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# A Case Study of Biological Nurturing

Case Report in the Journal of Human Lactation

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## Abstract

**Introduction:** This case of a mother and her two children, born 20 years apart, highlights how Biological Nurturing (BN) supported a woman in meeting her personal breastfeeding goals. We know lack of breastfeeding support contributes to early weaning. Applying the principles of BN (unrestricted and laid-back breastfeeding) enabled this mother to return to breastfeeding without supplements.

**Main Issue:** After giving birth to her first son prematurely in 1997, the dyad was separated, and formula introduced. These interventions, combined with inadequate breastfeeding support, resulted in low milk supply and unplanned weaning by week six. In 2017, a full term sibling baby girl was born, with breastfeeding again beginning with concerns of low milk supply.

**Management:** Consultation with an International Board Certified Lactation Consultant successfully addressed common breastfeeding problems, including vasospasm and insufficient milk supply. Continuous emotional support helped this mother overcome perceived insufficient milk supply. Introducing BN led to breastfeeding without supplementation, by enabling the dyad to experience enjoyment, comfort and feeding autonomy.

**Conclusion:** While the repeated experience of insufficient milk supply two decades apart constituted a psychological barrier to exclusive breastfeeding, BN enabled reaching this mother's breastfeeding goals. BN appears to be a powerful tool for both breastfeeding initiation and overcoming breastfeeding difficulties, potentially setting new best practice standards.

## Keywords

Biological Nurturing, breastfeeding initiation, breastfeeding support, infant feeding patterns, latch-on, mother-infant dyad

## Introduction

This case study highlights Biological Nurturing (BN), defined as a neurobehavioral approach to breastfeeding initiation that aims to reduce latching problems and early unintended breastfeeding cessation (Colson, 2012). The conceptual framework of BN for lactation (Colson, Meek & Hawdon, 2008), with its components and mechanisms, is displayed in Table 1. In BN, the angle at which mothers recline can be critical for breastfeeding success, also enabling unrestricted access to the breast and maternal comfort (Colson 2012). In her book on BN, Colson (2010a) demonstrated how a baby's innate reflexes and a mother's intuitive behavior promote joyful mother-child interaction, while latching occurs spontaneously.

This case follows a mother and her lactation experiences with two children, born 20 years apart (Figure 1). In both instances, insufficient milk supply and inadequate breastfeeding support caused problems with breastfeeding initiation. However, with the birth of her second child, BN and support from an International Board Certified Lactation Consultant (IBCLC) made the difference in her breastfeeding outcome. The participant discussed in this case gave written consent for publication, and read and approved the case as submitted.

TIME-LINE	CARE LEVEL	HEALTH-CARE SETTING	HEALTHCARE INTERVENTIONS	▷	MOTHER'S SYMPTOMS, ACTIONS AND OUTCOME	
1997 1 <sup>st</sup> week	Hospital Care	Delivery room	Premature labor, 3 cm cervix dilation and labor induction	▷	Premature birth of son at 36 weeks	
		Maternity ward	Mother-baby separation and bottle feeding of formula in hospital	▷	Difficulty initiating breastfeeding: Nipple confusion, refusal of baby to latch	
	Hospital discharge	Home	Mother equipped with electric breast pump, but no further instructions or support	▷	Bottle feeding formula and small amounts of expressed milk Attempts at breastfeeding	
						Community care
1997 at 6 weeks	Community care	Follow-up care	Lack of follow-up care Lack of breastfeeding support	▷	Unintentional weaning following decreased milk supply and persistent latch difficulties	
2017 Up to day 2 Day 3 Until week 3 Day 25 Day 26 Until week 5 Starting from week 6	Hospital care	Delivery room	Support of natural birth	▷	Term spontaneous birth of baby girl at week 41 after 1 hour of labor	
		Maternity ward	Exclusion of tongue/lip tie Latching support in cradle and football positions Nipple shields as treatment of cracked and sore nipples	▷	Cracked and sore nipples from latching baby	
		Home	Recommendation of herbal tea as natural remedy to increase milk supply Electric pump provided	▷	Breastfeeding difficulties: Perceived low supply, sore nipples	
	Hospital discharge	Midwife home visits	Suggestion to omit nipple shields Before-after-weighing Introduction of formula with feeding schedule recommendation to reach birth weight	▷	Improved latching enables omission of nipple shields, though with some persisting pain 50-80ml of formula in 24h introduced, on top of expressed milk Baby reaches birth weight on day 18	
						LLL leader
		Community care	IBCLC home visit	Observes vasospasm Demonstrates BN and side-lying Develops 2 phase-intervention Follow-up e-mail offering further support as needed	▷	Pain-free latch Mother contributes to the 2-phase plan development Husband procures second pumping kit
			IBCLC follow-up	Frequent email exchange on plan implementation progress, encouragement	▷	Two consecutive days of power-pumping as immediate intervention Followed by unrestricted BN Re-gaining trust in breastfeeding abilities, reaching personal goal of unsupplemented breastfeeding by increased supply, adequate weight development and enjoyable breastfeeding
			Peer support group	Visit and exchange with peers and an educated group leader	▷	Continued peer support, information and exchange fosters breastfeeding exclusivity and duration; enabling the mother to reach her personal breastfeeding goals

