70%
- 30–34 years old: 73%
- Over 34 years old: 74%

Employment status:

- Women working full-time: 65%
- Women working part-time: 69%
- Stay-at-home moms: 66%

A year after delivery, these numbers change dramatically.

- Women working full-time: 10%
- Women working part-time: 16%
- Stay-at-home moms: 21%

We discuss the difficulties of working and breastfeeding in detail in Chapter 13.

Overall, 67 percent of all new moms breastfeed in the hospital, and 31 percent are still breastfeeding six months later. A year after delivery, only 17 percent are breastfeeding.

Feeding frequencies

Breastfed babies often want to eat again sooner after a feeding than bottle-fed babies, which may lead you (or an outspoken relative) to conclude that you aren't producing enough milk, or your milk isn't rich enough. We're happy to clear up this misconception!

Breastfed babies eat more often than bottle-fed babies because the fats and proteins in breast milk are more easily broken down than the fats and proteins in formula, so they are absorbed and used more quickly. This means that breastfed babies often have fewer digestive troubles than bottle-fed babies. (Fats in formula aren't as

well absorbed, which is one reason why bottle-fed babies have more unpleasant smelling bowel movements.) However, it also means that if you choose to breastfeed, you can expect to be on call for feedings every few hours. (A bottle-fed baby, by contrast, may be able to sleep longer between feedings.)

An important consideration for breastfeeding mothers is the length of time your baby spends nursing on each breast. As we discuss in Chapter 8, a baby receives thinner breast milk known as *foremilk* (with a lower fat content) at the beginning of a feeding, and thicker milk (with a higher fat content) after he has been nursing for several minutes. This thicker milk is called *hindmilk.* Allowing the baby to completely empty the breast ensures that he gets an adequate amount of hindmilk. Hindmilk has a sleep-inducing effect, resulting in the relaxed look your baby may have at the end of a meal.

Getting to Know Your Breasts

If you're thinking about breastfeeding, you may be curious about how this whole process works. Your breasts have been with you a long time, but outside of puberty, you probably haven't paid much attention to their functioning.

Everything changes with pregnancy. The breasts you thought you knew start to seem like someone else's. To help you understand the changes, in this section we explain what breasts are, what's inside them, and what makes them work.

Labeling your parts

Your breasts began to develop a very long time ago — about seven weeks after you were conceived, in fact. By the time you were born, all the components of adult breasts were already in place. In fact, both boy and girl babies often produce a small amount of fluid right after delivery (sometimes called *witch's milk*).

When you experienced puberty, your body released estrogen that started the process of your breasts becoming mature. From the first time you noticed puffiness of the *areola* (the darker area around the nipple), it probably took around three or four years for fully functioning breasts to develop.

Breast tissue is made up of glandular (or *lobular*) tissue, fatty tissue, milk ducts, and connective tissue (see Figure 1-1). Glandular tissue is firm, while fatty tissue is softer. (The upper, outer part of the breast has a higher percentage of glandular tissue than other areas of the breast.) Glandular tissue contains the milk ducts and

lobules that produce milk. This tissue starts to grow in preparation for pregnancy after you ovulate, and it is responsible for the breast tenderness you may experience just before your period.

Around 15 to 20 lobes are distributed around each breast. Each lobe is further divided into lobules that contain *alveoli,* saclike structures that produce milk. The lobes are attached to mammary ducts that carry milk to little openings in the nipple. The nipple is surrounded by pinkish tissue that turns darker during pregnancy and remains darker after you've delivered. This is the *areola.* Milk is stored in small cavities called *lactiferous sinuses* beneath the areola. Small bumps on the areola are called *Montgomery's glands;* they produce secretions to lubricate and cleanse the areola.

Touring the milk factory

Starting with the delivery of your baby, this is how your body makes milk, beginning with colostrum:

1. **The levels of *estrogen* and *progesterone* (hormones that increase during pregnancy) in your body drop after you deliver your placenta.** This process usually occurs very shortly after you deliver — within hours, if not minutes. For more information about what occurs during and after delivery, see *Pregnancy For Dummies, 2nd Edition,* by Joanne Stone, M.D., Keith Eddleman, M.D., and Mary Duenwald (Wiley).

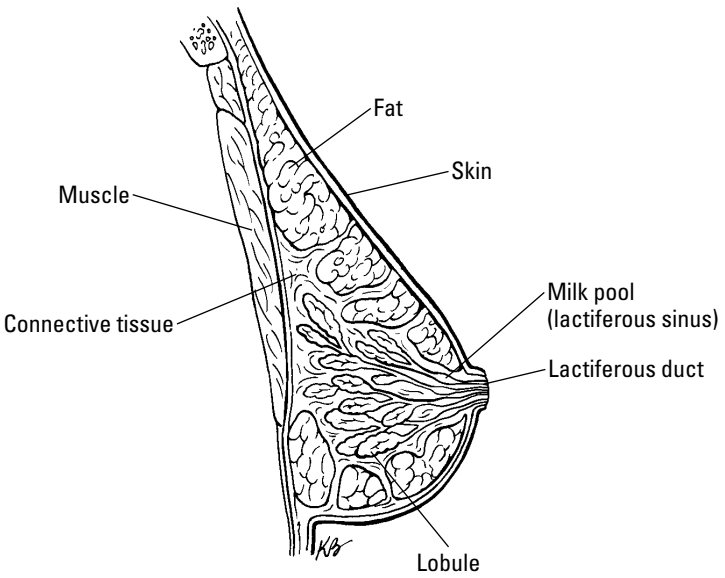

Figure 1-1: A look at your breasts from the outside in.

