



Psychological Health of the Mother and Skin to Skin Contact

...when science tells us that nature did it right...

Winnipeg, September 24, 2010

Isabelle Côté, BSN, IBCLC



Why do mothers have difficulties with breastfeeding their babies in 2008?

- A great part of the answer is in our perception of breastfeeding and of the mother-baby relationship.
- The distance between the mother and the baby, even when together, has to be questioned.

(Roques, 2005)



Mother-child Proximity

- Before medicalization of birth; births at home, immediate ssc and rooming in
- In the 20th century, infant care = «instructions», rigid structure
- Infants = fragile
- Hospital births brought mother / baby separation:
 - Give mother rest
 - Reduce the risk of infection
 - Prevent hypothermia (warm cot)



Mother-child Proximity

- 1970s in Sweden: declining bf rates
- 45% of mothers intending to bf dried up within 2 weeks of delivery
- Proximity reduced early failure rate to 19%
- Hypothesis: *a basic, life-sustaining process such as breastfeeding could be easily disturbed by care in conflict with its presumed innate agenda* (Winberg, 2005)



Mother-child Proximity

○ Paradox!

- In animal studies: nonseparated dyads = control group
- In human studies: nonseparated dyads = experimental groups!
- Permission from research ethics board (REB) to keep mother and baby together!



Baby Friendly Initiative

- Quality of care
- Evidence-based practices
- Not a recipe
- Guides the decision-making process
- To achieve that, you have to know WHY you are intervening, and WHY you are intervening this/that way

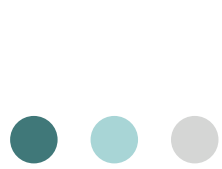


Baby Friendly Initiative and Proximity

- **Condition #4**

*Help mothers initiate
breastfeeding
within a half-hour of
birth*

Picture: A.-M. Widstrom



Baby Friendly Initiative and Proximity

- **Condition #8**

*Practice rooming-in,
allowing mothers
and infants to
remain together 24
hours a day*



Mother-child Proximity

- *Rooming in / day only, nursery at night (not BFI)*
- Rooming in / day and night
- Skin-to-skin contact immediately after birth and for the first hour
- Skin-to-skin contact anytime
- Bed sharing
- Honeymoon
- Baby Wearing

Mit unserem Baby-Tragetuch passiert Ihnen das nicht !



Avec notre porte-bébé écharpe, cela ne risque pas de vous arriver !

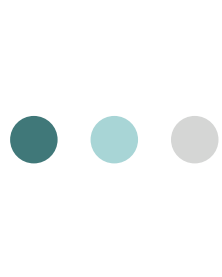


With our baby-sling this won't happen to you !



Benefits of Skin-to-Skin Contact – 3 Themes

- Harmonize the passage from uterine to extra-uterine life on the body's physiology
- Preserve the newborn's energy
- Reduce «the stress of being born»



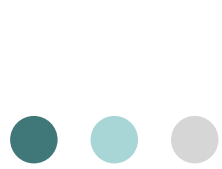
Benefits of Skin-to-Skin Contact

- Better heat conservation and temperature control
- Better blood glucose control
- Better normalization of the physiologic base deficit
- Lower respiratory rate / better pulmonary function
- Higher heart rate
- Better modulation (index for maturation) of the autonomic, behavioural and circadian systems



Benefits of Skin-to-Skin Contact

- Less crying
- Less stress
- Improved sleeping patterns: ↑ quiet sleep, ↓ diffuse sleep (drowsy, fussy, crying)
- Decrease in infections (colonization)
- Helps release of oxytocin
- Analgesic
- Increased feeling of confidence, competence and bonding
- Long term benefits are just starting to be studied...



Benefits of Skin-to-Skin Contact

- Low cost intervention
- Shorter hospital stays
- Father involved in a pleasurable activity
- No adverse effect reported!

Picture: www.cortege.com



Newborn Crying

- Noticed by accident!
- Since, proven virtually absent when ssc
- Separated babies: cry in short pulses, separated by silent periods
- When back close to the mother, crying stops
- Analgesia during labor ↑ crying (less with ssc)



