



# Kangaroo Care: Natures Best for our Little Ones

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# Context

- Human newborns, even at full term, are extremely immature, more immature than any other mammal at birth.
- Need habitat for growing, similar to the marsupials (Kangaroos, Wallabies, Koalas)
- “Habitat” –place for the newborn, for humans this is mother’s chest
- “Niche” –programmed behavior that occurs when infants are in their natural habitat,  
ex. Crawling to the breast
- The place determines the behavior



# More Biological Context



In each habitat the developing organism is physically capable & neurobehaviorally programmed (innate or inborn) to behave in such a way as to provide for its own needs (warmth, food, & nurturance) (Alberts, 1994, Bergman, 2002)

## Biology (con't)

- When in the right habitat, newborns will respond with a “set sequence of behaviors”
- Newborn’s actions  
à maternal care taking responses (Rosenblatt, 1994)
- “Protest-despair response” occurs when newborns are not in right habitat



# Getting Back to More Natural Care

- Need to provide care to newborns in their natural habitat so “programmed” or instinctual behavior can occur.
- Care that is most “natural” for newborns is developmental care and will provide for all their needs and enhance their development – physically, emotionally, psychosocially, and spiritually



# Providing the Natural Habitat: Kangaroo Care

**Kangaroo Care (KC) is skin-to-skin placement of a diaper clad infant against the chest of another human being (usually mother)**



# Immediate Benefits for the Infant

- Prevents hypothermia, allowing infants to maintain their temperature within the normal range
  - Warming of infant's hands & feet by establishing peripheral circulation occurred within 90 minutes of initiating KC, for infants in cots warming of hands & feet took several days (Bystrova, 2000)
  - Mother's breasts adjust in temperature to keep the infant at neutral thermal temperature. Breasts will warm differentially when twins with different body temperatures are placed skin-to-skin on them (Ludington)



# Observations on Thermoregulation

- Stress related effects of birth on peripheral circulation in the newborn are reversed more quickly with KC (Bystrova et al.)
- Kennell & McGrath (2003):  
**“Swaddling was more stressful and potentially harmful than allowing the infant to remain skin-to-skin with his mother.”**





# Benefits of KC for Infants

## Immediately After Birth (con't)

- Being in the infants natural habitat helps establish cardio-respiratory (heart & lung) and metabolic (ability to stay warm) stability
- KC positively influences state organization (moving from sleep to awake & back) and motor system modulation (smoothness of movement) (Ferber & Makloul, 2004)

# Benefits of KC for Infants

## Early Postpartum Period

- Cry 10 times less and for shorter periods than infants in cots
- Less distress crying
- More flexor & few extensor muscle movements
- Greater physiologic stability, less crying, & fewer grimaces during painful procedures (ex. Injections)
- Better attachment to mothers





## Kangaroo care at Birth

- KC positively influenced state organization and motor system modulation shortly after birth.
- “KC seems to result in better central nervous system control by reduction in stress experience for the infants, as reflected by smoother and more flexed movements. KC may act to facilitate the first phases of neurologic adaptation after birth to the extrauterine world. KC may be particularly beneficial to the regulation of motor activity in the newborn period.” (Ferber & Makhoul, 2004, p. )
- KC positively impacts the initial adaptation and physiological stability of neonates.

