

Right-brained thinking

*How mothers and babies think,
and why this matters*

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Objectives

The participant will:

1. List five ways the hormone oxytocin helps promote infant survival.
2. Explain how a mother's innate intuitive right-brained interactions with her infant help her baby organize for learning, handle emotional stress, and adapt to his changing environment.
3. Explain how an understanding of right brained processes can help lactation consultants and other health care providers better communicate with post-partum mothers.



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This lecture's structure

- Transitioning from the last hour: reviewing the role of infant competence as mothers and babies learn to feed.
- Brief romp through the neurobiology of mother and infant innate behaviors.
- A look at left brain and right brains and what this has to do with mothers and babies and learning to breastfeed.
- How mothers and babies think, and why this matters

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Observing newborn competence

1977: Odent, M. The early expression of the rooting reflex. In: Proceedings of the 5th International Congress of Psychosomatic Obstetrics and Gynaecology, Rome & London: Academic Press: 1117-9

1987: Widström A-M, Ransjö-Arvidson AB, Christensson K, Matthiesen A-S, Winberg J, Uvnäs-Moberg K. Gastric suction in healthy newborn infants: effects on circulation and developing feeding behaviour. Acta Paediatr Scand. 1987;76: 566-572.

Video: Widström, 1987 Breastfeeding is Baby's Choice

1990: Righard L, Alade M. Effect of delivery room routines on success of first breast-feed. Lancet. 1990;336:1105-1107

Video 1995: Righard & Frantz, Delivery Self-Attachment, Geddes Productions

1994: Harris H. Remedial co-bathing for breastfeeding difficulties. Breastfeeding Rev. 11:10 (Nov 1994) 465-468.

Video: Harris, H. Mandy and Matt: A solution for breastfeeding attachment through co-bathing. Video. Melbourne, Australia. 1994



Many ways to see this competent infant behavior

Infant self-attachment

Righard & Frantz, 1995 & 2005
DVD@ www.GeddesProduction.com

Breast crawl

UNICEF India <http://breastcrawl.org>
Video ; text gives good review of the neurobehavioural background

Baby-led breastfeeding: the mother-baby dance

DVD@ www.GeddesProduction.com
Smillie CM. How infants learn to feed: a neurobehavioural model. Chapter in CW Genna (ed.) *Supporting Sucking Skills in Breastfeeding Infants*. 2008 and 2012. Boston: Jones and Bartlett

Semi-reclined "laid back" positions to facilitate breastseeking behaviours:

DVD@ www.GeddesProduction.com
Colson SD, Meek JH, Hawdon JM. Optimal position for the release of primitive neonatal reflexes stimulation breastfeeding. *Early Hum Dev* 2008; 84(7):441-44

What's going on?

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The "motherbaby"

A single psychoneurobiological system

Two people, interacting
Communication between them
Feedback between them
Physical proximity & contact

Maternal infant interaction

**But how does this interaction work?
What is the neurophysiology?**



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From the neurologists:
How to charm a baby...

Facilitating infant competence

- Neck support
- Touch and stroke infant
- Talk to infant, eye contact
- "Communicative state"
– *Infant appears "charmed"*

Amiel-Tison C, Grenier A, transl by Steichen J, Steichen-Asch P, Braun CP. Expression of liberated motor activity (LMA) following manual immobilization of the head. *Neurologic Evaluation of the Newborn and the Infant*. New York NY: Masson Publishing USA, Inc.; 1983:87–109

Liberated Motor Activity

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Keys to competent infant behavior

What any mother knows

Observe the baby in *interaction* with another
Calm infant, alert, communicative state

Donald Winnicott:

There's no such thing as a baby.
There's a baby and someone.

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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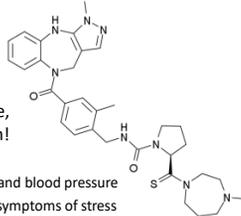
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From the researchers, a bit about Oxytocin

Oxytocin promotes infant survival...

It's not just about just love,
labor and lactation!

