Mary Ellen Thomson
Thomas G. Hartsock Charles Larson

The Importance of Immediate Postnatal Contact: Its Effect on Breastfeeding

SUMMARY

Breastfeeding is said to be the ideal form of infant nutrition, but promoting it is thought to be difficult. The results of this study show that success is more likely when breastfeeding and skin-to-skin contact begin in the delivery room. The procedure is simple and the contact period need to be of only 15-20 minutes duration. The primiparas in this study seemed contented, happy or excited with the experience. Possibly it is most beneficial to those mothers who have not asked to hold their infants at birth. (Can Fam Physician 25:1374-1378, 1979).

Mrs. Thomson is a doctoral candidate in nutrition at McGill University, Dr. Hartsock is assistant professor of animal science at the University of Maryland, and Dr. Larson teaches in the departments of pediatrics and epidemiology and health at McGill University. Reprint requests to: Mrs. M. E. Thomson, Crampton Nutrition Laboratory, Macdonald Campus, McGill University, Ste. Anne de Bellevue, PQ. H9X 1C0.

BREASTFEEDING is recommended as the ideal form of infant nutrition.[1] However, recent studies in western countries show that 32-72% of women who begin breastfeeding switch to bottle feeding before lactation is well established.[2-4] In our survey at a general teaching hospital in Montreal, 64% of the primiparas who breastfed in hospital began formula feeding before two months postpartum.[5]

Why do so many women abandon breastfeeding? Among many other influences, some arbitrary hospital practices, which should not be difficult to change, seem to affect breastfeeding success.[6, 7] Mother-infant contact and breastfeeding in the first half hour after birth has recently been shown, in Sweden and in England, to increase the duration of breastfeeding.[8, 9] We also examined the influence of immediate postnatal contact on successful breastfeeding for women giving birth in a traditional hospital setting.

Methods

The women studied were from a variety of ethnic backgrounds, aged 21-33 years, who entered St. Mary's Hospital (a general teaching hospital) for delivery of their first child. All intended to breastfeed. The criteria for inclusion in the study are listed in Table 1. An observer screened women admitted for delivery and followed into the delivery room those who fit the maternal criteria. If the newborn fit the infant criteria (Table 1), the observer randomly assigned the mother-infant pair to a control or to an early-contact group.

The control group followed the usual hospital routine. The infant was placed in an infrared heated crib, given silver nitrate eye prophylaxis, wrapped in a blanket and held briefly (less than five minutes) by his mother. Subsequent contact took place at 12-24 hours postpartum when the mother went to the nursery for a group lesson in breastfeeding. The infant was always returned to the nursery in the evening where he was usually fed formula twice during the night. Modified rooming-in began on the second postpartum day. Feeding was on a four-hourly schedule and glucose solution was offered after each feed.

TABLE 1
Criteria for Admission to Study

Maternal	—primiparous
	intending to breastfeed
	no medications in pregnancy
	married
	able to speak French or English
	gestation ≥38 weeks
	1st stage labor ≤24 hours
	vaginal delivery
Infant	—birthweight >2500 g
	1 min Apgar ≥8
	no visible malformations

The early-contact group also followed the hospital routine, but the mother was given her unwrapped infant to hold against her bare chest at 15-30 minutes postpartum and after delivery of the placenta, repair of the episiotomy and transfer to a stretcher-bed. Both were covered with a warmed blanket. The father was welcome to remain in the delivery room. After a few minutes the mother was asked if she would like to try breastfeeding. After a total of 15-20 min-

utes of skin-to-skin contact the mother was wheeled to the recovery room and the baby to the nursery to resume the usual hospital routine.

Following the delivery room experience, the observer noted the reactions of both groups to their newborn infants, which were later coded:

1. a happy maternal reaction, where there was smiling, touching, looking *en face* and verbalizing to the infant, and
2. lack of reaction or little of the above behavior.

At two to four days postpartum, a second observer, who was unaware of group assignments, asked all the women for their cooperation in what was called a study of infant nutrition. At two months postpartum the women were interviewed in their homes and the babies weighed by this second observer.

Because parturient women are particularly receptive to encouragement, a double-blind design was deemed especially critical for this study. Only the delivery room nurses were aware of group assignments. Staff who came in contact with mother and infant after they left the delivery room did not know who was in the study. Most women believed the delivery room procedure to be hospital routine and none was aware that success in breastfeeding was being studied.