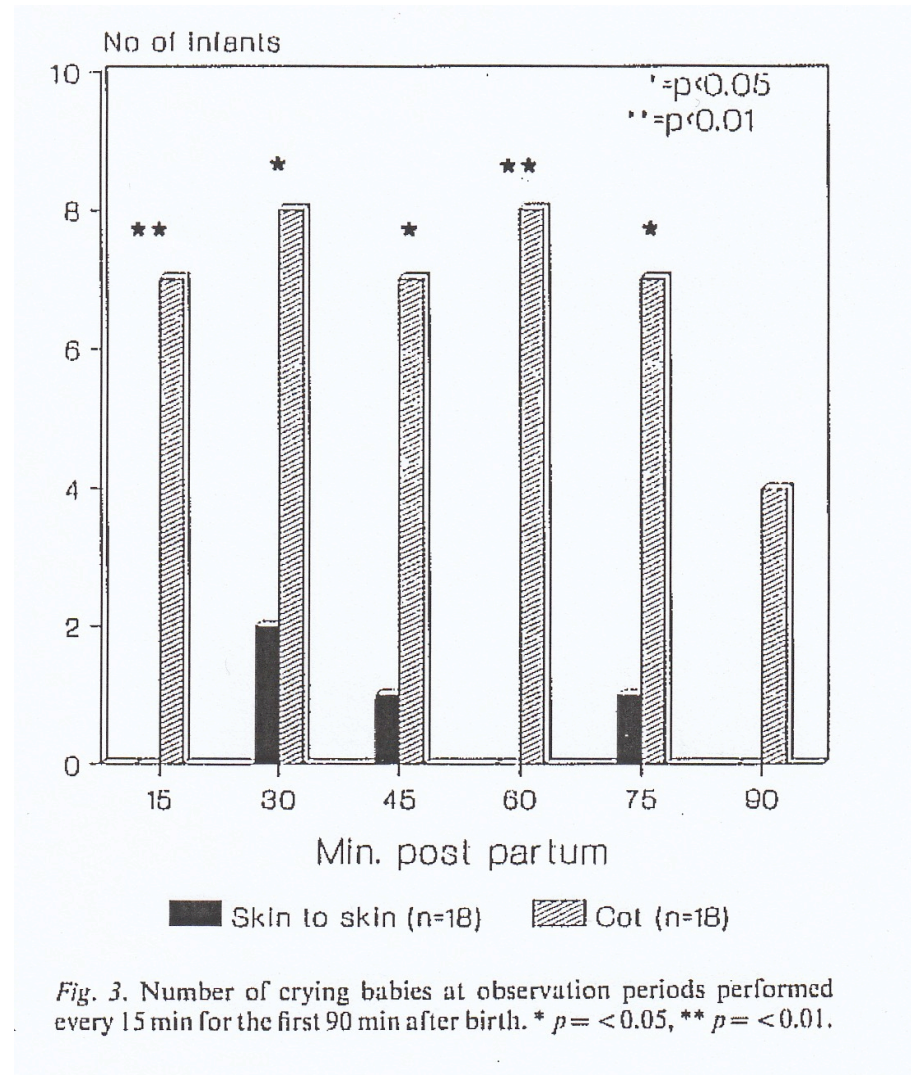
Newborn Crying

- One explanation (Bystrova et al., 2007) why babies in skin-to-skin contact cry less:

Suckling and skin-to-skin contact stimulate oxytocin. This release of oxytocin in the amygdala may induce calming and anxiolytic effects



Newborn Crying (Christensson et al., 1992)





Newborn Crying (Christensson et al., 1992)

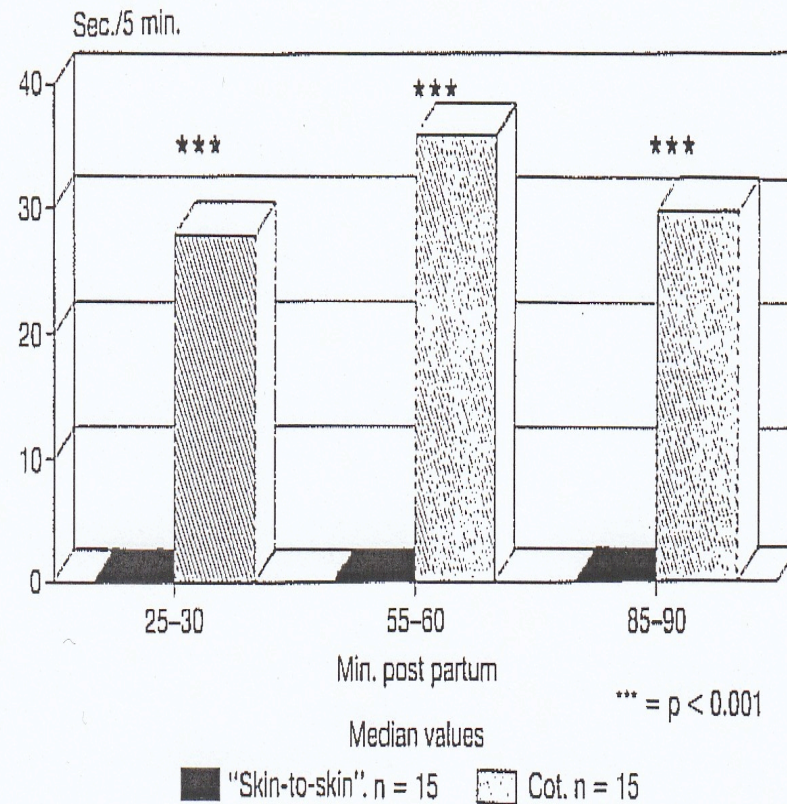


Fig. 4. Medians for crying time during three 5-min observation periods in healthy, full-term newborn infants kept skin-to-skin with the mother or in a cot. *** $p = < 0.001$.



The Calming Effect of Mother's Milk Odour...

