

Breast Anatomy and Function

Throughout history women's breasts have been viewed as symbols of femininity, measures of beauty, determinants of fashion and sources of eroticism. The media, art, literature and culture present images of idealized breasts which few women have and are largely the constructs of men's imaginations. Money is spent on selling implants, silicone injections, padding, binding and breast enhancers which may disfigure or endanger a woman's health. There is great attention to the breasts as sexual objects. However, their primary function, which is to provide nourishment to an infant, is often viewed as unnatural or obscene.

In order to demystify our breasts we must understand about their anatomy and how they function in relation to the rest of our body.

In the centre of each breast is the nipple, which is surrounded by a pigmented circular area called the areola. The color of the nipple and areola varies among women and can range from a light pink to a deep brown or almost black color. The base of the nipple is ringed with tiny oil producing glands that help keep the nipple supple. Some women have hair around the areola. There are bumps around the areola somewhat like goose pimples. These bumps are known as Montgomery's glands and lubricate the nipple and areola during breast feeding.

The nipple is made up of spongy tissue. In some women the nipple is constantly erect, while for others the nipple only

becomes erect when stimulated by cold, physical contact or sexual activity. A woman's nipples may protrude beyond the areola while others may be inverted. If a formerly protruding nipple were or become inverted it might indicate some underlying problem and should be brought to the attention of a health practitioner.

The inside of the breast is made up primarily of fat and breast tissue. The breast tissue is firm and rubbery and is sandwiched between layers of fat behind which lies the chest muscle.

The interior of the breast is divided into sections called lobes. The lobes are divided into lobules, each of which contains milk-secreting glands cushioned by fat and fibrous connective tissue. The fat cells between and within the lobes give the breast its softness and shape. Cooper's ligaments are the fibrous tissues that separate the lobes. These ligaments provide the breast with support and shape. As these ligaments age and stretch, the breast droops. The fibrous tissue attaches the breast to the muscles of the chest wall, which are known as the pectoral muscles

There is also a duct system or pipeline which brings milk to the nipple. These ducts intertwine like the roots of a tree, but do not connect. Each has a separate opening, so that when a woman is nursing, milk comes from all around the nipple

Breasts come in many different shapes and sizes. Their growth and function are

affected by the sequential stimulation of hormones secreted by the ovary, anterior pituitary, adrenal cortex and thyroid glands. These glands respond to messages from the brain which affect body development and body function. Breast development starts at puberty and reaches adult size as body growth is completed.

The breasts are part of the reproductive system. During each menstrual cycle the breasts may swell. This is due to several factors. There is an increase of blood flow to the breasts and the ovaries produce hormones that also contribute to breast swelling. The breasts begin to retain fluids in preparation for possible pregnancy. When pregnancy does not occur, the hormonal process is reversed and the production of fluid decreases causing the breasts to soften.

If pregnancy occurs, the breast continues to grow, and the pituitary releases prolactin which aids the growth of the breast and the making of milk. The cells absorb from the bloodstream the necessary substances to make colostrum and milk for the infant. Colostrum is the fluid first secreted at childbirth and contains immunity providing proteins to protect the newborn from infections until their immune system has developed further.

The breasts, after pregnancy or at the end of breast feeding, begin to recede in size. Old duct cells are dissolved and gotten rid of through the lymphatic system. Fibrous breast tissues, which elongated and increased in number during pregnancy and lactation, now retract and return to their original size.

The breast contains sensory nerves which respond to physical contact, sexual activity and cold. An infant sucking stimulates the nerves. The nerves transmit a message to the brain and the hormone oxytocin is released. This hormone controls lactation by causing contractions of cells in the breast so milk is secreted. For some women, the nerves are so sensitive that the sound of an infant crying in another room can trigger a woman's let-down reflex and cause a flow of milk.

Breasts play a vital role in the reproductive cycle no matter their size or shape. They have been shrouded in myths for too long. Understanding how our breasts develop and work is one way to learn more about our own bodies and health.