**Figure 1.** Timeline Case Study Biological Nurturing.

**Table 1.** Key Components and Mechanisms of Biological Nurturing.

Components	Mechanisms
<ul style="list-style-type: none"><li>• A range of maternal postures in semi-reclined position</li><li>• Full frontal body contact</li><li>• Primitive neonatal reflexes</li><li>• Instinctive maternal behavior</li><li>• Neonatal behavioral states</li><li>• Hormonal complexion</li></ul>	<ul style="list-style-type: none"><li>• Versatility of lie</li><li>• Full frontal baby positions</li><li>• Works with gravity</li><li>• Maternal comfort</li><li>• Spontaneous mother-baby interaction leads to latching baby</li><li>• Mothers are focused on their babies</li></ul>

Reproduced from: Colson, Meek and Hawdon, 2008.

## History

### *Lactation Experience in 1997*

In 2017 this mother, a 38-year-old para two German Caucasian mother in a wealthy borough of Berlin, Germany, requested a breastfeeding consultation with the author. The mother's intention was to breastfeed for as long as desired, including six months of exclusive breastfeeding. Her history included her first child, a 2900g boy, born spontaneously in 1997 in a non-Baby-Friendly hospital, following induction at 3cm cervical dilation and premature labor at week 36. The maternity ward featured a nursery for nighttime, but also for daytime whenever mothers needed rest. The infant was separated from his mother every night and was bottle-fed formula by hospital staff during these separations. By maternal report, staff had no time to support breastfeeding and her infant did not latch after these repeated separations, except for nonnutritive sucking.

Support for breastfeeding after hospital discharge was minimal. After hospital discharge the 19-year-old mother lived with her own mother who had herself weaned early, convinced her own milk supply had been insufficient. The baby's father, aged 21, lived with his parents and was no support for the breastfeeding relationship. To address the mother's insufficient milk supply, the midwife supplied an electric pump, but offered no guidance for usage nor further breastfeeding support. The mother remained insecure about her ability to breastfeed. One night when baby cried uncontrollably, the grandmother purchased formula, believing insufficient milk supply "ran in the family". Increasing use of formula led to a further decrease in the mother's milk supply. At six weeks postpartum, the mother stopped breastfeeding and expressing, causing her frustration and grief. Reflecting on this experience, she commented:

*"I am sad at not having been able to provide breastfeeding as a valuable asset to my son and myself. How can formula be introduced so easily to mother and child without a second thought and without good information about the risks, when so much is taken away from the mother-baby dyad? In comparison to my healthy daughter, my son suffered from many infectious diseases during infancy, and repeated otitis media."*

### *Lactation Experience in 2017*

Her second child, a girl, was born spontaneously in a Baby-Friendly hospital at 41 weeks after one hour of labor. The mother-baby dyad was healthy. The mother intended to breastfeed for six months exclusively, and to continue for a minimum of nine months. The mother developed bleeding nipples on day two; no tongue or lip tie was noted in her baby. She used the cradle and football positions, and the hospital staff provided nipple shields for pain relief.

The midwife conducted several consecutive home visits and recommended discontinuing the nipple shield. As latching without the nipple shield improved with practice, the mother's nipples healed. Unaware of breastfeeding during baby's sleep states, she was shown how to wake up the baby for feeds, if necessary with a wet cloth. As the infant did not regain birth weight until day 18, the physician and midwife, who conducted pre- and post-test weights, measuring 50 ml, deemed her milk supply insufficient. Thereafter, the mother began feeding 50–80 ml of formula per 24 hours to her child, via bottle and teat. She reported nipple confusion when changing from breast to bottle and vice versa. She used a single-sided, electric hospital-grade pump to express milk as often as possible after breastfeeding, and then bottle-fed the expressed milk.

