



Skin *-to-* Skin Contact

Giving Birth Back to Mothers and Babies

SKIN-TO-SKIN CONTACT PROVIDES many benefits to healthy term infants, including thermoregulation, analgesia, mother-infant interaction, opportunity for breastfeeding and transition to extra-uterine life. Yet there are many barriers to providing skin-to-skin contact immediately after birth. Nurses, in collaboration with other health care professionals, are in a unique position to adjust practices and policies to allow for skin-to-skin contact immediately after birth, thereby improving the birth experience for parents and newborns.

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Introduction

According to the American Academy of Pediatrics (AAP) and the World Health Organization (WHO), healthy term infants should be placed in skin-to-skin contact with their mothers immediately after birth (AAP, 2005; WHO, 1998). Implementing skin-to-skin contact in health care settings requires that health care professionals understand its benefits. A review of literature and the identification of barriers can help health care providers incorporate skin-to-skin contact into the provision of evidence-based care for mothers and infants immediately after birth. (Note: The term skin-to-skin contact is often used interchangeably with the term kangaroo care within the nursing literature and the context of nursing practice. But while kangaroo care also includes prolonged skin-to-skin contact of premature infants in the neonatal intensive care unit, this article will focus solely on benefits and opportunities for implementation of skin-to-skin contact for the healthy term infant immediately after birth.)

Intrapartum nurses in a community hospital setting identified skin-to-skin contact immediately after birth as an increasingly popular desire among expectant parents. When new mothers were surveyed to determine whether they would prefer the option of early skin-to-skin contact with their newborns in the event of a cesarean birth, the majority responded in favor of it. Nurses who directly observed skin-to-skin contact immediately after birth were prompted to review the literature to evaluate the efficacy of routine skin-to-skin contact of term, healthy infants. The nurses identified skin-to-skin contact immediately after birth as an evidence-based nursing intervention that promotes the well-being of term, healthy infants. The benefits of skin-to-skin contact immediately after birth prompted nurses to pursue organizational changes to support the availability of skin-to-skin contact immediately after birth for healthy term infants.

Benefits

There are several documented benefits of skin-to-skin contact immediately following birth (see Box 1).

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DOI: 10.1111/j.1751-486X.2007.00119.x

Box 1

Benefits of Skin-to-Skin Contact

- Interaction between mother and infant
- Opportunity for breastfeeding
- Thermoregulation
- Pain management
- Easier transition to extra-uterine life

Mother-Infant Interaction

Skin-to-skin contact promotes interaction between the mother and newborn (Anderson, Moore, Hepworth, & Bergman, 2003; Gray, Watt, & Blass, 2000) (see Box 2). During skin-to-skin contact, mothers demonstrate behaviors consistent with maternal affection (Anderson et al., 2003). Mothers also provide tactile comfort and verbal interaction with their newborns during skin-to-skin contact (Gray et al., 2000).

Thermoregulation

Thermoregulation of the healthy term newborn immediately after birth has traditionally been obtained through the use of radiant warmers and swaddling in warm blankets. Through research it has become apparent that the mother is the preferred heat source. Newborns in close contact with the skin of their mothers are more likely to maintain temperatures in the neutral thermal range (AAP, 2005; Anderson et al., 2003). The mother as a heat source is uniquely adapted to the thermoregulatory needs of the new-

Box 2

Skin-to-Skin Contact



The majority of newborns placed in skin-to-skin contact during breastfeeding throughout a painful procedure, such as a heelstick, demonstrate little or no response to pain.

born. Mothers are capable of providing heat to newborns at temperature less than 36.3°C (Christensson, Bhat, Amadi, Eriksson, & Hojer, 1998). According to Bystrova et al. (2003), newborns placed skin-to-skin with mothers remained considerably warmer during the first three hours of life than did newborns swaddled in mother's arms or receiving nursery care. Additionally, the utilization of the mother as a heat source for rewarming low-risk newborns has been demonstrated to be more effective than the traditional use of an isolette (Christensson et al., 1998). Newborns at temperatures of 37°C are capable of losing heat to their mothers, thereby preventing overheating (Christensson et al.). In the event of the mother's absence, effective thermoregulation can be attained from skin-to-skin contact between the newborn and the father (Christensson, 1996). The implementation of routine skin-to-skin contact immediately after birth ensures the most effective means of thermoregulation during the initial transition period and beyond the first day of life (AAP; Anderson et al.; Bystrova et al., 2003; Christensson et al.).