## Still Face Testing

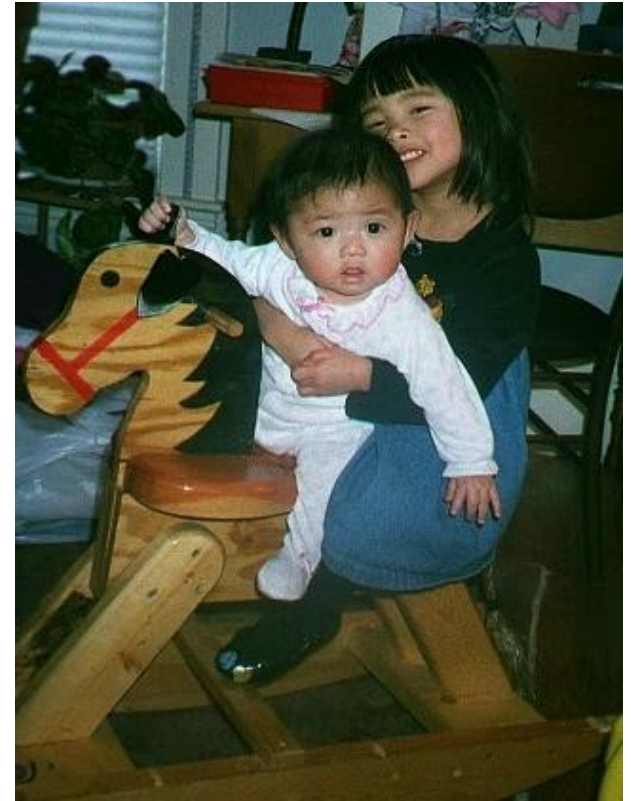
- Infants who have received kangaroo care grimace at 1 week when mother is doing the still face (no expression on face after a period of interaction with mother), previously grimacing not seen until 3 months.
- At 3 months infants are social bidding (verbalizing to get mother's attention) during time of still face, generally social bidding not seen until 7 months. (Personal communication, Ann Bigelow, October 15, 2006).



# Benefits of KC for Infants

## Long Term

- Fewer infections at 6 & 12 months
- Less fussy/crying and more alert states
  - Infant in cribs cried 10 times more frequently than KC infants
- Smiles more often at 3 months
- Ahead in social, linguistic, fine/gross motor indices at 1 year



## Benefits of KC even at 3 years

- Earlier urinary continence
- Earlier stubbornness
- In free play mothers & children were smiling & laughing more
- Mothers more encouraging & instructing towards children



(de Chateau & Weiberg, 1977a, 1977b, 1984)

# Benefits of KC for Preterm Infants

- Decreases infants length of stay in the NICU
- Helps with cardio-respiratory (heart & lung) stabilization
- Sleep while in KC is more restful with natural sleep cycles and more quiet sleep
- Improved brain maturation (3 hours in KC = 2 weeks in isolate)
- Improved attachment



# Benefits of Kangaroo Care for Mothers

- Enhanced maternal-infant attachment & bonding
- Increased maternal self confidence
- Increased maternal affectionate behavior
- Enhanced relaxation
- Experience less anxiety
- Less breast engorgement
- More rapid involution (uterus returning to pre-pregnant size)



## Benefits of KC for Mothers (con't)

- Increased maternal bonding behavior
  - Mothers spent more time kissing & looking en-face at infant at 3 months
  - Mothers held & touched their infant more frequently & spoke positively to their infant at 1 year



# Bonding & the Sensitive Period

- The 1<sup>st</sup> 2 hours after birth
- Described in studies from the mid-1970s through the early 1980s.
- Looking at contact behaviors during BF
- Brief periods of contact (15-20 minutes) to 45-60 minutes compare to briefly viewing infant & reuniting at 4-6 hours after birth



# Sensitive Period Results

- More contact behaviors: rubbing, holding, touching, rocking, patting
- Spent more time in contact with their infants during postpartum hospitalization & at 1 week than mothers who held infant for only 5 minutes
- No differences in contact time were seen between groups at 6 weeks (Carlsson et al., 1978, 1979; Carlsson, Larsson, Schaller, Carlsson, & Larsson, 1979)
- KC mothers
  - Higher affectionate contact scores
  - Smiled & vocalized more
  - Kissed & inspected more
  - Attempted to elicit responses more
- More KC mothers appeared for follow-up appts



# Maternal Bonding Behaviors

(de Chateau & Wiberg, 1977a, 1977b; 1984)

- KC mothers held their infants longer & had more behaviors similar to multip moms rather than primip moms in control group
- At 3 months KC moms spent more time kissing and looking en-face
- During physical exam at 1 year, KC moms held & touched their infants more frequently & spoke positively to their infants
- Fewer KC moms returned to work
- Determinant of increased maternal affectionate behavior was KC contact & the timing of KC contact (immediate vs 12 hrs or none) (Hales et al., 1975; Hales, Kennel & Sosa, 1976; Hales, Lozoff, Sosa, & Hennell, 1977).