Cardiac effects— lowers heart rate and blood pressure
Anti-stress— lowers ACTH, cortisol, symptoms of stress
Gastrointestinal— mobilizes nutrients for growth, milk production.
Promotes digestion.
Affiliation, bonding, affection, relationship



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Oxytocin: The "affective" hormone

Everyone has it, male or female

- Get it from warmth, touch, neurosensory cues
- Affection, relationship, eating, chewing
- Affiliation... **And hence infant survival**

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Oxytocin: It's all about affiliation, and it's all about food (GI)

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The amazing skin of the chest

Affection

Anti-stress

Maternal behaviors

Temperature regulation

Immune function

Oxytocin's effects on maternal behaviors

Maternal "instincts"

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Where do we hold a baby
when we say
"skin on skin"?



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Infant's oxytocin

Stimulated by suckling, palate, oral mucosa
Touch, skin to skin, warmth

Promotes

- Digestion
- Cholecystokinin ("CCK")—satiation
- Suckling—Calming
- Bonding

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Oxytocin's *simultaneous* effects

On both mother and infant

- Promotes affiliation, bonding
- Synchrony of state and mood
- Maternal calm helps baby calm

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Before we go any further...

A little bit about left brains & right brains

Left Brain	Right Brain
Logical	Intuitive
Sequential	Holistic
Rational	Emotional
Analytical	<i>Synthesizes</i>
Objective	<i>Subjective</i>
Looks at parts	Looks at wholes
Verbal language	Body language

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Communication & Decision-Making

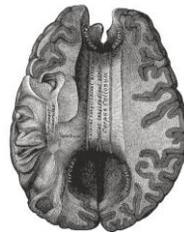
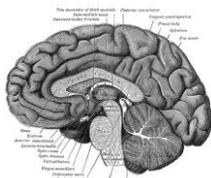
Left brain	Right brain
Uses verbal language	Attends to body language
Gives specific instructions	<i>Shows, demonstrates</i>
Follows directions	<i>Learns by feeling, doing</i>
Decides on logic, analysis	Decides on "gut" feelings
Past & Future	Lives in the moment, "zen"
<i>Concerned with tomorrow</i>	<i>Now feels like forever....</i>

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The corpus callosum

Left and right communicate
Don't really work alone



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The Anatomy Lesson of Dr. Nicolaes Tulp. 1632
Rembrandt (1606–1669)
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Adolphe Jourdan 1825 -1889

Differences

Physicians & health care providers
-Scientific, evidence based
-Art of medicine more intuitive

Mothers
-Foggy, confused, post partum
-"Cognitive deficit"

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 <p>Health care providers</p> <p><u>Left Brain strong</u></p> <p>Wants information, facts. <i>When and how often did baby feed?</i> <i>How many wet diapers yesterday?</i> <i>How many stools yesterday?</i> <i>How long does the baby sleep?</i></p> <p>Explains with details. Gives specific instructions <i>Plans for next week, month</i></p>	 <p>Mothers?</p> <p><u>Left brain back seat</u></p> <p>Has trouble with memory for facts and numbers Might try to compensate:</p> <ul style="list-style-type: none"> - Watch the clock - Keep a (confusing) log - Write down what you say <p><i>Confused by long explanations.</i> <i>Confused by instructions</i> <i>Next week seems far away</i></p>
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 <p>Health care providers?</p> <p><u>Right brain back seat</u></p> <p>Own motions suppressed/ignored. Listens to words but may miss emotional content May not notice own tone of voice, body language Can misinterpret her responses.</p>	 <p>Mothers</p> <p><u>Right brain ACTIVE</u></p> <p><i>Emotional</i> <i>Remembers words associated with strong emotion</i> <i>Attends to body language</i> <i>Focused on emotional meaning of your words.</i></p>
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Infants

- Almost no left brained activity first 3 years
- Right brain dominant

Mothers

- Foggy postpartum
- LEFT BRAINED**
- "cognitive deficit"**
- Right brain dominance helps!
- Mother-baby right-brain to right- brain communication



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Eidelman AI, Hoffmann NW, Kaitz M. Cognitive deficits in women after childbirth. *Obstet Gynecol.* 1993 May;81(5 (Pt 1)):764-7.