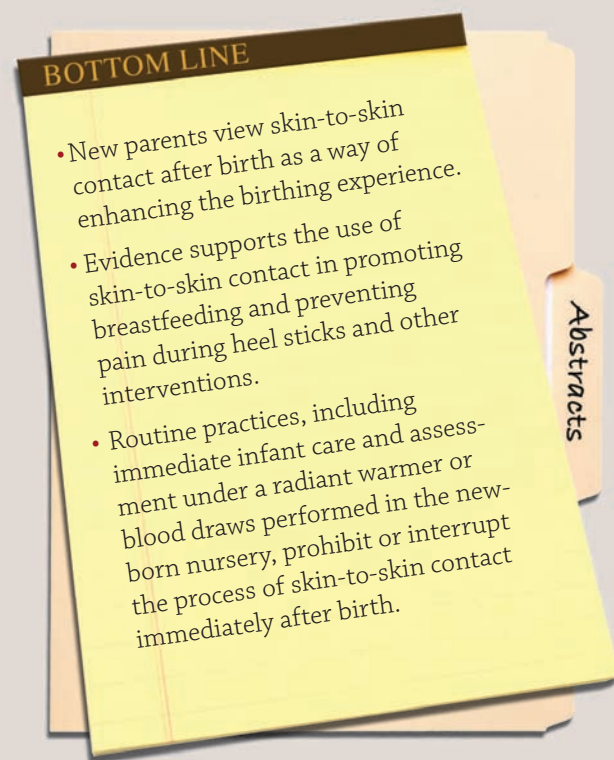
Analgesia

The perception of pain by newborns during invasive procedures has been well-established, and measures to prevent and manage pain responses in the newborn are recommended (AAP, 2000; National Association of Neonatal Nurses, 1999). Newborns may exhibit behaviors such as crying, grimacing and arm and leg extension and flexion movements, as well as rapid heart rate increases in response to pain (AAP; Carbajal, Veerapen, Couderc, Jugie, & Ville, 2003). While the analgesic effects of nonnutritive sucking and oral sucrose solutions have been well-established (Blass & Watt, 1999), more current research also supports the efficacy of skin-to-skin contact for healthy term infants as an effective analgesic during invasive procedures, such as heel stick pokes or injections (Gray et al., 2000). Skin-to-skin contact reduces the pain re-

sponses of crying, grimacing and dramatic heart rate increases in newborns (Gray et al.). Additionally, the analgesic effect is enhanced through the incorporation of breastfeeding into skin-to-skin contact during invasive procedures (Carbajal et al., 2003). The majority of newborns placed in skin-to-skin contact during breastfeeding throughout a painful procedure, such as a heel stick, demonstrate little or no response to pain (Carbajal et al.; Gray, Miller, Philipp, & Blass, 2002). These analgesic effects can be facilitated by integrating skin-to-skin contact and breastfeeding into routine procedures that elicit pain in the initial newborn period, including the administration of vitamin K, blood glucose testing or metabolic screenings (Blass & Watt; Carbajal et al.; Gray et al., 2000, 2002).

Breastfeeding

Breastfeeding is the preferred method of infant feeding, which should be initiated within the first 30 to 60 minutes following birth (AAP, 2005; WHO, 1998).



Skin-to-skin contact immediately after birth provides for early initiation of breastfeeding and increased breastfeeding success.

Measures of breastfeeding success strongly correlate with the implementation of skin-to-skin contact immediately after birth (Anderson et al., 2003). Blood glucose levels of the newborn are also positively affected by skin-to-skin contact (Anderson et al.). Skin-to-skin contact immediately after birth allows the progression of the innate sequence of healthy term newborn behaviors with eventual self-attachment to the breast (Matthiesen, Ransjo-Arvidson, Nissen, & Uvnaas-Moberg, 2001). It also promotes the early initiation of breastfeeding. Newborns provided skin-to-skin contact immediately after birth for at least 50 minutes demonstrate an increased ability to recognize their mother's milk by four days of age and exhibit increased mouthing movements compared with infants not provided skin-to-skin contact immediately after birth (Mizuno, Mizuno, Shinohara, & Noda, 2004.) In addition, breastfeeding duration is increased by nearly eight weeks for newborns after skin-to-skin contact immediately following birth (Mizuno et al., 2004). Skin-to-skin contact immediately after birth provides for early initiation of breastfeeding and increased breastfeeding success, in accordance with established practice guidelines for infant health (AAP; WHO).