'Success' was defined before the study began as breastfeeding for a minimum of two months without a daily supplementary feeding.

Four women (two in the control and two in the early-contact group) who fit the initial criteria were later dropped from the study: one woman did not consent to the home interview, one returned to hospital for a total hysterectomy, another was advised by a physician to stop breastfeeding because of high fever and one newborn was in isolation. Thirty women remained in the study—15 in the control and 15 in the early-contact group.

A comparison of the characteristics of the control and early-contact groups is shown in Tables 2 and 3. There were no statistically significant differences between the groups although there was a preponderance of boys in the control group (11) and girls in the early-contact group (nine).

Results

As shown in Table 4, significantly more women in the early-contact group were successfully breastfeeding at two-months than in the control group ($P<0.05$). Three women in the control group were partially breastfeeding, giving their infants one or more formula feedings per day on a regular basis.

All women in the early-contact group seemed at least content to hold their babies and all attempted breastfeeding in the delivery room. Most of the newborns sucked eagerly but two only mouthed the nipple (Table 5).

Nine mothers in the control group and 13 in the early-contact group showed a 'happy' reaction to their

TABLE 2
Maternal Characteristics

Variable	Control Group N=15	Early-Contact Group N=15
Average age (years)	24.9 ± 3.4	26.4 ± 3.5
Education (years)	12.9 ± 3.6	13.9 ± 3.4
Gestational weight gain (kg)	12.2 ± 3.7	13.1 ± 3.6
Attended prenatal class	8	7
Sedation within six hours of delivery	2	2
Epidural anesthesia	6	9
Local infiltration	9	6
Forceps delivery	3	3
Duration of labor (hours)	13.1 ± 6.3	10.9 ± 6.9
Induced labor	2	4
Father at delivery	12	11
Working mothers		
during pregnancy	12	12
two months postpartum	0	2

TABLE 3
Infant Characteristics

Variable	Control group N=15	Early-Contact Group N=15
Average birth weight (g)	3327 ± 520	3365 ± 330
Discharge weight (g)	3245 ± 501	3242 ± 407
Weight at two months (g)	5455 ± 575	5144 ± 473
Apgar score (five min)	9.7 ± 0.4	9.7 ± 0.5
Male/female ratio	11/4	6/9

TABLE 4
Breastfeeding Outcome

Variable	Control Group N=15	Early-Contact Group N=15
Breastfeeding at discharge	14	15
Breastfeeding at two months		
partial or not at all	12	6
'successful'	3	9

TABLE 5
Postpartum Observations in Delivery Room

Variable	Control Group N=15	Early-Contact Group N=15
Skin-to-skin contact	0	14
Attempted breastfeeding	0	15
Infant sucked	0	13
Happy maternal reaction to infant	9	13

newborn infants. These observations were recorded after the mother left the delivery room and reflect the final rather than the initial stage of the interaction. The greater number of 'happy' mothers in the early-contact group is probably due to that contact since they had much more opportunity to interact with their infants.

When these observations were related to breastfeeding success it was found that the eight mothers who did not have a 'happy' reaction to their infants were not breastfeeding at two months postpartum. A woman's lack of reaction to her infant immediately following delivery was significantly related to failure in breastfeeding ($P<0.01$).

Discussion

The data presented in this study support the premise that early mother-newborn contact can significantly influence later maternal behavior.[10] It was found that postpartum skin-to-skin contact plus breastfeeding in the delivery room would promote successful breastfeeding through the initial two months. This result is consistent with carefully designed studies in Sweden and England, where a short period of contact after delivery significantly increased the duration of breastfeeding.[8, 9]

An additional important finding of this study is the strong association between an observer's assessment of the mother's reaction to her newborn in the delivery room and later breastfeeding success. Of all the women who showed no reaction or a limited happy response, none successfully breastfed. This was not a previously established hypothesis, and the numbers are too small to draw firm conclusions, but the data suggest that observant health professionals may be able to identify those mothers who will require additional support if they are to succeed in their desire to breastfeed. This ability to identify at delivery those mothers at risk for not achieving certain desired goals such as breastfeeding requires further study. Probably it is the mothers who do not ask to hold their infants at delivery who most need to be helped to enjoy the experience.

A potential bias resulting from the randomization, was the unequal sex distribution, although it was not statistically significant. Other studies have found no relation between the infant's sex and duration of lactation.[3, 11, 12] For both male and female infants, proportionately more of the early-contact group were successfully breastfed.

