BABY-LED BREASTFEEDING

The neurophysiologic basis for infant feeding

Christina M. Smillie, MD, FAAP, IBCLC, FABM
Stratford, Connecticut, USA

Objectives
1. Describe the nine instinctive stages of newborn behavior that lead to breastfeeding when skin on skin on the mother right after birth.
2. After the first hours of life, list at least three conditions necessary for an infant to begin searching for the breast, and describe the sequence of sensory inputs and responsive neurobehavior that take the hungry infant from cozy on his mother’s chest to sucking at her breast.
3. Describe how a mother can calm and steady her infant so that he is able to follow his instincts to learn to breastfeed.

Ready, Aim, RAM
Consequences

Baby
Tight painful grasp
“Suck dysfunction”
Breast distress, shutdown

Mom
Sense of incompetence
Feelings of distress for infant
Premature weaning
Is there a more physiologic way?

Early midwives textbooks from centuries ago
- Language:
  Baby sucks; Mother gives suck
- No mention or methods for teaching breastfeeding
- No mention of infant problems learning, breast refusal, etc.

1958:
The womanly art of breastfeeding,
La Leche League International
“Whether you sit up or lie down while you nurse him is up to you. Whichever position you find most comfortable is best for you. Don’t try to shove the nipple into his mouth. Rest his cheek against it and he’ll turn his head towards it and latch on.”

Declaration and Disclosure
I have no affiliation with any persons or entities that could be perceived as having a bearing on my presentation of this subject.
Our evolving views on learning to feed 1977 to 1995


Video: Widström, 1987 Breastfeeding is Baby's Choice


Video 1995: Richard & Frantz, Delivery Self Attachment, Geddes Productions


Video: Harris, Mandy and Matt: A solution for breastfeeding difficulties. Breastfeeding 11:10 (Nov 1994) 465-468.

Our evolving views on learning to feed 1999 to 2008


2008: Colson SD, Meek JM, Hawdon JM. Optimal position for the release of primitive neonatal reflexes stimulating breastfeeding. Early Hum Dev 2008; 84(7):441-44

2011 DVD: Colson S. Biological Nursing®: Early Motor Breasftfeeding for Mothers, Geddes Productions


Keys to competent infant behavior
Mother helps steady the baby—keeps the baby calm and secure.

1. Emotionally
She calms and steadies the baby with her voice, and her intuitive responses to her baby’s behavior.

2. Physically
She steadies the baby, keeping his body feeling snug and secure.

Message then
Babies can do this BUT
- Limited to first 24 hours
- And very fragile

Hospital routines disturb
Widström,1987
Richard & Alade, 1990
Video:
Richard & Frantz, 1995 & 2005

Biologists’ perspectives
Mammalian neonates search for the teat
- Birth of the Red Kangaroo. 1965. Produced by the CSIRO Film Unit and the Division of Wildlife Research, Australia. Uploaded to YouTube by CSIRO Publishing. http://www.youtube.com/watch?v=xQ_sEoC60BU

Steadies the baby BOTH emotionally and physically
Huge literature on kangaroo mother care
- Preterm AND fullterm infants
  - The special skin on the human chest
  - Infant regulation
  - Heart rate, respiratory rate, temperature
  - Breastfeeding outcomes
  - Maternal competence
  - Neurodevelopmental outcomes
  - Brain wiring

Skin-on-skin
Heart to heart
Nine instinctive stages of newborn behavior

1. Birth cry
2. Relaxation
3. Awakening
4. Activity
5. Resting
6. Crawling
7. Familiarization
8. Sucking
9. Sleeping


State regulation

very immature at birth

Baby needs mother to help regulate state
To get to “quiet alert” or “communicative” state...
- Touch, stroking, etc helps infant regulate state
- Auditory, visual interaction with mother
- Right-brain to right-brain connection
- Maternal feedback co-regulates infant state—(A. Schore)

Infant state

Internal feeding cues

Hunger and thirst
- Blood sugar drop (Widström)
- Rise in serum osmolality (Marchini)

Behavior of satiety
mediated by CCK
- Lipid at end of meal, free fatty acids → Cholecystokinin, satiety
- Suckling alone—oxytocin, via the vagus → yields CCK too.
- But without lipid meal, short lived!

Sensory cues for instinctive feeding behaviors

After the first hours, newborn instincts persist

...for the initiation of feeding
1. Physical stability: NEEDS MOTHER
   Secure hips and shoulders (Glover)
2. State control—emotional stability:
   NEEDS MOTHER
   Right brained interaction with mother (Shore)
3. Internal cues
   Hunger and thirst (vs satiated)
4. External cues
   In mother’s arms
   Olfactory cues
   Tactile cues:
   Skin on skin vs. swaddling
   Visual cues?

Necessary conditions

After the first hours, newborn instincts persist

External feeding cues

focus feeding behavior

In mother’s arms (Christensson)
Olfactory cues (Varendi, Winberg)
   - Set direction of search
Tactile cues
   - Chest, cheek, chin, oral mucosa, palate
   - Promote the cascade of behaviors:
   - Search, step, root, grasp, suckle

Sensory cues for instinctive feeding behaviors

After the first hours, newborn instincts persist

Internal feeding cues

Hunger and thirst
- Blood sugar drop (Widström)
- Rise in serum osmolality (Marchini)

Behavior of satiety
mediated by CCK
- Lipid at end of meal, free fatty acids → Cholecystokinin, satiety
- Suckling alone—oxytocin, via the vagus → yields CCK too.
- But without lipid meal, short lived!