- Observation: milk odour of own's mother, of another mother's and formula
- Newborns during heelstick
- Crying, grimacing and motor activity (behavioural) and salivary cortisol (biochemical)

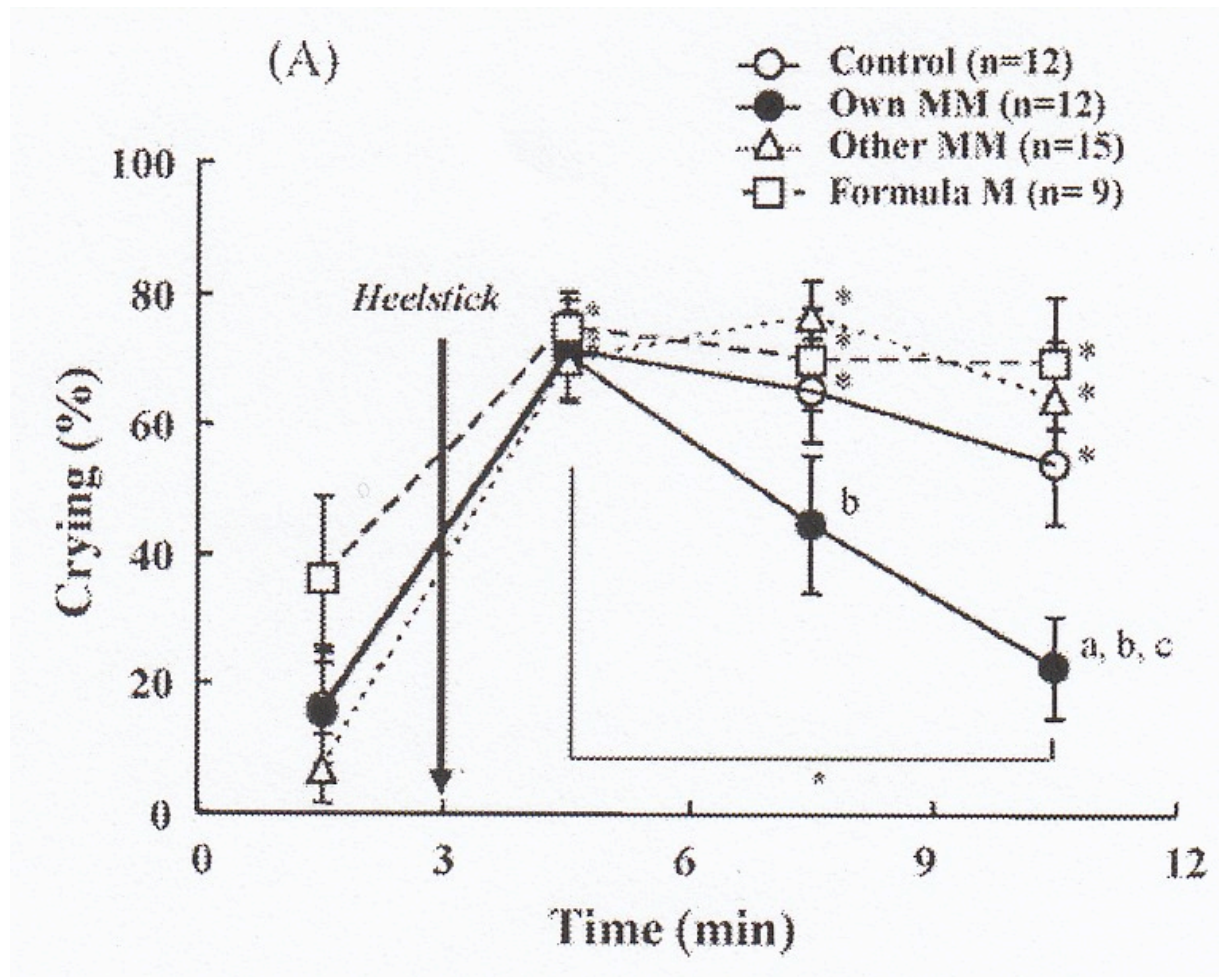
Nishitani, S. et al. (2009) **The calming effect of a maternal breast milk odor on the human newborn infant.** Neuroscience Research, 63, 66-71.



