



REFERENCES

Interventions to Support Homeostasis During Oral Feedings using SOFFI™ Erin Sundseth Ross, Ph.D., CCC-SLP

Timing: 224:45 minutes

This webinar uses the SOFFI™ Algorithms to provide a pathway to support infants during oral feedings. Evidence-based interventions to support oral feedings are provided in this webinar. Interventions include creating feeding plans, flow rate considerations, positioning, pacing, thickeners, and breast-feeding interventions.

OBJECTIVES:

- Identify at least one reported outcome of implementing feeding plans
- Identify at least two evidence-based interventions for bottle and/or breast feeding
- List at least two reasons why a feeding may be stopped
- Describe optimal alignment of head, body, extremities
- Discuss at least one benefit of side-lying positioning during feeding
- List the two types of pacing
- Describe how to correctly do regulated pacing
- Describe at least one danger of using thickeners with the premature population
- Identify at least two benefits of using human milk
- Describe at least two evidence-based interventions for breast feeding

AGENDA:

Part 1 – Making a feeding plan, collecting data: 0:00 - 11:05
Part 1 – Feeding plan case studies: 11:05 - 60:41
Part 2 – SOFFI™ Algorithms and how to use them: 60:41 – 75:05
Part 3 – Flow rate considerations from bottles and bottle systems: 75:05 – 82:45
Part 3 – Flow rate research summary: 82:45 – 93:38
Part 3 – Examples of variations in bottles that affect flow rate: 93:38 – 124:25
Part 4 – Positioning Considerations – Evidence: 124:25 - 133:15
Part 4 – Positioning Considerations – Alignment and Case Practice: 133:15 – 145:29
Part 5 – Pacing Considerations – Purpose: 145:29 – 153:09
Part 5 - Pacing Considerations – Regulated Pacing vs Rested Pacing: 153:09 – 163:30
Part 6 – Slowing the flow with thickeners – Differences infant/adult: 163:30 – 167:13
Part 6 – Slowing the flow with thickeners: 167:13 – 183:45
Part 7 - Breastfeeding supports – importance of human milk: 183:45 – 188:23
Part 7 – Breastfeeding supports – pacing at breast: 188:23 – 195:21
Part 7 – Breastfeeding supports – positioning at breast: 195:21 - 198:05
Part 7 – Breastfeeding supports – alternatives to bottle feeding: 198:05 – 203:33
Part 7 – Breastfeeding supports – pre- and post-test weighing, parental supports: 203:33 – 224:45

REFERENCES:

Almeida, M. B., J. A. Almeida, M. E. Moreira, and F. R. Novak. 2011. 'Adequacy of human milk viscosity to respond to infants with dysphagia: experimental study', *J Appl Oral Sci*, 19: 554-9.

- Briere, C. E., J. McGrath, X. Cong, and R. Cusson. 2014. 'An integrative review of factors that influence breastfeeding duration for premature infants after NICU hospitalization', *J Obstet Gynecol Neonatal Nurs*, 43: 272-81.
- Brown, L. F., K. A. Pridham, and R. Brown. 2014. 'Sequential observation of infant regulated and dysregulated behavior following soothing and stimulating maternal behavior during feeding', *J Spec Pediatr Nurs*.
- Browne, et al., 2020. "The Report of the First Consensus Conference on Standards, Competencies and Best Practices for Infant and Family Centered Developmental Care in the Intensive Care Unit." www.nicudesign.nd.edu/nicu-care-standards/
- Cichero, J., T. Nicholson, and P. Dodrill. 2011. 'Liquid barium is not representative of infant formula: characterisation of rheological and material properties', *Dysphagia*, 26: 264-71.
- Clark, L., G. Kennedy, T. Pring, and M. Hird. 2007. 'Improving bottle feeding in preterm infants: investigating the elevated side-lying position', *Infant*, 3.
- Dawson, J. A., et al. (2013). "A randomised trial of two techniques for bottle feeding preterm infants." *J Paediatr Child Health* 49(6): 462-466.
- Dowling, D. A. 1999. 'Physiological responses of preterm infants to breast-feeding and bottle-feeding with the orthodontic nipple', *Nurs Res*, 48: 78-85.
- Edwards, D., E. Mayfield, and M. Simon. 2012. 'Feeding Considerations in Infants with Bronchopulmonary Dysplasia', *Perspectives in Swallowing and Swallowing Disorders (Dysphagia)*, 21: 135-42.
- ESPGHAN. 2013. 'Donor Human Milk for Preterm Infants: Current Evidence and Research Directions', *J Pediatr Gastroenterol Nutr*, 57: 535-42.
- Fewtrell, M. S., K. Kennedy, R. Nicholl, A. Khakoo, and A. Lucas. 2012. 'Infant feeding bottle design, growth and behaviour: results from a randomised trial', *BMC Res Notes*, 5: 150.
- Fuhrman, L. and E. S. Ross (2019). "Foundations for Successful Feeding Post Hospital Discharge." *American Journal of Maternal/Child Nursing*.
- Fujinaga, C. I., S. A. de Moraes, N. E. Zamberlan-Amorim, T. C. Castral, A. de Almeida e Silva, and C. G. Scochi. 2013. 'Clinical validation of the Preterm Oral Feeding Readiness Assessment Scale', *Rev Lat Am Enfermagem*, 21 Spec No: 140-5.
- Girgin, B. A., D. Gozen, and G. Karatekin. 2018. 'Effects of two different feeding positions on physiological characteristics and feeding performance of preterm infants: A randomized controlled trial', *J Spec Pediatr Nurs*.
- Glover, R. and D. Wiessinger (2013). They can do it, you can help: Building breastfeeding skill and confidence in mother and helper. *Supporting sucking skills in breastfeeding infants* C. W. Genna. Burlington, MA, Jones & Bartlett: 105-148.
- Goldfield, E. C., M. J. Richardson, K. G. Lee, and S. Margetts. 2006. 'Coordination of sucking, swallowing, and breathing and oxygen saturation during early infant breast-feeding and bottle-feeding', *Pediatr Res*, 60: 450-5.
- Gomes, C. F., et al. (2013). "Surface Electromyography in Premature Infants: A Series of Case Reports and Their Methodological Aspects." *Indian J Pediatr* 81(8): 755-759.
- Gosa, M. M., and M.R. Corkins. 2015. 'Necrotizing Enterocolitis and the Use of Thickened Liquids for Infants with Dysphagia', *Perspectives in Swallowing and Swallowing Disorders*, 24: 44-49.
- Gosa, M. M., T. Schooling, and J. Coleman. 2011. 'Thickening Liquids as a Treatment for Children with Dysphagia and Associated Adverse Effects: A Systematic Review', *ICAN: Infant, Child, & Adolescent Nutrition*, 3: 344-50.
- Hill, R. J., P. Dodrill, L. J. Bluck, and P. S. Davies. 2010. 'A novel stable isotope approach for determining the impact of thickening agents on water absorption', *Dysphagia*, 25: 1-5.
- Horta, B. L., C. Loret de Mola, and C. G. Victora. 2015. 'Breastfeeding and intelligence: a systematic review and meta-analysis', *Acta Paediatr*, 104: 14-9.