Sensory cues for instinctive feeding behaviors

After the first hours, newborn instincts persist

“Instincts” = Neuroendocrine programs for behavior

Infant behavior varies with “habitat”—

With mother—
- CNS oxytocin release, vagal response
- Relax, relaxed tone, feeding reflexes and behaviors

With separation—
- Sympathetic response, elevated cortisol
- Increased tone, stress, “separation distress cry”

Newborn instincts

“Instincts” = Neuroendocrine programs for behavior

Infant behavior varies with “habitat”—

With mother—
- CNS oxytocin release, vagal response
- Relax, relaxed tone, feeding reflexes and behaviors

With separation—
- Sympathetic response, elevated cortisol
- Increased tone, stress, “separation distress cry”

Newborn instincts
Mothers have instincts too: Oxytocin's effect on maternal behavior

Mother's instincts

Video clips used with permission of Geddes Productions. Full video available from Geddesproduction.com

© 2018 CM Smillie MD

Feeding behaviors seen
- Best if in the right place (on mother) at the right time (mild hunger or thirst)
- Easy mother-baby interactions
- Baby's body snug and secure
- Baby calm and comfortable
- Sensations
  - the feeling and smell of being on mother’s chest,
  - the sound of her voice
- The infant’s instinctive responses then direct the baby toward the breast

Bringing out baby’s competence

© 2018 CM Smillie MD

Skin on skin vs. swaddling

Skin on Skin
1. Stabilizes baby
2. Permits mobility
3. Radiant heat from mother
4. Perfect temperature regulation
5. Mother’s interactions calm baby
6. Stimulates sensations and responses to mild hunger and thirst
7. Allows baby to touch & feel, explore
8. Undisrupted infant reflex responses
9. Easy mother-baby interactions
10. Allows baby free movement to feed

Swaddling
1. Stabilizes baby
2. Interferes with mobility
3. Insulates; doesn’t warm
4. No temperature regulation
5. Baby is shut off from interaction
6. Blunts sensations and responses to mild hunger or thirst
7. Can’t use hands to touch, feel, explore
8. Interferes with infant reflex responses
9. Blocks mother-baby interactions
10. Interferes with feeding, weight gain


The neurobehavioral cascade

Tactile stimulus | Behavior
--- | ---
Chest, abdomen | Search, step, crawl
Cheek | Root
Chin | Open, reach, grasp
Oral mucosa | Suckle
Palate | Sustain suckling

The mammalian feeding sequence

© 2018 CM Smillie MD

Infant reflex responses, a cascade of behaviors—
- Stepping or crawling takes infant to breast
- The “searching response”
- Rooting appears far more complex than just turning face to nipple
- Suckling promoted by stimulus on oral mucosa, palate

Newborn reflexes and behavior

After the first hours, newborn instincts persist

How babies can learn to feed

ONE alternative approach
First, a calm baby
- We don’t make a baby learn to feed
- We allow the baby to follow his own instincts to learn
- Baby, not mother, initiates feeding
- Mother follows baby’s lead
- Seeking comfort guides the mother
- NO PAIN
- Instincts start the process of learning
- Successful milk transfer teaches baby
- Move from an instinctive process to a learned process

© 2018 CM Smillie MD
First, a calm baby

Baby begins to “search”

Mother follows baby’s lead

Videos
Baby time: Mom talks to infant, makes eye contact. They’re communicating, enjoying each other
Skin on skin, chest on chest
Wait for baby to begin the search for breast
Baby, not mother, initiates the feed
Lots of ways to get there
Chin to breast, nose to nipple

Video clips used with permission of Geddes Productions. Full video available from Geddesproduction.com
© 2018 CM Smillie MD

Getting comfortable

Key to good latch/attachment/grasp/feed

• Maternal and infant comfort
• Effective feeding

Look not just at mouth & nipple, and nipple comfort

Look at full body comfort
• MOTHER’S TOTAL BODY COMFORT
• BABY’S TOTAL BODY COMFORT
• THEIR COMFORTABLE RELATIONSHIP

Discomfort or pain is a GUIDE to find comfort & a more effective feed
• Pain—poor milk flow.
• Comfort—good milk flow.
• It doesn’t matter if position and mouth “look okay.”
• Pain is a homeostatic signal: Readjust something.

You don’t have to teach her to be a lactation consultant, just to get comfortable!

Readjust something.
Shift around. Perhaps...
• Snug baby’s rump in closer.
• Lean back a bit.
• When mother relaxes herself, this relaxes baby, too.

Getting comfortable

Our role
To facilitate feeding
➢ Encourage mother to the enjoy process of learning, recognize that it may take time
➢ Interpret baby’s behavior, show her how competent her baby is
➢ Facilitate easy mother baby connection
• Encourage mom to talk to infant
• Avoid left-brained instructions, unless mother needs this
• Model patience and calm

1. Babies are hardwired to search for, find the breast, and attempt to suckle.
   This is an innate capability, not limited to the first 24 hours of life, that persists for many months and probably years.
2. The ability to breastfeed is innate in both babies and mothers and dependent on undisrupted mother-baby interactions.
3. Our left-brained instructions and rules can impede the mother’s innate abilities to interact with and learn from her infant.

THREE Take-home messages

© 2018 CM Smillie MD
3/1/2018