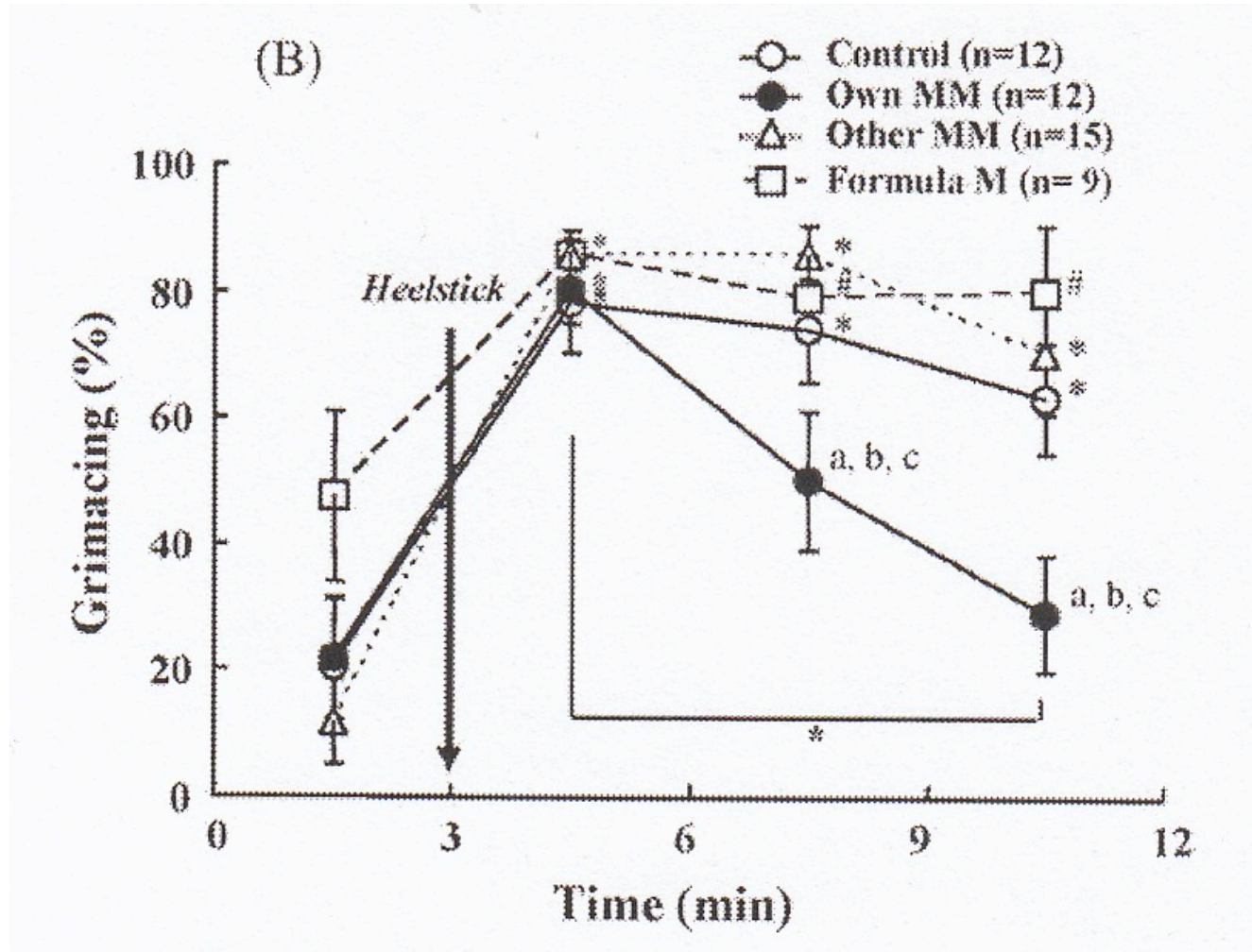
The Calming Effect of Mother's Milk Odour...

- Behavioural signs of pain ↓ with own mother's milk but not with the others
- Inhibition of cortisol's normal ↑ with own mother's milk
- The odour of a mother's milk will calm the pain of her own newborn but not the pain of other newborns

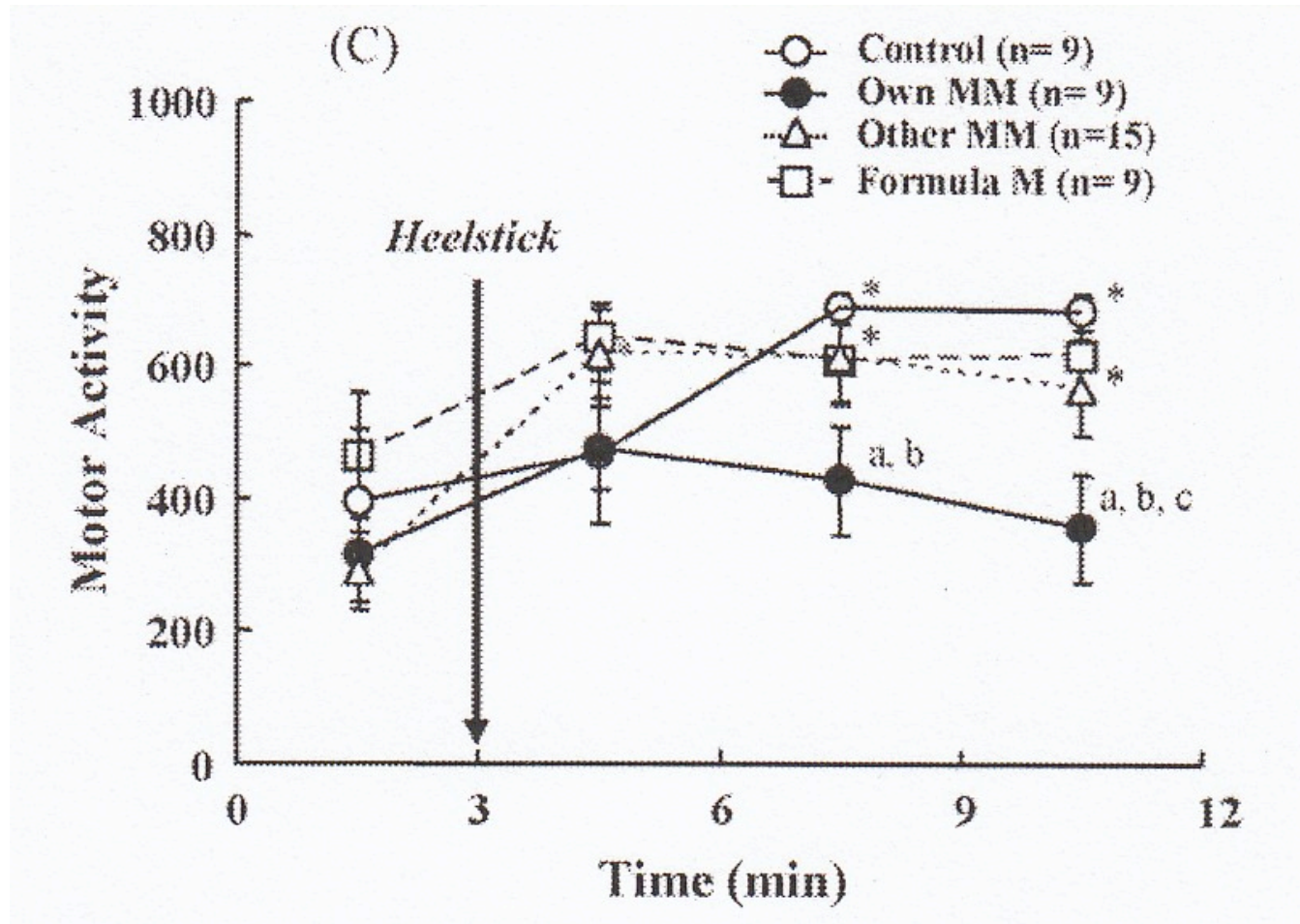
The Calming Effect of Mother's Milk Odour...