The practice of skin-to-skin contact and breastfeeding shortly after birth may have favorable consequences, both short- and longterm. The immediate reaction of the primiparous women in the early-contact group to holding and nursing their bare infants ranged from "contentment" to "pleasure" to "excitement" to "tears of happiness". Most of the mothers examined and admired their babies closely, looking continually at the infant's face. Several were apprehensive about handling their newborns, but the 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.

Precisely how early mother-newborn contact affects later maternal behavior is not known. In the first days after delivery, the lives of both mother and infant follow a similar rhythm—a short initial period of heightened reactions followed by several days of lethargy.[13-18] The initial responsive period may be the ideal time for mother and newborn to learn how to feed at the breast. A smooth and easy initiation of breastfeeding may have a longterm effect by bolstering the nervous primipara's sense of confidence as a mother.

Additionally, a first meeting in the initial half hour when both mother and infant are alert and responsive might enhance the early growth of maternal love. Breastfeeding requires a commitment on the part of the mother to adjust her lifestyle to the baby's rhythms since she must always be nearby whenever the baby is hungry. The greater breastfeeding success of the early-contact mothers might be explained by a closer mother-infant bond, formed in an early sensitive period.[10] The theory that the first maternal impressions are of longterm importance is supported by the finding that all women in this study who lacked reaction to their infants following delivery failed at breastfeeding. If this theory is true, then the simple and natural practice of skin-to-skin contact and breastfeeding shortly after birth has far-reaching consequences, and should be made possible for most mothers and infants.

Acknowledgments

The authors wish to thank R. Margles for her perceptive observations and the staff at St. Mary's Hospital for their friendly assistance.

References

1. *Nutrition Committee, Canadian Pediatric Society, Committee on Nutrition, American Academy of Pediatrics: Breastfeeding. Pediatrics 62:591-598, 1978.*
2. *Sacks SH, Brada M, Hill AM, et al: To breastfeed or not to breastfeed. Practitioner 1292:183-191, 1976.*
3. *Sloper KS, Elsden E, Baum JD: Increasing breastfeeding in a community. Arch Dis Child 52:700-702, 1977.*
4. *Sjölin S, Hofvander Y, Hillervik C: Factors related to early termination of breastfeeding. Acta Pediatr Scand 66:505-511, 1977.*
5. *Thomson ME: Some factors related to the early cessation of breastfeeding. Unpublished Master's thesis, McGill University, Montreal, 1978.*
6. *Lozoff B, Brittenham GM, Trause MA, et al: The mother-newborn relationship: Limits of adaptability. J Pediatr 91:1-12, 1977.*
7. *de Chateau P, Holmberg H, Jakabsson K, et al: A study of factors promoting and inhibiting lactation. Dev Med Child Neurol 19:575-584, 1977.*
8. *de Chateau P, Wiberg B: Long term effect on mother infant behavior of extra contact during the first hour postpartum. Acta Paediatr Scand 66: 137-151, 1977.*
9. *Salariya EM, Easton PM, Cater JI: Duration of breastfeeding after early initiation and frequent feeding. Lancet 3:1141-1143, 1978.*
10. *Klaus MH, Kennell JH: Human maternal and paternal behavior, in Klaus MH, Kennell JH (eds): Maternal-Infant Bonding. St. Louis, C. V. Mosby, 1976, p. 38.*
11. *Beal VA: Breast and formula-feeding of infants. J Am Diet Assoc 55:31-37, 1969.*
12. *Sand EA, Emery-Hauzeur C: Prévalence de l'allaitement en Belgique. Arch Francaises de Pédiâtrie 30:363-380, 1973.*
13. *Desmond MM, Rudolph AJ, Phitaksphraiwan P: The transitional care nursery. Pediatr Clin N Am 13:651-668, 1966.*
14. *Wilkinson AW, Stevens LH, Hugues EA: Metabolic changes in the newborn. Lancet 1:983-987, 1962.*
15. *Lagercrantz H, Bistoletti P: Catecholamine release in the newborn infants at birth. Pediatr Res 11:889-893, 1977.*
16. *Brazelton TB: Psychophysiologic reactions in the neonate. J Pediatr 58:513-518, 1961.*
17. *Emde RN, Swedberg J, Suzuki B: Human wakefulness and biological rhythms after birth. Arch Gen Psychiatr 32:780-783, 1975.*
18. *Kitzinger S: The Experience of Childbirth. Hammondsworth, Middlesex, Penguin Books, 1972.*