2. **The level of *prolactin* (another hormone that increases during pregnancy) stays high and actually increases after delivery.** This prompts your body to begin producing milk.
3. **Milk forms in the small cluster of cells called the *alveoli* and travels down your milk ducts.** It then pools in the lactiferous sinuses behind your nipple.
4. **Your baby begins nursing and empties the lactiferous sinuses.** Ideally, this occurs immediately after delivery (see Chapter 6).
5. ***Oxytocin,* a hormone that causes muscle contractions, is released as the baby sucks.** Oxytocin stimulates the muscles around your milk glands and ducts to contract, which moves your milk toward the nipple. This is known as your *let-down reflex.*
6. **Milk is continually squeezed through your milk ducts to the nipple as your baby sucks.**
7. **When the baby removes milk from the breast, your body is stimulated to produce more.** If you're not nursing, after three or four days your milk supply dries up. The more milk your baby takes, the more your breast makes.

A brief history of breastfeeding

Back in caveman days, moms were the sole providers of milk for their babies; if you couldn't nurse your baby, your baby didn't survive long. But around 600 or 500 BC, the Egyptians, Romans, and Greeks started something new with their royal babies: Royal moms began hiring other women, called *wet nurses,* to breastfeed their babies. A wet nurse was a woman who had recently had a child of her own, thereby making her capable of producing milk. Wet nurses sometimes nursed several children at a time.

Wet nursing continued as an upper-middle-class custom for centuries in many parts of the world, interspersed with attempts to give babies milk from various animals. Some rather odd sources (like pigs) were attempted, but eventually cows and goats won out as the best animal substitutes for human milk.

In the eighteenth century, some women tried *dry nursing* (or *pap feeding*), which involved giving babies flour, bread, or cereal mixed with broth or water. These

mixtures didn't sit well with most babies' digestive systems. Many babies in orphanages, where pap was used extensively, died.

The formulation of useable breast milk substitutes really became popular in the 1930s. When women were needed in the workplace during World War II, bottle-feeding became the norm in the United States. Formula companies continued to tout their products after World War II ended. Doctors jumped on the formula band wagon, and breastfeeding in the United States dropped to an all-time low of around 20 percent between 1956 and 1966.

The "back to nature" movement in the 1970s that brought us natural childbirth also brought a new interest in breastfeeding. Every decade since has seen an increase in the percentage of moms who start breastfeeding in the hospital.

Making an Informed Choice

In this chapter, we've discussed the nutritional advantages of breastfeeding, and we discuss the physical, financial, and other benefits in detail in Chapter 2. You may already be wondering why, given all the plusses of breastfeeding, everyone isn't doing it.

Are there disadvantages to breastfeeding? Nothing in this world comes without some sort of price, so of course there are. From our perspective, the main disadvantages to breastfeeding are:

- **You're always on call.** You'll be the only meal ticket in town for your baby, which means you'll be on call for every feeding.
- **You may have to watch what you eat.** Some things you eat (like chocolate) may not agree with the baby (see Chapter 7).
- **If you're extremely modest, breastfeeding may be hard.** Keep in mind that you can manage to breastfeed without ever going public. We discuss breastfeeding in public in Chapter 14.
- **Breastfeeding can be difficult to establish.** Breastfeeding isn't always simple at first; both you and your baby have to learn how to do it. Putting a bottle in the baby's mouth is simpler than teaching some babies how to nurse efficiently.

Interestingly, these disadvantages aren't at the top of the list of reasons why women choose not to breastfeed, according to the American Academy of Pediatrics (AAP). An AAP study found that some of the most common reasons women did not breastfeed were:

- Apathy on the part of physicians
- Disruptive schedules in the hospital
- Early discharge from the hospital
- Lack of societal support
- The need to go back to work
- Free handouts of formula and other gift packs in the hospital

This certainly isn't an exhaustive list. Some women have personal reasons for not feeling comfortable with breastfeeding, and others have health issues that make breastfeeding difficult, if not impossible. We devote Chapter 3 to a detailed discussion of some reasons why breastfeeding isn't the best choice for everyone.

But with the AAP study in mind, we encourage you to take steps early to ensure that you have a good breastfeeding support network in place. In Chapter 4, we tell you how to pick a supportive doctor, and in Chapter 6, we discuss dealing with an uncooperative hospital. Chapter 13 shows you how to breastfeed when you go back to work, and Chapter 14 helps you deal with family and friends. As for the gift pack, we hope that you give your feeding decision serious enough consideration that it won't be swayed by a few free cans of formula and a baby bib!