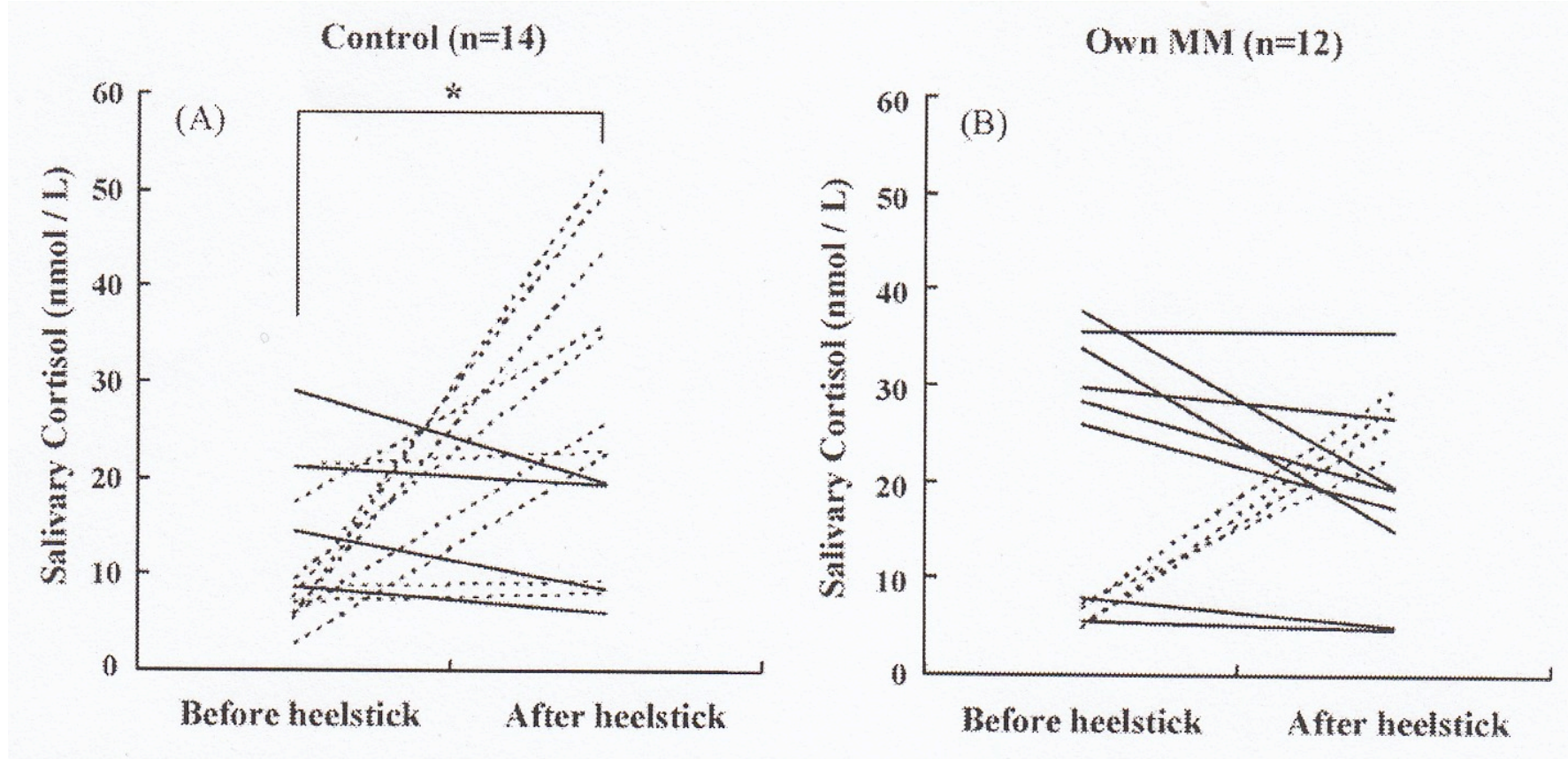
The Calming Effect of Mother's Milk Odour...



The Calming Effect of Mother's Milk Odour...



The Calming Effect of Mother's Milk Odour...





Separation Distress Call

- Infant mammals with an immature thermoregulatory system at birth emit specific acoustic signals, often in the ultrasonic range, when separated from their mothers
- Separation distress call ⇒ comfort response (warmth, food, protection: survival)
- In the human baby, isolation, hunger and pain cry signals subjected to sonospectrographic analysis are distinctly different.