Transition to Extrauterine Life

The transition of the healthy term newborn to extrauterine life is a period associated with rapid changes of respiratory and cardiovascular functions, as well as self-regulation and stress response (Bystrova et al., 2003; Ferber & Makhoul, 2004). The extent of the healthy term newborn's self-regulatory behavior is consistent with its ability to handle the stress of the newborn transition (Ferber & Makhoul). Newborns demonstrate greater self-regulatory behaviors, including increased sleep states, higher optimal flexion scores and less extended movement scores, when provided skin-to-skin contact immediately after birth (Ferber & Makhoul). The utilization of skin-to-skin

contact immediately after birth may also reduce the stress response from birth as evidenced by less crying and decreased vasoconstriction of extremities (Bystrova et al., 2003; Ferber & Makhoul).

Being familiar with the behaviors of newborns placed in skin-to-skin contact immediately after birth may assist nurses and physicians in understanding the innate sequence of events newborns exhibit for a natural progression toward the initiation of breastfeeding. After being placed in skin-to-skin contact immediately after birth, newborns may cry only minimally for up to seven minutes before becoming relaxed (Matthiesen et al., 2001). Then, newborns become alert while focusing on the mother's face and breast (Matthiesen et al.). By approximately 10 minutes of age, newborns begin to exhibit massage-like movements of the hands, as well as rooting and licking motions (Matthiesen et al.). The health care provider can assist the mother with the identification of these newborn feeding cues. This may elicit the mother's response to initiate breastfeeding or become an opportunity for the health care provider to assist the mother to initiate breastfeeding.

Implications for Practice

Routine practices, including immediate infant care and assessment under a radiant warmer or blood draws performed in the newborn nursery, prohibit or interrupt the process of skin-to-skin care immediately after birth. Nurses and other members of the health care team have an opportunity to identify barriers to skin-to-skin contact and to implement practice changes to incorporate skin-to-skin contact immediately after birth into the routine care of the healthy, term newborn. There are several steps that nurses and other health care professionals can take to increase the prevalence of skin-to-skin contact immediately following birth (see Box 3).

At birth, the newborn is traditionally cared for under the radiant warmer, which is unnecessary in the majority of healthy newborns (AAP, 2005). Several routine care practices including Apgar scores, initial physical assessment and placement of newborn identification bands, may be performed immediately after birth while the newborn is in skin-to-skin contact with its mother. Administration of vitamin K may be deferred until after the first feeding at the breast is accomplished (AAP). The administration of vitamin K may be completed when the newborn has started breastfeeding, allowing the analgesic effects of skin-

Box 3

Ways to Promote Skin-to-Skin Contact

Perform routine care practices, including Apgar scores, initial physical assessment and placing newborn identification bands, while the newborn is in skin-to-skin contact with its mother.

Defer vitamin K administration until after the first feeding at the breast is accomplished.

Consider the importance of early skin-to-skin contact, regardless of mode of delivery, and collaborate with other members of the health care team to work toward this goal.

Re-evaluate staffing guidelines to permit the availability of an additional nurse for newborn care during the immediate post-anesthesia recovery period.

Educate parents during the prenatal period about the benefits of skin-to-skin contact immediately following birth.

to-skin contact and breastfeeding to have maximal effect.

The mode of delivery, namely, cesarean birth, may negatively impact the availability of skin-to-skin care immediately after birth (Rowe-Murray & Fischer, 2002). Through collaboration with obstetricians, anesthesiologists, neonatologists and pediatricians, nurses can ensure continuous and uninterrupted care of the newborn by promoting skin-to-skin contact from birth and through the recovery period. Consideration should be given to the importance of early skin-to-skin contact, regardless of mode of delivery, which may require re-evaluation of staffing guidelines to permit the availability of an additional nurse for newborn care during the immediate post-anesthesia recovery period. Process changes may require the flexibility of the health care team to defer admission to a newborn nursery or to reconsider routine separation during the recovery period.

Nurses, physicians, childbirth educators and lactation consultants have unique opportunities to develop relationships with mothers prior to birth, providing education on wellness and health promotion. Prenatal visits, breastfeeding classes or childbirth preparation courses should discuss skin-to-skin con-

tact and explain its benefits as an additional opportunity for health promotion of mothers and newborns during the birth experience. Through the support of evidence-based practice, nurses can assure mothers of their unique ability to provide their newborn the most healthful beginning from birth through early skin-to-skin contact.

One Hospital's Experience

In one hospital setting, the eventual progression toward skin-to-skin contact immediately after birth as a standard of care resulted from the firsthand experiences of the health care team. With the advent of “point-and-click” birth plans on the Internet, the number of parents desiring skin-to-skin contact immediately after birth began to dramatically increase. Upon further inquiries, the parental request for skin-to-skin contact immediately after birth was most frequently described as a desire to be close to and to comfort their newborn. This request was often viewed as a nicety that could be conditionally accommodated to delay routine newborn care, such as bathing and measurements.