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From neuropsychology
The concept of 'affective synchrony'

The work of Allan Schore: Multidisciplinary model

- Neurosciences
- Behavioral pediatrics
- Psychology, psychiatry
- Attachment theory

Right brain to right brain communication

- The concept of "affective synchrony"

How mothers help their infants cope with stress

- How babies learn to handle stress

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Maternal infant interactions
 (Innate intuitive behaviors)

- Eye to eye contact
- Vocalization
- Responsive interactions



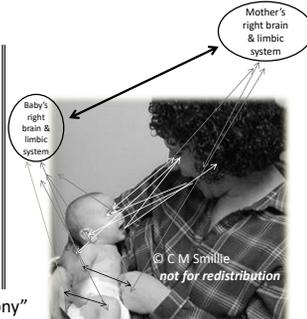
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Allan Schore
 Concept of "affective synchrony"

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Neural right brain to right brain interactions via

- Hypothalamus (coordinates nerves & hormonal communication)
- Amygdala (emotions and memory)



Baby's right brain & limbic system

Mother's right brain & limbic system

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That synchrony links activity

- in their limbic systems
- helps infant regulate emotions and behavior

Allan Schore
 Concept of "affective synchrony"

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Neural right brain to right brain interactions via

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Allan Schore

Concept of “affective synchrony”

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Allan Schore

Concept of “affective synchrony”

*Just by her intuitive interaction with her baby, the mother **co-regulates** her baby’s nervous system.*

- Mother’s nervous system is mature and well developed
- Baby’s is immature and still developing

So mother’s intuitive responses...

- Help baby organize for new learning
- Help the baby cope with stress
- Lay down brain pathways



A mother doesn’t have to know any of this stuff about the right brain—she does this all intuitively, because she loves her baby (OR oxytocin made her do it).

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Let’s watch this baby

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Was it surprising to see this baby stop crying so suddenly?

Let’s watch again, this time with sound

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Yes, you already knew this...

Your **right** brain already knew it...

Now, we’ve explained it to your **left!**

Allan Schore

Concept of “affective synchrony”

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The head bob...

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Strong neck control

As baby bobs head, watch his mother...

Mirror neurons??

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Allan Schore

Affective synchrony not perfect

- Separation, breaks in synchrony
 - Helps infant learn distress can be resolved
- *Lays down neural pathways for infants own coping capacities*
 - First mother helps infant learn to cope with stress
 - Then the older infant learns to self soothe from these encounters
 - Allows infant to adapt to changing environment

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Putting it all together

Schore’s model of maternal co-regulation of infant state

- Fits with Amiel-Tison and Grenier’s liberated neck
- Fits with role of oxytocin + vagal actions
- Basics of attachment

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The mother-baby dance: Maternal infant interaction

The mother-baby dance: Maternal infant interaction

Single biological system—

Two people, interacting

Direct right-brain to right-brain connection

State regulation very immature at birth

– Baby needs mother to help regulate state

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Putting it all together

The maternal right brain

- Dominant so she can communicate with baby
- Emotions and learning
- Emotions and memory

Basics of right-brained communication

- Between mothers and babies
- Between mothers and health care providers

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Implications for health care providers

Attend to mother's state, baby's state

- Watch emotional content
- Model positive interactions
- Model responsive interactions
- Support mother as model for her response to infant

Model patience and calm

- Help mom feel calm, relaxed, competent
- Help baby feel calm, relaxed, competent

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Implications for health care providers

Take care with left brained instructions

- Some mothers may need them
- Reinforce with touch, tone of voice, modeling

Beware of that "cognitive deficit"

- Explain in "intuitive" ways
- Careful written instructions to reinforce any verbal instructions
- Beware of how you may be misunderstood

Allow room for intuitive adjustment to plan

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Implications for health care providers

Facilitate right-brained "affective synchrony"

- Use touch, tone of voice, body language

Encourage mother's interactions with infant

- Demonstrate, model for mother
- Talk to baby.
- Show pleasure in mother and baby

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THREE Take-home messages

1. **Oxytocin has simultaneous effects** on mother and baby which aid their mutual communication.
2. **A mother's instinctive maternal interactions with her infant** help her infant adapt to his environment, with both short-term and long-term consequences.
3. **Oxytocin and other neurophysiologic factors affect how the postpartum mother processes information.** This has important implications for how the health care provider communicates with mothers.

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