The Stress of Being Born

- *Allowing mother and baby the ward routine of skin-to-skin contact after birth may be a « natural way » of reversing stress-related effects on circulation induced during labour.*

Bystrova & al, 2003



« Presumed Innate Agenda »

- Organized « prefeeding behaviour » when placed naked on mother's bare skin immediately after birth if disturbing interventions are avoided
- Suggested existence of innate central instructions → activate locomotion generating centers after appropriate sensory stimulation
- Initiation of sequence of prefeeding behaviour occurs earlier in the older babies: 2 min (day 3-4) vs 52 min (birth)



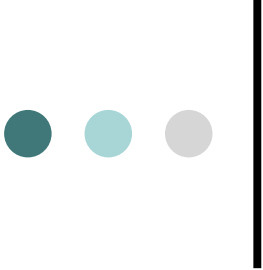
Sensitive Period

- Developmental phase of built-in competence for the development of specific behaviour exchanges between the organism and the environment whose consequences presumably endure for the organism (Bornstein, in Moore et al., 2007)
- Occur in infancy when success in establishing a skill can enhance the survival and adaptive competence
- Vulnerable period because atypical conditions can place the organism at risk
- Chemical and neural paths often mediate the observed behaviours that are universal within a species



Hales et al., 1977

- The time of the first mother-infant contact will affect maternal behaviour 36h after delivery
- The mothers who received 45 min of private ssc immediately after birth showed significantly more affectionate behaviour than those who had an identical 45 min period 12 h after birth or those who had no period of ssc.



Proximity vs Separation One Year Later...

- Evaluate/compare long term effects of early contact vs separation on mother-infant interaction
- 124 dyads
 - Group 1: skin to skin contact and rooming-in
 - Group 2: baby in clothes, held and rooming-in
 - Group 3: nursery (swaddled)
 - Group 4: nursery (120 min) then rooming-in (swaddled)
- 1 year later: blinded evaluation by a trained psychologist of mother-infant interactions

Bystrova, K, et al. (2009) **Early Contact versus Separation: Effects on Mother-Infant Interaction One Year Later.** BIRTH, 36 (2), 97-109.



Proximity vs Separation One Year Later...

- Early contact = significant for maternal sensibility, baby's autoregulation (less irritable), and mutuality of the dyad at age 1 year
- Probably due to skin to skin contact; if not, early breastfeeding would compensate, but not rooming-in
- Early sensitive period: unique and optimal time for bonding with long term effects
- Swaddling: ↓ reactivity of the mother, her capacity to be emotionally involved in a positive manner, and the dyad's reciprocity



Let's remember...

Skin-to-skin contact is good for

every baby...

... regardless how this baby is fed...



Postnatal Depression

- Evidence has been emerging that suggests postnatal depression has adverse effects on the quality of the mother-infant relationship and also on the infant's subsequent cognitive and emotional development
- There is a need to develop sound interventions for the prevention of postpartum mood disorders



Postnatal Depression

- At least 10-15% of women experience an episode of depression in the months following birth
- Highest in the first 3 months, peak of onset in the first 4 to 6 weeks
- 40-50% of episodes go undetected
- Major public health problem



Postpartum Blues

- Typically within the first week
- 70% of new mothers
- Related to onset of clinical postpartum depression (4 fold risk)
- Can be viewed as a prodromal stage of PPD
- Dose-response



Signs and Symptoms

- Low mood, diurnal variation in mood
- Loss of interest and enjoyment
- Change in appetite, weight loss/gain
- Difficulty sleeping
- Early morning waking, with disturbed sleep pattern
- Low energy, listlessness
- Poor concentration, impaired judgment
- Excessive feelings of low self worth
- Loss of libido
- Despair, tearfulness and desperation
- Avoidance of social contacts (inside or outside the family)
- Suicidal tendencies



Risk Factors

- Previous history of depression
- Absence of close confiding relationships
- Anxiety during pregnancy
- Low income, poor housing
- Rapid return to work (6 weeks pp)
- Marked experience of « baby blues »
- Discordant prenatal and postpartum expectations
- Previous history or sexual abuse
- Poor role models
- ↑ obstetric intervention, and/or admission to the NICU
- Not related to social class, age, race or educational status



Causes?

- Many theories, most proved inconclusive
 - Hormone imbalance
 - Thyroid dysfunction
 - Estrogens
 - Deficiency in progesterone



Impact on Parenting

- Adversely affect a mother's capacity to care well for her infant and ↑ the risk that difficulties will arise
- Early weaning
- Difficulty managing infant's crying and demands
- Difficulty in responding to the baby in social interactions
- Preoccupied by her own feelings ⇒ miss infants cues, appears withdrawn and disengaged
- Intrusive and hostile play (may fail to recognize baby's discomfort)



Impact on Child Development

- Linked to poor infant sleep
- Relative delays in cognitive development
- Later difficulties in adjustment
- ↑ rates of insecure attachment
- ↓ responsiveness
- ↑ problems when they start school
- ↑ rates of anxiety
- Hyperactive symptoms
- ↓ concentration