The mother called a La Leche League (LLL) leader, via the German LLL website (<https://www.lalecheliga.de>), who advised her to contact an IBCLC, which she did on day 23 postpartum, reporting persisting nipple pain, mainly after feeds. She wrote in the IBCLC's contact form:

*“Insufficient milk supply, baby keeps falling asleep at the breast, spits up a lot, supplementation 50ml maximum by bottle because of insufficient weight gain, shows few breastfeeding cues while oversleeping and missing feeds; then every other day wants to feed every hour.”*

### **Observational Assessment and Management**

During a home visit on day 24 postpartum, the IBCLC observed nipple blanching and pain after feeds, consistent with vasospasm. The IBCLC guided the mother-baby dyad to BN, explaining its components and mechanisms (see Table 1 in supplementary files). The side-lying position was demonstrated for ease of breastfeeding at night. While the BN unrestricted breastfeeding might have sufficed to increase milk supply, the mother preferred using the pump as the first intervention, for a measurable and visible output of milk, in combination with breastfeeding. Taking the mother's preferences into consideration, the IBCLC suggested a two-stage procedure (Table 2):

**Table 2.** Two-stage Strategy of IBCLC Management Plan.

	Management Plan	Additional Maternal Actions
Stage I	<ul style="list-style-type: none"> <li>• Increase milk supply by following the power-pumping schedule (The Milk Meg, 2015; Morton et al., 2009) for two consecutive days</li> <li>• Replace the supplementary formula continuously, including: Pumping both sides at a time, latching infant as often as possible; getting enough rest</li> <li>• Support throughout the program by the father, a relative or other person of the mother's choice</li> </ul>	<ul style="list-style-type: none"> <li>• Cover nipples to protect them against draft, apply warm compresses</li> <li>• Contact the IBCLC for follow-up whenever needed</li> </ul>
Stage II	<ul style="list-style-type: none"> <li>• Follow-up by unrestricted breastfeeding, allowing the infant to establish the system of demand and supply</li> </ul>	<ul style="list-style-type: none"> <li>• Visit a local peer support group for follow-up when feeling up to it</li> </ul>

### *Implementation of Stage 1*

To increase milk supply by power-pumping (see Figure 1 in supplementary files; The Milk Meg, 2015; Morton et al. 2009), the father procured a second pumping kit including tubing and breast shields, to express both sides simultaneously (Hemmelmayr, 2016). The mother followed the schedule of power-pumping 3–4 times per day for two consecutive days, with her husband's support. She also latched the infant unrestrictedly for a minimum of 10 times/24 hours, using BN predominantly, which she found easy to handle. Concurrently, she continued supplementing formula, with a one-time maximum of 150 ml in 24 hours on day 25.

### *Implementation of Stage 2*

After two days of power-pumping, she focused on direct breastfeeding, with occasional pumping between feeds. She eliminated formula completely on day 35 postpartum.

## **Outcome**

After continued email follow-up with her IBCLC, she eliminated top-ups of her expressed milk, realizing she was supplementing more than the baby would take, out of fear that the infant might not be getting enough — in keeping with her family history of perceived insufficient milk supply (Gatti, 2008). Her inner conflict was revealed in one of her followup e-mails on day 52 postpartum:

*“Baby is well and thriving. I still express milk 1–2 times per day and feed the expressed milk, even though she often does not want the extra milk! She seems to be content with breastfeeding alone now.”*

She reflected in hindsight that her belief of being unable to produce enough milk, unrefuted for two decades and repeated with her second child, represented a psychological barrier to exclusive breastfeeding. Expressing milk did not completely reassure her. Showing adequate weight gain was also helpful to overcome that barrier and end supplementation of expressed milk (see Figure 2 supplementary files; Guóth-Gumberger, 2017). Furthermore, the mother's relaxed state of mind experienced during unrestricted BN also contributed to overcoming her fears, and establishing a belief in her ability to produce an adequate milk supply. One remark said both during the first home visit and repeated in the IBCLC's follow-up email (day 24 postpartum) proved to be an especially helpful affirmation for the mother: *“My child is competent where her food intake is concerned.”*