# KC & Breastfeeding

- When placed in KC immediately after birth infants will crawl to the breast & spontaneously latch-on within the first 2 hours after birth  
(illustrated below)
- Infants receiving very early KC breastfeed 50% longer  
(more days/week)
- More infants receiving very early KC are breastfed exclusively  
(no bottles)



# The Breast Crawl – Innate behavior

- Initially described by Righard & Alade (1990) and confirmed by Mattiesen, Ransjo-Arvidson & colleagues (2001)



# The Open Mouth



- Crawl towards breast starting about 20 minutes post-birth
- Very coordinated patterns of preparing breast if not affected by analgesia
- Use hands and fingers to explore and stimulate breast

# Latching and Suckling



- First licks of nipple occur about 27 minutes post-birth
- Suckling with correct latch & sucking technique starts approximately 50-80 minutes post-birth
- Hand movements stop during suckling



## Summary: Very Early KC & BF

Studies indicate that breastfeeding success: initiation, duration and exclusivity, is determined in part by beginning kangaroo care within ½ hour of birth and having the newborn remain in kangaroo care for at least 50 minutes. If the infant does not spontaneously crawl to the breast moving the infant into the kangaroo care breastfeeding position can facilitate breastfeeding.

# Summary Thoughts

- ♥ “ Skin-to-skin contact seemed to make an outwardly unresponsive mother more confident and happy. Two women said ‘not now’ when asked if they would like to breastfeed, but after skin-to-skin contact each proceeded to put the baby to breast without further intervention and appeared excited as the baby nursed. The babies seemed to ‘teach’ the mothers how to breastfeed” (Thomson, Hartsock, & Larson, 1979, p. )





# National & International Endorsements

Kangaroo care has been endorsed as  
the standard of care by:

- American Academy of Pediatrics (AAP)
- Academy of Breastfeeding Medicine
- World Health Organization
- Neonatal Resuscitation Program  
(American Heart Association & AAP)

# New AAP Guidelines: #3

(Gartner et al., 2005)



Healthy infants should be placed and remain in direct skin-to-skin contact with their mothers immediately after delivery until the first feeding is accomplished



## WHO Recommendation

“Given the importance of thermoregulation, skin to skin contact should be promoted and “kangaroo care” encouraged in the first 24 hours after birth.”

This is a Grade A recommendation.



# Peripartum breastfeeding management for the healthy mother and infant at term.

Academy of Breastfeeding Medicine Protocols,  
Protocol #5, pp. 1-2, (2006)

“The healthy newborn can be given directly to the mother for skin-to-skin contact until the first feeding is accomplished. The infant may be dried and assigned APGAR scores and the initial physical assessment performed as the infant is with the mother. Such contact provides the infant optimal physiologic stability, warmth, and opportunities for the first feeding. Delaying procedures such as weighing measuring and administering vitamin K and eye prophylaxis (up to an hour) enhances early parent-infant interaction.”



# American Heart Association

(2006).

Neonatal Resuscitation Program (5th Ed.)

Lesson 1, p. 18

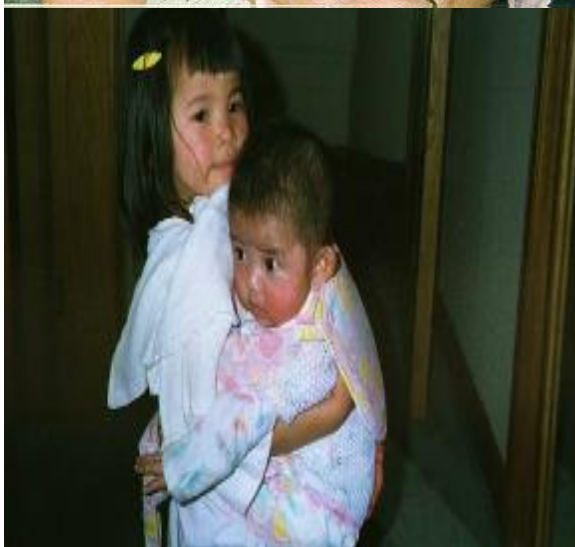
“for all normal newborns, skin-to-skin care can be used to provide routine resuscitation”

# Ideal Kangaroo Care

- Start as soon after birth as possible
- Let the mother help stabilize her infant
- Provide a comfortable, private milieu
- Provide KC as long and as often as possible, even as the infant grows
- Provide KC before, during, and after feedings
- Let mother & baby sleep together



# Let others KC (if mother agrees)



Kangaroo Care Garment Pictures (slides 5, 12 & 16)  
were provided by Precious Image Creations



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