As the frequency of skin-to-skin contact immediately after birth increased due to these requests, several members of the health care team began to observe similarities in the experiences and outcomes of mothers and newborns. It became readily apparent that these families appeared to be in a birth experience uniquely theirs, distant from technology and interventions. Mothers engaging in skin-to-skin contact reported a sense of being cocooned with their newborn and an inexplicable sense of the natural progression of motherhood. Following the innate sequence of newborn behaviors, mothers and fathers described a sense of awe when their newborn opened his or her eyes for the first time in response to the voice of its mother. This experience further progressed to parents' descriptions of feeling honored to be the first faces for their newborn to see. As newborns demonstrated feeding cues shortly after birth, mothers demonstrated additional confidence and eagerness to initiate breastfeeding earlier. Members of the health care team observed a unique relationship develop in which parents appeared to more rapidly and intimately know their newborn.

Despite the observations and experiences reported by parents, many members of the health care team remained uncomfortable with the provision of skin-to-skin contact immediately after birth. Although

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many nurses observed increased maternal satisfaction of the experience, they continued to view skin-to-skin contact as a nicety for the birth experience but were resistant to accepting that it was improving outcomes. Many nurses expressed concerns related to thermoregulation of the newborn and timeliness of the completion of routine newborn procedures.

A presentation of the benefits of skin-to-skin contact immediately after birth was developed by a staff nurse, in the role of clinical leader, as an educational offering for the nurses of the obstetrical department. The presentation included the health benefits of skin-to-skin contact immediately after birth and allowed participants a forum for discussion about its routine implementation. Additional resources, including video formats and poster presentations, were used to reinforce the concept of skin-to-skin contact. The greatest barrier for the acceptance of routine skin-to-skin contact immediately after birth was the completion of nursing tasks, including newborn identification, measurements, bathing and administration of ophthalmic prophylaxis and vitamin K. It was paramount to incorporate evidence-based practice into the reorientation of nursing tasks, such as deferring bathing until after four hours of temperature stability and the comprehension of the accessibility of the mother as a heat source during Apgar scores and the application of newborn identification bands.

The publication of the revised breastfeeding guidelines by the AAP coincided with the departmental presentation of the introduction of routine skin-to-skin contact immediately after birth. When unexpected obstacles were raised by various members of the health care team, these guidelines permitted nurses to advocate for skin-to-skin contact immediately after birth. Such challenges included the desired interruption of skin-to-skin contact immediately after birth in order to obtain newborn weights for documentation of the delivering physician and the routine two-hour nursery observation of newborns delivered by cesarean section in order to achieve thermoregulation.

The gradual acceptance of evidence-based practice guidelines permitted a change in practice supported by many members of the health care team.

Through collaborative efforts of nurses, obstetricians, neonatologists, anesthesiologists and pediatricians, a decrease in the routine separation of newborns after cesarean birth occurred. Despite initial resistance, anesthesiologists and neonatologists agreed to a trial of allowing newborns to remain with the mother through the completion of surgery and the immediate post-anesthesia recovery period in a private mother-baby room. Shortly thereafter, efforts to avoid routine separation and maintain early skin-to-skin contact were rewarded by the observations of obstetricians and anesthesiologists. The observations of the intimacy of the family-centered experience on behalf of the obstetricians and anesthesiologists began to lead to inquiries as to why care of the newborn by cesarean births hadn't always incorporated the avoidance of routine separation. Additional support from anesthesiologists occurred when they observed that newborns placed in skin-to-skin contact with mothers en route to post-anesthesia recovery were often alert and attempting to breastfeed upon arrival to the mother-baby room for post-anesthesia recovery.

Resistance remained from neonatologists, who expressed concerns about inadequate thermoregulation and observance of the newborn during the immediate period after birth. Staffing guidelines were adjusted to permit the presence of an additional nurse during the recovery period for the care of the newborn and for breastfeeding assistance in the mother-baby room. In response to the concerns of neonatologists for effective thermoregulation during skin-to-skin contact versus admission to the newborn nursery with observation under a radiant warmer, it became progressively apparent that newborns in skin-to-skin contact during the immediate post-anesthesia recovery period after cesarean birth not only achieved thermoregulation but also did so more rapidly than did newborns under a radiant warmer. In the ab-

sence of the mother due to complications following surgery, enthusiastic fathers were also observed to provide skin-to-skin contact to their newborns and maintain effective thermoregulation.

