

Sucking Technique and Its Effect on Success of Breastfeeding

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ABSTRACT: We investigated the prognostic value of sucking technique (faulty vs correct) during the first week after birth in relation to the long-term success of breastfeeding. At discharge from the maternity ward, 82 healthy mother-infant pairs were observed for assessment of breastfeeding technique and followed for four months by regular telephone checkups. Correct sucking technique was defined as the infant having a wide-open mouth, with the tongue under the areola, and expressing milk from the breast by slow, deep sucks; faulty technique was defined as superficial nipple sucking. The study population was divided into three groups: one in which faulty sucking technique was corrected when observed ($n = 29$), one with faulty but uncorrected technique ($n = 25$), and a control group with a correct technique ($n = 28$). At the four-month follow-up assessment, the faulty but uncorrected group was characterized by a greater proportion of mothers with breastfeeding problems and early cessation of breastfeeding than the other two groups. Regular use of a pacifier (>2 hrs/day) was more common among those with breastfeeding problems. (BIRTH 19:4, December 1992)

Breastfeeding and problems associated with it were examined in previous studies (1-4), the most common problems early after delivery being milk insufficiency, sore nipples, engorgement, anxiety, tiredness, and depression in the mother, and a whining or crying and discontented child. Researchers and breastfeeding consultants generally agree that many such problems are preventable through proper management (5-8). On the basis of long experience as breastfeeding consultants, Frantz (7), Fisher (9), and Minchin (10) outlined the essentials of successful breastfeeding, and stressed the importance of three criteria: correct positioning of the infant at the breast; correct sucking technique; and no rigid time schedule (i.e., the baby determines the frequency and duration of sucking).

These authors emphasized that nipple sucking is

much less effective than correct sucking and may damage the nipple, with a consequent risk of diminished milk production, in turn leading to early cessation of breastfeeding. To our knowledge, however, no studies have addressed this issue.

In an earlier study on the short-term effect of delivery room routines on the success of the first breastfeeding, we reported that a correct and effective sucking technique (defined below) was more common among mother-infant pairs allowed uninterrupted skin contact during the first hour after delivery than among those in which the infant was removed for weighing and measuring before being allowed to feed. The latter group was characterized by a greater frequency of superficial nipple sucking (11).

We studied the long-term effects among infants adopting a nipple-sucking technique from the start. A primary hypothesis was that it would be practicable to improve long-term results by correcting faulty technique while mothers are in the maternity ward. It was also hypothesized that use of a pacifier disturbs the natural course of breastfeeding.

For the purposes of the study, a definition of correct sucking is that the infant's mouth is wide open, the tongue is under the areola, and milk is

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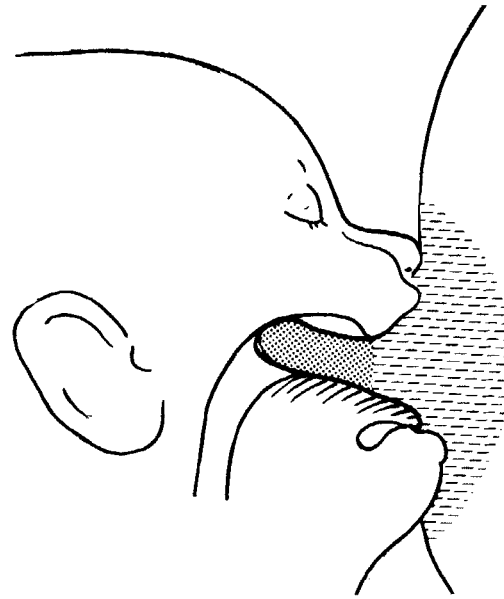


Fig. 1. Correct breastfeeding. The tongue is under the areola, with the tip of the nipple at the back of the mouth.

expressed in slow, deep sucks (Fig. 1). In nipple sucking the infant sucks at the nipple as if being bottle-fed, that is, uses the nipple as a teat (Fig. 2). In the oral searching reflex, stimulated by the proximity of the nipple to the lips, the infant opens the mouth wide and thrusts the tongue forward in preparation to take the breast (Fig. 3), a process apparently conducive to the development of a correct sucking technique.

Materials and Methods

The study, involving a total of 82 mother-infant pairs, was conducted at the university hospitals of

Malmö and Lund, where 97 percent of mothers in the maternity wards were breastfeeding exclusively. Mean maternal age was 27 years (range 17-40 years), and only mothers who were breastfeeding exclusively were enrolled. Informed consent was obtained from all women. (The fathers were not involved in the study.) All infants were delivered at term and had 5-minute Apgar scores of 9 to 10; none had jaundice or any other neonatal disease.