Treatments

- Early intervention is an effective way of tackling postnatal depression
- Interventions are aimed at enhancing mother-infant relationship by:
 - Developing parenting skills (cognitive behavioural therapy)
 - Elevating maternal mood
- Treatments:
 - Home visit support by a nurse may be sufficient
 - Support group
 - Psychotherapy
 - Antidepressant medication



Mother-infant Bond: Canada's National Guidelines

- The mother and newborn should be viewed as an inseparable unit
- The initial mother-infant bond marks the beginning of all the infant's subsequent attachments.
- Inasmuch as early events have long-lasting effects, it is formative to a child's sense of security
- This early prolonged contact with the baby affirms the mother's sense of accomplishment



Breastfeeding and Depression

- Most women diagnosed with depression have reported that the depression began when they stopped breastfeeding
- Few women stated that their depression was present before weaning
- There is some association between early weaning and subsequent depression

Biancuzzo, 2003



Breastfeeding and Depression

- Longer continuation of breastfeeding has been associated with lower levels of anxiety and depression, as well as increased self-esteem and coping capacity and stronger social health

Biancuzzo, 2003



Postpartum Depression and Infant Feeding

- Women with PPD symptoms early in the postnatal period are at higher risk of:
 - ↓ breastfeeding duration
 - ↑ breastfeeding difficulties
 - ↓ autonomy
 - ↓ exclusivity
 - ↓ initiation

Dennis, C-L. et al. (2009) **The Relationship Between Infant-Feeding Outcomes and Postpartum Depression: A Qualitative Systematic Review.** *Pediatrics*, 123 (4), 736-751.



Sleep and Depression

- Associated to sleep disorders:
 - Depression
 - History of sleep disorders
 - Primiparity
 - **Not breastfeeding exclusively**
 - Baby boy
- Not associated to sleep disorders:
 - Exclusive breastfeeding or bottle feeding
- Not associated to depression:
 - Duration and quality of sleep



Sleep (Dorheim et al., 2009)

- At 2 months pp, 60% of mothers report having a poor quality of sleep, and 16.5% show symptoms of depression
- Sleep seems to get better after Week 11 postpartum



Ah le dodo.....

- **Coypu** *Myocastor coypus*
- South America (Europe in the 1800's)
- Only mammal with nipples on its back!



Psychological Health and Childhood Sexual Abuse

- About one of 4 women has experienced early sexual abuse
- Affects her relationship with others including her HCP
- Affects her ability to bond with her baby
- Challenge on issues of breastfeeding and parenting

Klaus, P. (2010) *The Impact of Childhood Sexual Abuse on Childbearing and Breastfeeding : The Role of Maternity Caregivers. Breastfeeding Medicine, 5; 4: 141-145.*



Hormonal Effect

- Understanding how hormones influence women's behaviour, mood and bonding postpartum is proven complex
- Ethically challenging
- Enough evidence to suspect a role of hormones only since the last decade



Hormonal Effect

- Before we thought women learned to care and nurture through experience only, not through chemistry
- « Unfortunately, the neurobiological mechanisms that may be related to mood dysregulation in the early postpartum period are unclear » (Sacher et al., 2010)
- Many hormones are involved: oxytocin, GI tract peptides hormones, cortisol, etc



Psychological Health

Lactation is the normal, natural continuity of pregnancy and birth, physically and psychologically



Hormonal Effect

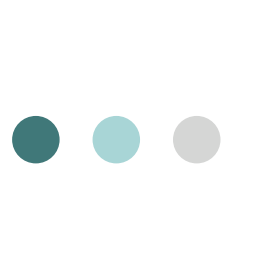
- *Some « routine » birthing practices (induction, epidural, etc) interfere in powerful ways with the hormonal orchestration of labour and birth, and, ultimately, with breastfeeding*

(Lothian, 2005)



Oxytocin « the love hormone »

- Released during emotionally charged reproductive activities: intercourse, delivery and breastfeeding
- Probably contributes to the proximity seeking behaviors
- Prolactin is also called the « love hormone » and is also responsible for mothering behaviours.



Oxytocyn « the cuddle hormone »

- Buffers women's stress responses
- Has a role in ↓ postpartum depression (Browne, 2004)



Oxytocin

- Azar (2002), about the « theoretical » risk of downregulating oxytocin receptors by overloading them when given oxytocin IV during and after labour:
« if, for example, oxytocin is important for the initiation of maternal behaviour, and we blast away that system at the time of labour, we could really be affecting subsequent expression of maternal behaviour »



GI Tract Peptides

« feel gooooooood hormones »

- Gastrin, vasoactive intestinal peptide (VIP) and cholecystokinin (CCK) increased release from the GI tract following a strong vagal response in the mother to the suckling, licking and touching of the nipple
- Energy conserving sedation: meet the increased energy demand during lactation
- How do you feel after a nice big meal....