During BN, the mother repeatedly observed the infant feeding efficiently in sleep states. She expressed deep relief at having eliminated the bottle, enabling the baby to avoid the observed nipple confusion, and to breastfeed without pain, or any technical equipment. When asked whether BN had been helpful for her, she replied: *“BN marked a breakthrough in breastfeeding my daughter. Sitting in this position alone was phenomenal.”* Referring to the unrestricted breastfeeding in BN position the mother remarked, *“We nestled up together and enjoyed our cozy time snuggling together.”*

This mother, supported by her husband, complied with the two-stage plan, which resolved the pain and supply issues. After BN was introduced, no further healthcare intervention was necessary for meeting the mother's breastfeeding goals, except for continuous encouragement in an on-going e-mail exchange, as emotional support to overcome the perceived insufficient milk supply. Subsequently, the mother found continued encouragement in peer support groups, which further contributed to bolstering her confidence (Rosin & Zakarija-Grković, 2016). She

was enabled to reach her personal breastfeeding goals of breastfeeding without further supplementation in the first six months, continuing for nine months.

## **Discussion**

Maternal comfort and the laid-back position are key mechanisms of the BN concept (Colson, 2010a). Applying these enabled this mother to allow her baby unrestricted breastfeeding. The laid-back position provides comfort and triggers baby's innate reflexes right from the start, enabling baby to latch autonomously and actively, promoting successful initiation, and enabling the development of motor skills as early as can be (Schaefer & Genna, 2015; Colson, 2010b; Colson, 2005;). BN is also beneficial for developing cognitive skills (Williams & Holley, 2013).

Maternal enjoyment is another key factor in the BN concept. The excerpts from the mother's conversations and correspondence illustrate how much she enjoyed feeding in the BN position. As Colson explains in her book (2010a), holding baby in natural habitat favors high oxytocin pulsatility of the mother baby dyad through close and constant body contact. Making use of both sleep and awake states for feeding favors adequate milk supply and saves energy for baby (Colson, 2002). Neonates may spend quite some time at the breast while "learning to breastfeed by breastfeeding" (Newman, 2018), representing an early postpartum feeding pattern. As is true for bonding, unrestricted breastfeeding can still be implemented at a later period if missed out in the early postpartum, just as this case demonstrates.

Recently considered as a skill mothers must learn (Rosin, 2010, p. 51), the gold standard for breastfeeding support has involved teaching mothers prescribed correct motions (Colson, 2012). BN allows both mothers and infants to follow their own instincts for latching (Colson, 2010a). According to Brazelton and Nugent (2011), three sleep and three awake states can be observed in neonates; quick and constant changes between them constitute normal infant behavior. However, new mothers are traditionally being taught only to feed baby in awake states, while feeding during sleep states has been considered inefficient, non-nutritive suckling (see Table 2 in supplementary materials). This constraint on mothers appears inappropriate, given the rapidly changing neonatal states.

The mother's observations in this study refute the common notion that a sleeping baby will not feed and a hungry baby will not sleep (Colson 2010a). In the BN concept, holding baby in natural habitat and feeding throughout sleep and awake states of the infant is crucial to successful breastfeeding initiation. During her BN research, Colson observed that efficient suckling and swallowing occurs both during sleep and awake states of baby (2010a), suggesting that a considerable part of milk intake may occur while baby is asleep, which this mother's observations confirm.

Although power-pumping and unrestricted breastfeeding successfully boosted the mother's milk supply, she continued to doubt her ability to produce enough milk. The personal care during the home visit, together with continuous emotional support from her IBCLC and peer support groups, were crucial factors in this mother overcoming the psychological barrier of perceived low milk supply. The BN concept provided comfort, enjoyment, relaxation, and feeding autonomy, enabling the mother-baby dyad to fully "take over," rendering further healthcare interventions unnecessary.

## Conclusion

This case study demonstrates that BN, as a comprehensive approach to promoting instinctive mother-infant behavior and maternal comfort and enjoyment, had powerful tools to facilitate breastfeeding initiation without supplements and overcome breastfeeding difficulties. Breastfeeding support practitioners should provide strong emotional support concomitantly. As a new best practice goal to promote early feeding autonomy of the mother-baby dyad, BN may mark a paradigm shift in breastfeeding support. More research is needed to confirm the findings of this case study.

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