Breastfeeding technique was assessed at discharge from hospital four to six days after birth, and by the same observer at all times (M.A.). When a nipple-sucking technique was identified, the mother-infant pair was randomly assigned to one of

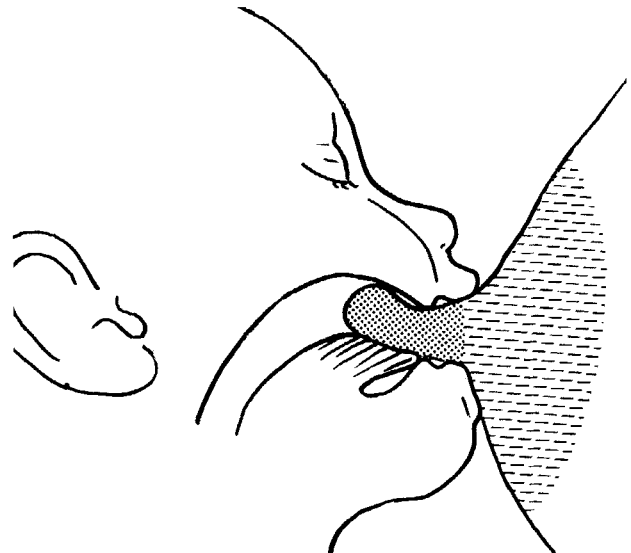


Fig. 2. Nipple sucking, in which the nipple is used as a teat.



Fig. 3. Manifesting the oral searching reflex. (Courtesy of Oxford Medical Illustration, John Radcliffe Hospital, Oxford, England.)

two groups: a nipple-sucking group ($n = 25$) in which the incorrect breastfeeding technique remained uncorrected, and a corrected group ($n = 29$) in which mothers were given brief (5–10 min) instruction on correct technique (12). Mother-infant pairs with correct technique were consecutively selected as controls ($n = 28$).

No differences were present among the groups regarding maternal age, marital status, parity, education, or coffee-drinking and smoking habits. The mothers were told that this was a breastfeeding study, but were not informed of its purpose or the grouping criteria. They were contacted by telephone two weeks, and one, two, three, and four months after delivery by one of three experienced child health nurses who were blind to the grouping of the mothers; an aggregate of 410 telephone calls were made. The mothers were asked whether they were still breastfeeding, about the nature of any associated problems that might have arisen, and whether they used pacifiers, and if so for how long each day.

The mothers cooperated fully throughout the study, without any tapering off or dropout, and none returned to work before the end of the study (maternity leave is 12 mo in Sweden). No solid foods were given to the infants during the four-month follow-up period. The chi-squared test with Yates' correction was used for statistical analysis of the data.

Results

All 82 mothers were breastfeeding exclusively at discharge from the maternity ward. A change-over from breast to bottle within the first month was 10 times more common in the nipple-sucking group (36%, 9/25) than in those with a correct technique at discharge (3.5%, 2/57, correct and corrected groups together) ($P < 0.001$). The respective proportions of mothers still breastfeeding, exclusively or partly, were 64 percent (16/25) versus 96.5 percent (55/57) at one-month follow-up, 48 percent (12) versus 84 percent (48) at two months, 44 percent (11) versus 79 percent (45) at three months, and 40 percent (10) versus 74 percent (42) at four months ($P < 0.01$ in all cases) (Table 1). In no age group did duration of breastfeeding differ significantly between the correct and corrected groups. The reasons given for cessation of breastfeeding were insufficient milk or introduction of a bottle (21), colicky infant (4), maternal illness (3), engorgement (1), and previous cosmetic breast surgery (1).

During the four-month follow-up, 88 percent (22/25) of the nipple-sucking group reported breastfeeding problems, compared with 48 percent (14/29) of the corrected group ($P < 0.01$), and 57 percent (16/28) of the controls, i.e. those with a correct technique from the start, ($P < 0.05$); the difference in this respect between the nipple-sucking group and the correct and corrected groups taken together was highly significant ($P < 0.001$). Milk insufficiency was more often reported in the nipple-sucking group than in the other two groups ($P < 0.05$). The most common breastfeeding problems were insufficient milk or introduction of a bottle (23); child restless between feeds (12); uncertainty in parents or introduction of an evening bottle (10); breast problems such as sore nipples or engorgement (10); illness in mother or child (6); breast-pumped milk given by bottle (5); child restless while feeding (2); insufficient weight gain (2); and other (6).