Cortisol

- Regulation of most basic physiological processes
- High levels related to stress
- Low levels related to relaxation



Cortisol Postpartum

Women with higher levels of cortisol are more

- Attracted to their baby's scents
- Attentive to them
- Sympathetic to their cries
- Showing active maternal-approach behaviour in interactions with them
- Which are all associated to a stronger bond



Cortisol Postpartum

- Significant decrease in cortisol during breastfeeding
- Duration of ssc before feeding significantly and negatively associated with lower cortisol levels
- Medical interventions during birth (e.g. epidural with or without oxytocin IV or IM) influence cortisol release (↑ or ↓)

Handlin et al. (2009)



Catecholamines

- During birth, as the baby moves down the birth canal, catecholamines are released
- This surge creates an energy boost for the mother
- The baby is born with high levels which result in a bright, alert baby



Estrogens

- ↓ 100- to 1000-fold during first 3-4 days pp
- Monoamine oxydase A – enzyme that metabolizes neurotransmitters such as serotonin, norepinephrin and dopamine); important monoamine-lowering process

Sacher, J et al. (2010) **Elevated Brain Monoamine Oxidase A Binding in the Early Postpartum Period.** *Arch Gen Psychiatry*, 67; 5: 468-473.



Estrogens

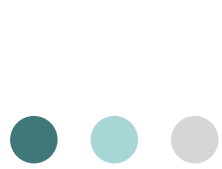
- ↓ estrogen → ↑ MAO-A → low mood
- MAO-A highest on day 5 → lowest mood
- Women with the highest MAO-A values subsequently experienced major PPD

Sacher, J et al. (2010) **Elevated Brain Monoamine Oxidase A Binding in the Early Postpartum Period.** *Arch Gen Psychiatry*, 67; 5: 468-473.



Endorphins

- Following birth, high levels of endorphins in the mother are passed on to the baby in her breast milk.
- They help make the transition easier for the baby, facilitating calm and relaxation.



Not Breastfeeding and Depression

- The message the womans' body receives when the lactation hormones are not triggered is that the baby is dead...

*A.-M. Widstrom at a conference
in Gatineau, Qc, Nov 2006*



Bottle-feeding and Depression

Evolutionary Medicine:

Growing evidence shows that knowledge of human evolutionary history and mismatches between evolved adaptations and different aspects of our contemporary existence can have important medical and epidemiological implications

Gordon Gallup Jr (2009)



Bottle-feeding and Depression

Gordon Gallup Jr (2009)

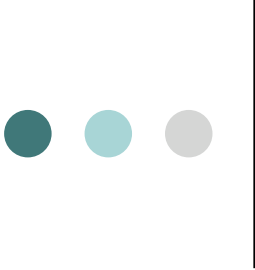
- For 99.9% of evolutionary history of humans, not breastfeeding would have been close to an infanticide
- Absence of lactation or early cessation: because of miscarriage, loss or death of the child
- Biologically, bottlefeeding simulates child loss (inconsciously)
- Death of a child is an important well documented trigger for PPD



Bottle-feeding and Depression

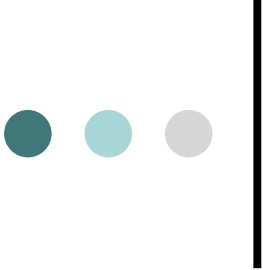
Gordon Gallup Jr (2009)

- Growing evidence that bottle-feeding is a significant risk factor for PPD
- Mother-Baby separation could have a similar effect
- Some authors note that breastfeeding mothers experience 50% less PPD
- A study by Gallup (to be published) shows that bottle-feeding mothers have a significant higher score on the Edinburgh Postnatal Depression Scale



Depression and Skin-to-Skin Contact

- Very little evidence on a direct link
- Feldman et al. (2002) found less depression in mothers having SSC with their preterm infant in the NICU
- Breastfeeding protects against postpartum depression
- « *Any intervention that facilitates breastfeeding would logically lessen responses to stress in lactating women because they have a dampened responsivity to stress at least 2 to 4 weeks postpartum.* » (Burkhammer, Anderson & Chiu, 2004)



Depression and Skin-to-Skin Contact

Burkhammer, Anderson & Chiu (2004)

- A series of heuristic case studies explore potential benefits of ssc:
 - ↓ grief for parents who provided compassionate care for their dying infant
 - Rapidly improved mood in a mother who felt depressed during the early pp period
 - Improved bf for mothers having bf difficulties
 - Rapid bonding by adoptive parents
 - Resolution of severe eclampsia
 - Bonding by a mother with her triplet sons, despite doubts that this would be possible
 - Healing with KC after a stillbirth



Mizuno et al., 2004

- *When infants touch or lick the areola and nipple shortly after delivery, their mothers make more of an effort not to leave their infants and they talk to them more compared to mothers whose infants did not initiate this areola or nipple touching or licking.*



Winberg, 2005

Close contact also changes maternal behaviour in terms that can be interpreted as increased attention to and communication with her baby for short and long term and may reduce parenting failure in vulnerable families



Roques, 2005

[Mother-baby proximity] is an effective way to restore a mother's self confidence by valuing her intimate and intuitive knowledge.

(free translation I.C.)



Nye (2008)

- Placing the preterm infant in the arms of the parents also demonstrates the nurses' and doctors' faith in the parents' current and future ability to care for their high risk infant.



Possible Compensation for Time Lost

- In humans, cognition and experience may take over the role of neuro-endocrine factors in reinforcing attachment (Winberg, 2005)
- Many families are vulnerable and they may be especially helped by the neuro-endocrine support elicited by a close mother-infant body contact in establishing a reliable tie to and coping with the new family member (Winberg, 2005)
- Rooming-in and feeding on demand may compensate for effects caused by short-term early separation (Widstrom, 2007)



Vive la vie!

Thank you
and
enjoy this
beautiful
day!