

Supporting Oral Feeding in Fragile Infants: Introduction to SOFFI®

Erin Sundseth Ross, PhD, CCC-SLP
President, Feeding Fundamentals, LLC

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Supporting Oral Feeding in Fragile Infants (SOFFI®) is a comprehensive approach to feeding preterm infants and infants with medical comorbidities within the hospital setting and after discharge. It is based on observation of the capabilities of the baby at different neurodevelopmental stages and on caregivers consistently responding appropriately. SOFFI® uses the concepts of the Synactive Theory as the foundation for observations, and interventions are based on developmentally supportive care concepts. What is unique about SOFFI® is it focuses on the neurobehavioral development of feeding, with the neonatal intensive care time period considered as the foundation for all later eating development. The goal of SOFFI® is to ensure positive eating experiences, based on infant behavioral communication, with the overall goal of improving feeding outcomes in-hospital and after discharge. In a recent post-discharge pilot study of healthy preterm infants who did not exhibit feeding problems while in the NICU, 42% experienced some type of feeding problem.¹ This is consistent with a review article by Pados and colleagues that revealed the overall prevalence of problematic feeding after NICU discharge and before four years of age was also 42%.² Many programs designed to improve feeding outcomes within the NICU only consider outcomes to discharge. SOFFI® is the only feeding program that has research supporting improved outcomes both within and after discharge from the NICU.³

Initially certified in NIDCAP in 1993, I have focused on the problem of feeding in NICU settings and the poor feeding outcomes in this population. My experience working in both the NICU, starting in 1990, and in the Pediatric Feeding Clinic led me to wonder whether good intentions within the NICU setting were contributing to feeding problems, even though the feeding problems did not reveal themselves until after discharge. Over time and with more insight into the neurodevelopmental aspects of learning to eat, it became clear that many professionals do not consider post-discharge outcomes. Infants begin eating reflexively and they discharge from the NICU while eating is still reflexive.

SOFFI® teaches that negative feeding experiences from birth through when the infant is eating volitionally are the reason many infants develop feeding problems once home. If an infant is uncomfortable, out of breath, pushed along, in pain, or overwhelmed every time they eat, they develop ways to avoid eating. In fact, this is a wonderful example of Classical Conditioning. Infants learn to escape and avoid eating,



On-going consultation in the SOFFI method

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and have low appetite, because eating has been paired with repeated aversive experiences. Infants do communicate their experiences during feedings, yet feeders often ignore these signs either out of ignorance or out of a desire to help the baby learn to eat and go home. Most literature and staff focus on getting infants to eat sooner and to go home sooner. Few focus on eating with better skill with a goal of developing long-term enjoyment of eating. Quality leads to quantity and one doesn't have to be sacrificed for the other. SOFFI® was developed initially to educate local nursing staff and it has grown into an international training program.

SOFFI® has been used as the training framework for several published studies and abstracts.³⁻⁵ These studies have shown it is an effective intervention model for preterm infants as well as term infants who are ill, the same populations typically seen within hospital NICUs. Statistically significant improvements in outcomes at discharge were shown in these studies, yet more importantly, no adverse effects occurred despite changing the focus to quality feedings. Unique to SOFFI®, significant improvements were found after discharge, including fewer infants who 1) demonstrated feeding problems overall, 2) required feeding therapy, 3) vomited, and 4) arched.³ One study showed that

more infants with significant co-morbidities who discharged home with a nasogastric tube for supplementation transitioned to full oral feedings by three to five months corrected age.⁵

SOFFI® educates the trainee on the importance of parental involvement in feeding and infant care in general, and covers learning theory, including the Synactive Theory and Classical Conditioning. All experiences are framed within the concept of homeostasis. By understanding the infant's communication and responding appropriately to their needs, repeated negative feeding experiences are avoided. This helps the infant build the skills for eating and the desire to eat. Parents are the primary feeders from the beginning, and breastfeeding is emphasized as the best and most biologically expected way to feed the infant. Most infants in the United States will be both breast and bottle-feeding at hospital discharge. Bottle-feeding is associated with more physiological challenges during feedings, so bottle-feeding strategies are provided in SOFFI® training.

“Feeding is the ‘last barrier’ to discharge because it requires infants to be able to do everything else”

SOFFI® offers in-depth information on the development of feeding. Infants are developing the neurological and motor ability to eat all through the preterm period. Feeding is the most complex activity they will learn to do. Feeding is directly tied to maturation, and research repeatedly shows the average age for reaching full oral feedings is 36.5 weeks gestation, plus or minus two weeks. By understanding the developmental nature of feeding and the influence of medical comorbidities, asking infants to do something too challenging can be avoided. Infants develop within windows of time, which is often forgotten with eating. Many health professionals want all preterm infants to eat by 32-34 weeks, and often infants are pushed to eat by 36 weeks. The literature is full of articles that suggest infants who are still hospitalized at 36 weeks are behind. In fact, half of infants who are developing typically would be still working on feeding. SOFFI® training brings the concepts of neurodevelopment, learning, and infant behaviors together to teach trainees how to observe and evaluate feedings, and then how to improve feeding experiences. The methodology uses the neurodevelopmental framework of the Baby Regulated Organization of Systems and Sucking (BROSS®).⁶ All interventions are evidence-based, developmentally appropriate, and family-centered. Interventions begin well before oral feeding attempts. Staff use algorithms for decision-making, and fami-

lies learn to be co-regulators of their infant during feedings. A parent education program is currently being piloted as well.

SOFFI® is used for preterm and term infants, hospitalized or at home, with or without medical comorbidities. Nurses and therapists who work with these infants in the NICU and after discharge are the primary disciplines trained, although dietitians, lactation consultants, physicians, and nurse practitioners have also completed training.

SOFFI® is used by hospitals to change feeding cultures and by healthcare professionals supporting eating development in infants. As one example, all NICU staff within a large hospital are completing training across a two-year period. The focus is on training as well as system issues with both bedside caregivers and leadership. This hospital is collecting infant, parent, and staff outcome data to explore how changes in the bedside feeding culture improves outcomes.

Feeding is the “last barrier” to discharge because it requires infants to be able to do everything else, all at the same time. It is naturally the last thing they develop, and when the development of swallowing, airway protection, the gastrointestinal system, and the respiratory system are all understood, the complexity of eating is respected. Feeding is so challenging because of the neurological and physical development of the infant. The protective swallowing mechanisms and the physiologic, motor, and behavioral state systems are still developing. When feeders don't know how to observe and respond appropriately during feedings, infants can be exhausted, cough, choke, gag, experience decreases in heart rate and oxygen saturations, or shut down. By training feeders to not only see with new eyes, but to respond appropriately to the communication of the infant, the goal becomes supporting positive experiences within the current development of the infant. Additionally, a shared language and philosophy can be taught to the family who are the most important people in their infant's life and should be the primary feeders. What healthcare professionals teach, and model is what the parents learn. If parents are taught to ignore their infant's behaviors and to focus on the task of feeding enough volume, the challenges during feedings continue well after discharge. SOFFI® shifts the trajectory of feeding to develop a strong foundation for life-long eating.

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