Conclusions

Routines and practices of the health care team during the birth experience are often founded on tradition and the completion of tasks. Through the incorporation of evidence-based practice, nursing not only has the opportunity but also the expectation to replace unfounded routines and practices during the birth experience. The benefits of skin-to-skin contact immediately following birth should be explained to expectant parents during prenatal visits, childbirth preparation classes and admission to the intrapartum setting.

The incorporation of skin-to-skin contact immediately after birth for all mothers and newborns, regardless of mode of delivery, is an indisputable aspect of the childbirth experience and a momentous step for parents toward health promotion for their newborn. Skin-to-skin contact immediately after birth not only empowers mothers as they embark on their journey of motherhood but also ensures that birth remains where it belongs—between mothers and babies. **NWH**

References

- American Academy of Pediatrics. (2000). Prevention and management of pain and stress in the Neonate. *Pediatrics*, 105(2), 454–461.
- American Academy of Pediatrics. (2005). Breastfeeding and the use of human milk. *Pediatrics*, 115(2), 196–506.
- Anderson, G. C., Moore, E., Hepworth, J., & Bergman, N. (2003). Early skin-to-skin contact for mothers and their healthy newborn infants (Cochrane Review). *Birth*, 30(3), 206–207.
- Blass, E. M., & Watt, L. (1999). Sucking- and sucrose-induced analgesia in human newborns. *Pain*, 83(3), 611–623.
- Bystrova, K., Widstrom, A. M., Matthiesen, A. S., Ransjo-Arvidson, A. B., Welles-Nystrom, B., Wassberg, C., et al. (2003). Skin-to-skin contact may reduce negative consequences of “the stress of being born”: A study on temperature in newborn infants subjected to different ward routines in St. Petersburg. *Acta Paediatrica*, 92(3), 320–326.
- Carbajal, R., Veerapen, S., Couderc, S., Jugie, M., & Ville, Y. (2003). Analgesic effect of breastfeeding in term neonates: Randomized controlled trial. *British Medical Journal*, 326(7379), 13.
- Christensson, K. (1996). Fathers can effectively achieve heat conservation in healthy newborn infants. *Acta Paediatrica*, 85(11), 1354–1360.
- Christensson, K., Bhat, G. J., Amadi, B. C., Eriksson, B., & Hojer, B. (1998). Randomised study of skin-to-skin versus

Get the Facts

Baby Friendly USA

<http://www.babyfriendlyusa.org>

Breastfeeding Coalition of Massachusetts

<http://www.massbfc.org>

Lamaze International

<http://www.lamaze.org>

World Health Organization

<http://www.who.org>



incubator care for rewarming low-risk hypothermic neonates. *Lancet*, 352(9134), 1115.

Ferber, S. G., & Makhoul, I. R. (2004). The effect of skin-to-skin contact (kangaroo care) shortly after birth on the neurobehavioral responses of the term newborn: A randomized, controlled trial. *Pediatrics*, 113(4), 858–865.

Gray, L., Miller, L. W., Philipp, B. L., & Blass, E. M. (2002). Breastfeeding is analgesic in healthy newborns. *Pediatrics*, 109(4), 590–593.

Gray, L., Watt, L., & Blass, E.M. (2000). Skin-to-skin is analgesic in healthy newborns. *Pediatrics*, 105(1), e14–e28.

Matthiesen, A., Ransjo-Arvidson, A., Nissen, E., & Uvnas-Moberg. (2001). Postpartum maternal oxytocin release by newborns: Effects of infant hand massage and sucking. *Birth*, 28(1), 13–19.

Mizuno, K., Mizuno, N., Shinohara, T., & Noda, M. (2004). Mother-infant skin-to-skin contact after delivery results in early recognition of own mother's milk odor. *Acta Paediatrica*, 93(12), 1640–1645.

National Association of Neonatal Nurses. (1999). Position statement #3019: Pain management in infants. Glenview, IL: National Association of Neonatal Nurses.

Rowe-Murray, H. J., & Fisher, J. R. (2002). Baby friendly hospital practices: Cesarean section is a persistent barrier to early initiation of breastfeeding. *Birth*, 29(2), 124–131.

World Health Organization. (1998). *Postpartum care of the mother and newborn: A practical guide*. (WHO/MSM/98.3). Geneva, Switzerland: WHO. Retrieved February 26, 2006, from http://www.who.int/reproductive-health/publications/msm_98_3/postpartum_care_mother_newborn.pdf