The Maryland Department of Health and Mental Hygiene Hospital Breastfeeding Policy Maternity Staff Training Program

From Baby to Breast: Anatomy & Physiology
Session 3

Larry Hogan, Governor
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Objectives

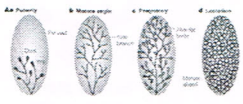
- Describe basic breast anatomy and physiology involved in lactation
- List two hormones that impact lactation
- Understand the process of milk production
- Describe baby's role in milk transfer
- Explain breast care

Size and Shape

- There are many different shapes and sizes of breasts and nipples.
- Babies can breastfeed from almost all of them.

Stages of Breast Development

- Embryogenesis – in utero
- Pubertal – during puberty
- Lactogenesis – during pregnancy
- Lactation – postpartum
- Involution – after weaning



Milk Production Stages

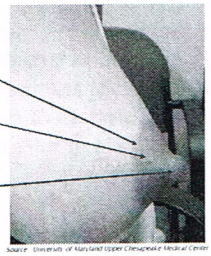
- **Lactogenesis I**: Begins with breast changes during mid-pregnancy
  - Mothers will experience
    - Changes in breast size
    - Sensation of tenderness and fullness
    - Darkening of the areola

These are all positive signs that the breasts are preparing to make milk!

Milk Production Stages

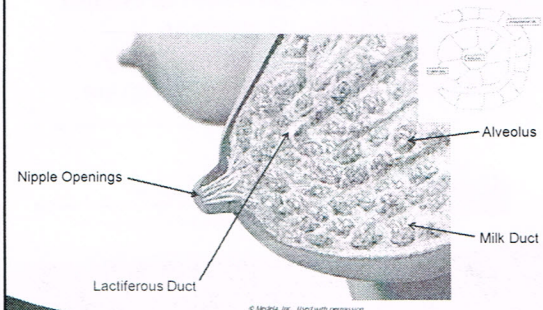
- **Lactogenesis II**: Occurs during the first 4 days postpartum with the onset of copious milk secretion until day 8
- **Lactogenesis III**: Occurs from day 9 until involution – Milk maintenance
- **Involution**: End of lactation and milk production

External Structures of the Breast



Source: University of Maryland Upper Chesapeake Medical Center

Internal Structures of the Breast



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Milk Production

- Lactogenesis II

Estrogen and Progesterone fall after delivery of the placenta

Prolactin levels remain high

Breast starts making milk

Source: United States Breastfeeding Committee

Nerve and Hormone Pathways

Source: United States Breastfeeding Committee

Posterior Pituitary Gland Production

Oxytocin is stimulated by
- Nipple stimulation
- Sights, smells, and sounds of the baby
- Touch

Oxytocin is inhibited by
- Stress
- Fear
- Pain

Nerve and Hormone Pathways

Anterior Pituitary Gland Production

Prolactin is released by
- Nipple and areola stimulation
- Skin-to-skin
- Touch

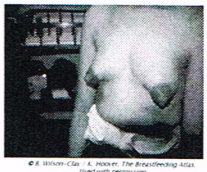
Source: United States Breastfeeding Committee

Milk Production

- Supply and demand
- Independently controlled by each breast
- Small breasts can make the same amount of milk as large breasts

Factors That Can Influence Milk Production

- Breast anomalies
  - Asymmetrical breast
  - Underdeveloped glandular tissue
- Patency of ductal system
  - Surgery
  - Trauma
  - Breast cancer



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Baby's Role in Milk Transfer

- Effective suckling at the breast
  - Increased stimulation of Oxytocin
  - Increased stimulation of Prolactin
  - Baby-led feedings
  - Emptying of breast
  - Effective latch and suckling

Source: United States Breastfeeding Committee

Factors That Influence Effective Sucking and Breast Stimulation

- Anomalies of the face, mouth, or pharynx
- Muscle or nervous system dysfunction
- Maternal medication or anesthesia
- Birth and hospital practices
- Bottles or pacifiers
- Sleepy baby
- Pain

Source: United States Breastfeeding Committee

Effective Establishment of Milk Supply

- 8-12 feedings in 24 hours
- Feeding on demand
- Exclusive breastfeeding
- Feeding cues
- 24 hour rooming-in

Source: United States Breastfeeding Committee

The American Academy of Pediatrics Sample Hospital Breastfeeding Policy for Newborns:

"The establishment of successful breastfeeding is facilitated by continuous rooming-in, both day and night. Therefore, the newborn will remain with the mother throughout the post-partum period, except under unusual circumstances."

Signs of an Effective Latch

- Infant's chin and nose slightly touching breast or nearly touching
- Mouth open wide
- Lips flanged
- Areola visible more above the infants mouth
- Cheeks full
- Deep tugging sensation
- Swallowing sounds heard
- No or minimal nipple pain
- Baby feeds calmly

Source: P. Merrill

Maintaining Milk Production

- Autocrine Control
  - Breast emptying maintains milk production
  - Continued feeding 8-12 times in 24 hours
  - Avoid bottles or pacifiers until after breastfeeding is well established

Source: United States Breastfeeding Committee

Breastfeeding

- Mother and baby are connected physically, emotionally, and hormonally
  - Baby
    - Looks at mother's face
    - Plays with her clothing
  - Mother
    - Engages, communicates, interacts

Source: United States Breastfeeding Committee

Anticipatory Guidance

- Breast changes occur throughout pregnancy and lactation
- To make milk, milk needs to be removed
- Continue breastfeeding at least 8-12 times every 24 hours
- Follow the baby's signs that he is ready to eat
- Position/latch infant to assure milk transfer
- Rooming-in 24 hours per day
- Avoid formula supplements
- Avoid pacifier use

Production in the First Few Weeks

- Immediately after the birth, the body releases hormones to start milk production.
- Every time the baby nurses, Prolactin levels rise, stimulating cells to make milk
- It is very important to encourage the mother to nurse on demand, at least 8-12 times every 24 hours, so the body will benefit from these hormone changes and build a good milk supply.

Conclusion

- Receive prenatal breastfeeding education
- No special preparation and care of the breast needed

Source: United States Breastfeeding Committee

References

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