Provider Information

BF - Breastfeeding

BF-AP ANATOMY AND PHYSIOLOGY

OUTCOME: The parent/family will understand the anatomy and physiology of breastfeeding.

STANDARDS:

1. Explain external anatomy of the breast, including the areola and nipple.
2. Explain internal anatomy of the breast, including milk glands, ducts, and milk sinuses.
3. Explain the physiology of breastfeeding, including:
    a. Production of colostrums
    b. Onset of white mature milk within 3–5 days postpartum.
    c. Let down/milk ejection reflex

Highlights of Anatomy and Physiology of the breast

- How the breasts make colostrums and mature milk
- If a mother appears hesitant or unwilling to breastfeed her baby, discuss with the mother her reasons for not wanting to breastfeed. Discuss the mother's concerns.

Within one hour of birth, you baby will want to breastfeeding.

Skin-to-Skin Contact

There are now a many studies that show that mothers and babies should be together, skin to skin (baby naked, not wrapped in a blanket) immediately after birth, as well as later. The baby is happier, the baby's temperature is more stable and more normal, the baby's heart and breathing rates are more stable and more normal, and the baby's blood sugar is more elevated. Not only that, skin to skin contact immediately after birth allows the baby to be colonized by the same bacteria as the mother. This, plus breastfeeding, are thought to be important in the prevention of allergic diseases. When a baby is put into an incubator, his skin and gut are often colonized by bacteria different from his mother's.

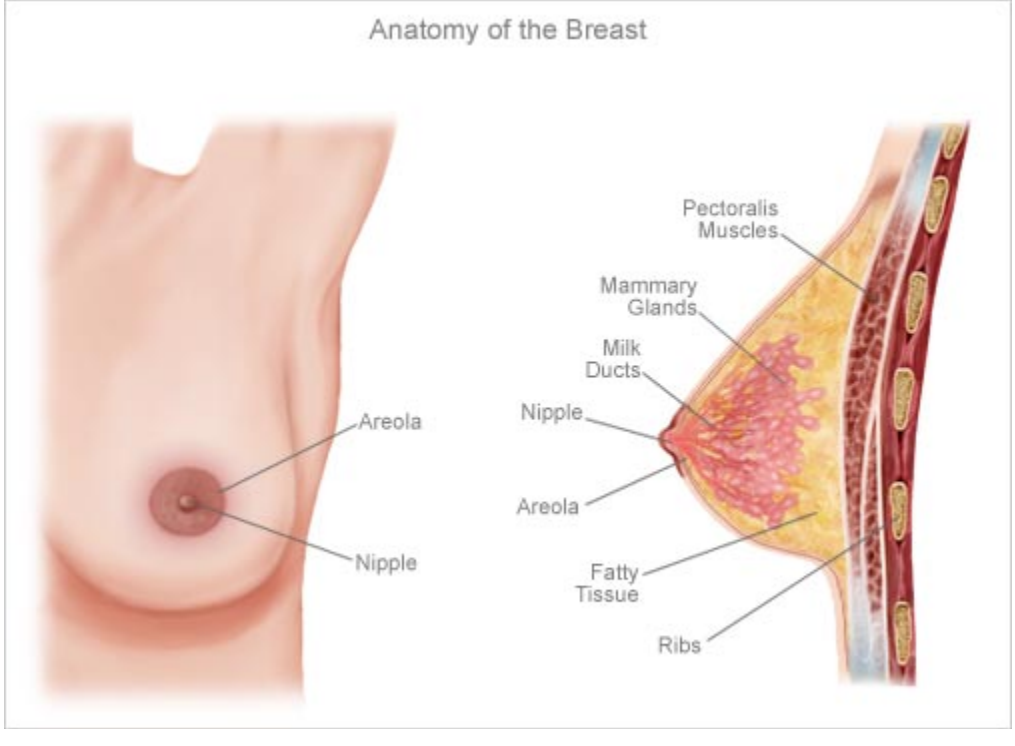
We now know that this is true not only for the baby born at term and in good health, but also even for the premature baby. Skin to skin contact is important and is sometimes called Kangaroo care. Skin-to-skin contact can contribute much to the care of the premature baby. Even babies on oxygen can be cared for skin to skin, and this helps reduce their needs for oxygen, and keeps them more stable in other ways as well.

From the point of view of breastfeeding, babies who are kept skin to skin with the mother immediately after birth for at least an hour, are more likely to latch on without any help and they are more likely to latch on well, especially if the mother did not receive medication during the labor or birth.

Anatomy of the Breast - Breast Milk Production

Each breast has 15 to 20 sections (or "lobes") beneath the nipple and areola, arranged in a circular pattern that resembles a daisy. Lobes are part of the milk production system; each lobe contains many smaller milk-producing glands called "lobules." Each lobule has tiny bulbs, called "alveoli." When a woman is lactating, the alveoli produce milk in response to hormonal signals.

When milk is produced, the ducts transport it from the lobules to the nipple. As each duct gets closer to the nipple, it widens to form a sac called an "ampulla." The spaces between the lobules and the ducts are filled with fatty tissue, connective tissue and ligaments. As the milk production system is roughly the same size in all women, breast size and shape depend on the amount of fat in the breasts.



When you are about 6 months pregnant, the body may start to prepare to begin milk production. Usually around 7 months, you will notice "colostrum" either leaking or expressed from the nipples. This is premilk, and for some women, it does not appear until after the birth of your baby. About 3-4 days after birth, you will feel your breasts becoming engorged. This may cause your breasts to enlarge 3-4 times their original size, and can be hard, and very painful.

Breast changes are one of the earliest signs of pregnancy - a result of the pregnancy hormone, progesterone. In addition, the areolas (the dark areas of skin that surround the nipples of the breasts) begin to swell followed by the rapid swelling of the breasts themselves. Most pregnant women experience tenderness down the sides of the breasts and tingling or soreness of the nipples because of the growth of the milk duct system and the formation of the many more lobules.

By the fifth or sixth month of pregnancy, the breasts are fully capable of producing milk. As in puberty, estrogen controls the growth of the ducts and progesterone controls the growth of the glandular buds. Many other hormones, such as follicle stimulating hormone (FSH), luteinizing hormone (LH), prolactin, oxytocin, and human placental lactogen (HPL) also play vital roles in milk production.

Other physical changes, such as the prominence of the blood vessels in the breast and the enlargement and darkening of the areola occur. All of these changes are in preparation for breastfeeding the baby after birth.

What is a letdown reflex?
A letdown reflex or milk ejection reflex is a conditioned reflex ejecting milk from the alveoli through the ducts to the sinuses of the breast and the nipple. This reflex makes it easier to breastfeed your baby. Letdown happens a few seconds to several minutes after you start breastfeeding your baby. It can happen a few times during a feeding, too. You may feel a tingle in your breast or you may feel a little uncomfortable. Keep in mind that some women do not feel anything. Letdown can happen at other times, too, such as when you hear your baby cry or when you may just be thinking about your baby. If your milk lets down as more of a gush and it bothers your baby, try expressing some milk by hand before you start breastfeeding.

Click here for a Patient Education Handout for the mother on the **Anatomy and Physiology of the Breast during Breastfeeding**.

Flesch 59/10th