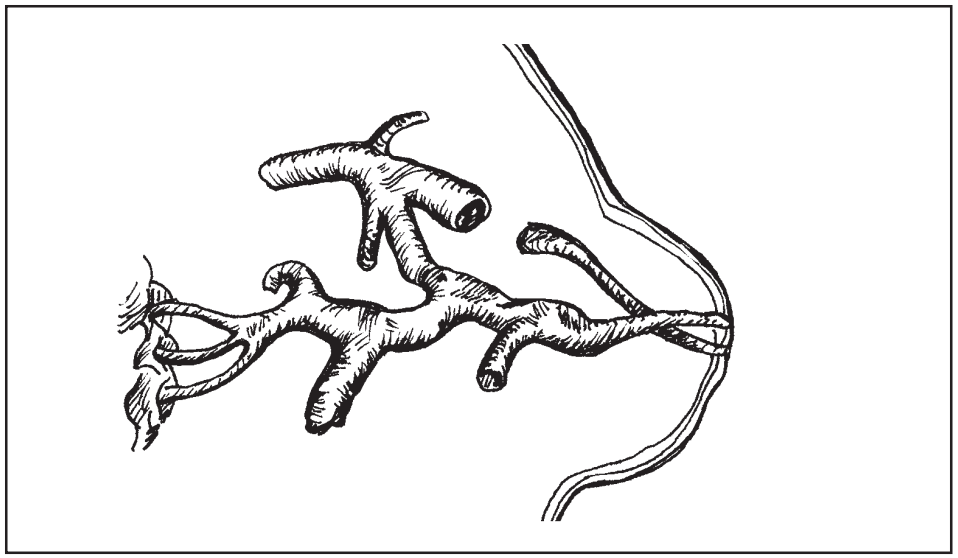
HOW THE BREAST WORKS



Preliminary diagram of milk duct system based on research done by Peter Hartmann's team.

and to compress them in order to express their milk more effectively. Dr. Hartmann suggests that what mothers feel when they locate this area of the breast is glandular tissue rather than milk sinuses (Hartmann 2002). We know from many years of experience that proper placement of the fingers is important for successful hand-expression of milk. Further research is needed to determine the reason.

Lobes and lobules

Each mammary gland forms a lobe of the breast, which consists of a single major branch of alveoli and milk ducts that end at the nipple pore. Until recently, we believed there were fifteen to twenty-five lobes in a breast, but research indicates that most women have between seven and ten lobes per breast (Kent 2002).

In the older, now obsolete, diagrams of the interior of the breast, which were based on drawings made in the 1840s from experiments done when hot wax was injected into the breasts of lactating cadavers, the lobes, lobules, and alveoli looked something like stalks of broccoli. The bunches of alveoli drained in an orderly fashion into smaller ducts, which then branched into larger ducts, which ballooned into the milk sinuses near the nipple, which then narrowed again, ending in the nipple pores. When researchers today examine the lactating breast with ultrasound, however, they describe the glandular tissue of the breast as looking disorderly, more like the roots of a tree, with many small milk ducts intertwined with one another.

Nipple tissue

In addition to the five to ten nipple openings, or pores, on the surface of the nipple, the nipple and areola also contain erectile smooth muscle tissue. With stimulation, these muscles contract, causing the nipple to becomes firm and protruding. The nipple is flexible and graspable to conform to the baby's palate, tongue, and gums during breastfeeding.

Areola

The nipple protrudes from the center of the darker pigmented area of the breast called the areola. Since the baby's sight is not fully developed at birth, it is thought that the darkened area may serve as a target to help the baby locate the center of the breast.

Montgomery glands

The areola is also the site of the Montgomery glands—small oil-producing glands that provide lubrication and alter the pH of the skin, thus discouraging the growth of bacteria on the skin of the nipple and areola (Williams 1992). Montgomery glands enlarge during pregnancy and have a pimply appearance.