If a pacifier was used, it was generally introduced before the child was 2 weeks old. Although sporadic or brief (<2 hrs/day) use of a pacifier had no apparent effect on nursing, breastfeeding problems were more commonly reported by mothers using pacifiers regularly (>2 hrs/day) than by those using them

Table 1. Duration of Breastfeeding with Different Sucking Techniques

Sucking Technique	Exclusively Breastfeeding 5 Days	Exclusively and Partly Breastfeeding			
		1 mo	2 mo	3 mo	4 mo
No. (%) incorrect at discharge	25 (100)	16 (64)	12 (48)	11 (44)	10 (40)
No. (%) correct at discharge	57 (100)	55 (96)	48 (84)	45 (79)	42 (74)
<i>P</i>		<0.001	<0.01	<0.01	<0.01

only occasionally or not at all; that is, 83 percent (20/24) versus 53 percent (31/58), respectively ($P < 0.05$). Pacifiers were used by 40 percent (21/52) of the mothers still breastfeeding at four months postpartum, but by 90 percent (27/30) of those who had already stopped breastfeeding ($P < 0.001$). There were no differences among any of the groups in the use of pacifiers.

Discussion

A striking finding in this study was that it was possible to identify and correct a faulty sucking technique in the maternity ward, and thereby improve the women's chances of achieving successful breastfeeding.

Most infants probably continue to use the same sucking technique at home as in the maternity ward, but the nursing pattern is not necessarily uniform throughout the breastfeeding period. A change from a correct to an incorrect technique might well occur in conjunction with the introduction of an occasional bottle, when the infant has to cope with two different sucking techniques and may start to nipple suck the breast (commonly referred to as nipple confusion) (13). Change from an incorrect to a correct technique is also possible, either spontaneously or due to improved knowledge or professional help in correcting faulty technique.

Whether any relationship exists between the occurrence of nipple confusion and the use of pacifiers is unclear. In this study, pacifiers were generally introduced before any breastfeeding problems were reported, although subsequent problems were more common among those using pacifiers a great deal (>2 hrs/day). In sucking a pacifier the infant opens the mouth very little, and if allowed to become accustomed to sucking in this manner for hours at a time, may find it difficult to switch to grasping the breast with a wide-open mouth. Instead, some infants might start nipple sucking the breast in a superficial and ineffective manner, and breastfeeding problems are likely to follow.

The reason for the introduction of pacifiers is seldom clear—anxiety or uncertainty on the part of the parent(s), perhaps, or simply a question of local or group mores. In this study, pacifiers were less commonly used by mothers still breastfeeding at four months postpartum than by those who had already stopped breastfeeding by then. Possibly those who continued had greater self-confidence and tended to take things more naturally, being more inclined to comfort their infants by nursing them. Alternatively, to them a pacifier may have seemed to be an alien and superfluous object that would

only interfere with their nursing and intimate contact with their infants.

Although most women declare that they want to breastfeed, many switch to bottle-feeding at an early stage for a variety of reasons, as reported by Sjölin et al, who listed reasons for lactation crises and early termination of breastfeeding (1,2). In the present study, milk insufficiency and the introduction of bottle-feeding were by far the most common reasons for termination. These two factors often go hand in hand, and although it was impossible to ascertain the primary reason for termination by asking the mothers, the normal weight curves for all these infants suggest that in most cases it was probably the introduction of bottle-feeding and not milk insufficiency. In fact, weaning often started with the introduction of an evening bottle, which may seem so innocent a convenience to the parents, but is often the starting point for more extensive bottle-feeding.

Our findings suggest that the prerequisite of an uncomplicated and uninterrupted breastfeeding period is a correct sucking technique from the outset, and that excessive use of pacifiers and the early introduction of occasional bottle-feeding should be avoided. Checks of sucking technique and correction of faulty technique by an experienced midwife or nurse should be routine in maternity units.

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Announcement

Lennart Righard's 10-minute videotape, *Delivery Self Attachment*, portrays the self-attachment attempts of three babies to reach the mother's nipple. The video was made as part of a study by Dr. Righard and Margaret Alede (*Lancet* 1992;336:1105-1107). In one group of unmedicated births, infants were placed on the mother's abdomen, and within about 50 minutes most had self-attached to the breast and were sucking correctly. The other group of infants, mostly from medicated labors, were separated from the mother's abdomen about

20 minutes after birth and then replaced after being measured and dressed. This short separation seriously disturbed initial sucking attempts, and most babies were too drowsy to suck at all.

The video is ideal for in-service education of perinatal caregivers and childbirth classes. It can be ordered from Geddes Productions, 10546 McVine, Sunland, CA 91040 USA (tel (818) 951-2809); cost \$14.95 (plus postage \$5.00 US, \$9.00 Canada); 1/2" VHS or Beta, NTSC or PAL (Europe).