

BABY-LED BREASTFEEDING

*The neurophysiologic basis for
infant feeding*

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

THREE Take- home messages

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.

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2

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Affiliation

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This lecture's structure

- History of what we've learned about this.
- Brief romp through the neurobiology of mother and infant innate behaviors, and the interactions between them.
- Videos demonstrating an alternative approach.

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Learning
to
breastfeed

The
problem

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?

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Observations in
the literature

**The rooting
reflex on
the first day
of life**

- Odent, 1977
Proc. 5th Int. Cong, Psychosomatic Ob/Gyn, Rome
Touch: skin-on-skin, caresses
Scent, mother's skin and colostrum
Sound of the mother's voice
- Widström, 1987
Acta Paediatr Scand.
- Righard & Alade, 1990
the Lancet
Video: Righard & Frantz, 1995 & 2005

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Message at the time:

We can mess it up
(Videos)

Message then
Babies can do this BUT

- Limited to first 24 hours
- And very fragile

Hospital routines disturb
Widström, 1987
Righard & Alade, 1990
Video:
Righard & Frantz, 1995 & 2005
However...

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1990's terminology

Infant "self-attachment"

Video:
Righard & Frantz, 1995 & 2005

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Co-bathing

Heather Harris, 1994
Melbourne, Australia

1-month old infant with "breast refusal"

Co-bathing calmed infant—
then able to take breast

Popularized as "rebirthing"
Misnomer
Harris never called it "rebirthing"

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In our practice

1996 observations

5 week old infant with breast distress
Calmed with skin on skin, no co-bathing

Video, 1998 Premie twin
32 weeks
48 hrs old
Bwt 1580 gm

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Baby-led feeding or baby-led learning

Observations in our clinical practice

- Infants with "breast distress"
- Infants with tight grasp,
mothers with sore nipples
- Breast & bottle fed infants with learned
associations with artificial nipples
("nipple confusion preference")
- Premature infants
- Adoption, relactation
- Prenatal teaching,
babies with no problems

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Kangaroo care for full-terms

1999
Meyer & Anderson
Case Western
Newborns in first 3 days in hospital
having trouble learning to feed
MCN Am J Matern Child Nurs.

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Laid-back approach

2008
 Mother semi-reclined
 Baby in full body contact, semi-prone
 Gravity holds baby on, frees both
 Baby's instinctive behaviors bring out mother's instinctive behavior
 Instructions get in the way of mother's natural instincts
 Colson SD, Meek JH, Hawdon JM. *Early Hum Dev* 2008, 84(7):441-9

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What's going on?

Learning to breastfeed:
How does this work?

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Maternal infant interaction

Breastfeeding and lactation involve the interaction of **mother and baby**
 A single biological system requiring
 Two people, interacting
 Communication between them
 Feedback between them
 Physical proximity & contact

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Maternal infant interaction

The "motherbaby"
 A single psychoneurobiological system
 Requires more than neurohumoral interactions
 Requires **biobehavioral** interaction
 But how does this interaction work?
 What is the neurophysiology?

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Marshall Klaus

Neonatologist, UCSF
 Maternal infant bonding
 Infant competence
 Doula research: emotional support during labor
 Klaus & Fanaroff, *Care of the High-Risk Neonate*
 Chapter on neurology
 Primitive reflexes?
 Rooting, suckling, stepping, others?

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Liberated Motor Activity

Claudine Amiel-Tison and Albert Grenier
 French physicians concerned with newborn neurological exam
 Intrusive newborn reflexes interfere with good exam
 Proposed trigger: Unstable neck
 For better neurological exam: Stabilize neck
 Amiel-Tison C, Grenier A, *Neurologic Evaluation of the Newborn and the Infant*. New York NY: Masson Publishing USA, Inc.; 1983

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The key

Key to seeing infant competence

What any mother knows

Observe the baby in *interaction* with another

Calm infant, alert, communicative state

Donald Winnicott:
There is no such thing as a baby; there is a baby and someone.

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Two important keys

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.

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**Skin-on skin
Heart to heart**

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

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Laid-back breastfeeding
(Suzanne Colson)

ALSO steadies the baby emotionally and physically
And not even skin on skin!

Mother semi-reclined (NOT flat on her back)
Baby's full body supported on mother's body
Allows baby
Gravity to support baby ON mother
Security and stability to move
Security to bring out instinctive behavior

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Infant state

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—(Allan Schore)

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Necessary conditions

...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?

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Sensory cues for instinctive feeding behaviors

Internal feeding cues

Hunger and thirst

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

Behaviors of satiety

mediated by CCK

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

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Sensory cues for instinctive feeding behaviors

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

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Newborn instincts

"Instincts" = *Neuroendocrine programs* for behavior

Infant behavior varies with "habitat"—

With mother—

- CNS oxytocin release, vagal response
- Relaxed tone, feeding reflexes and behaviors

With separation—

- Sympathetic response, elevated cortisol
- Increased tone, stress, "separation distress cry"

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Mother's instincts

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

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Bringing out baby's competence

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

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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 motherbaby 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 motherbaby interactions
10. Interferes with feeding, weight gain

Swaddling studies by Bystrova K et al:

Skin temperature and "the stress of being born" *Acta Paediatr* 2003 92:320-326
Neonatal weight loss *Early Hum Dev* 2007 Jan;83(1):29-39

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The mammalian feeding sequence

The neurobehavioral cascade

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

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Newborn reflexes and behavior

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

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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

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First, a calm baby

Skin on skin, chest on chest
Wait for baby to begin the search for breast
 “Baby time,” no agenda: time to socialize
 Mom talks to infant
 Makes eye contact, communicating, enjoying each other

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Baby begins to “search”

Patience!
 Baby leads
 We’re on baby time

Baby, not mother, initiates the feed

Lots of ways to get there

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Mother follows baby’s lead

Baby begins to “search”
 Mother follows

Chin to breast, nose to nipple

- Support neck and shoulders
- Face touching mom’s chest
- Nose to nipple
- Head free to move

All of these can be intuitive and instinctive if mother and baby are left alone

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How babies can learn to feed

Mother *follows* baby's lead

Helps infant

- Stabilizes baby's body
- Keeps baby calm, talks, strokes, eye contact
- Doesn't interfere with baby's instinct to put chin to breast, head tilted slightly back

YOU: Listen to mothers' instincts!

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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

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Getting comfortable

Discomfort or pain is a GUIDE to a more comfortable, more effective position.

- 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.

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Getting comfortable

Pain is a GUIDE

You don't have to teach her to be a lactation consultant just to get comfortable

Readjust something.

Squirm around.

Perhaps...

- Snug baby's rump in closer.
- Rotate baby out a bit.
- Lean back a bit.
- When mother relaxes herself, this relaxes baby, too.
- Touch chin lightly.

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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

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42