- Huang, R. C., D. A. Forbes, and M. W. Davies. 2002. 'Feed thickener for newborn infants with gastro-oesophageal reflux', *Cochrane Database Syst Rev*: CD003211.
- Jackman, K.T. 2013. 'Go with the Flow: Choosing a Feeding System for Infants in the Neonatal Intensive Care Unit and Beyond Based on Flow Performance', *Newborn & Infant Nursing Reviews*, 13: 31-34.
- Jadcherla, S. R., J. Dail, M. B. Malkar, R. McClead, K. Kelleher, and L. Nelin. 2015. 'Impact of Process Optimization and Quality Improvement Measures on Neonatal Feeding Outcomes at an All-Referral Neonatal Intensive Care Unit', *JPEN J Parenter Enteral Nutr*.
- Jadcherla, S. R., J. Peng, R. Moore, J. Saavedra, E. Shepherd, S. Fernandez, S. H. Erdman, and C. DiLorenzo. 2012. 'Impact of personalized feeding program in 100 NICU infants: pathophysiology-based approach for better outcomes', *J Pediatr Gastroenterol Nutr*, 54: 62-70.
- Jenni, O. G., K. von Siebenthal, M. Wolf, M. Keel, G. Duc, and H. U. Bucher. 1997. 'Effect of nursing in the head elevated tilt position (15 degrees) on the incidence of bradycardic and hypoxemic episodes in preterm infants', *Pediatrics*, 100: 622-5.
- Jones, K. 2008. 'The effect of positioning on the transition from tube to oral feeding in preterm infants: A pilot study', *Arch Dis Child Fetal Neonatal Ed*, 93: Fa80.
- Lau, C. , and R. J. Schanler. 2000. 'Oral feeding in premature infants: advantage of a self-paced milk flow', *Acta Paediatr*, 89: 453-9.
- Law-Morstatt, L., D. M. Judd, P. Snyder, R. J. Baier, and R. Dhanireddy. 2003. 'Pacing as a treatment technique for transitional sucking patterns', *J Perinatol*, 23: 483-8.
- Lennon, M. 2011. 'Improving In-Hospital Breastfeeding Management for the Late Preterm Infant', *Neonatal Intensive Care*, 24: 18-21.
- Lucas, R. F., and R. L. Smith. 2015. 'When is it safe to initiate breastfeeding for preterm infants?', *Adv Neonatal Care*, 15: 134-41.
- Mahurin-Smith, J., and C.W. Genna. 2018. 'Assisting the Breastfeeding Dyad: A Guide for Speech-Language Pathologists', *Perspectives of the ASHA Special Interest Groups SIG 13*, 3: 47-57.
- Meier, P. P. , T. Y. Lysakowski, J. L. Engstrom, K. L. Kavanaugh, and H. H. Mangurten. 1990. 'The accuracy of test weighing for preterm infants', *J Pediatr Gastroenterol Nutr*, 10: 62-5.
- Meier, P. P., J. L. Engstrom, A. L. Patel, B. J. Jegier, and N. E. Bruns. 2010. 'Improving the use of human milk during and after the NICU stay', *Clin Perinatol*, 37: 217-45.
- Mizuno, K. , A. Ueda, and T. Takeuchi. 2002. 'Effects of Different Fluids on the Relationship between Swallowing and Breathing during Nutritive Sucking in Neonates', *Biol Neonate*, 81: 45-50.
- Nyqvist, K. H., A. P. Haggkvist, M. N. Hansen, E. Kylberg, A. L. Frandsen, R. Maastrup, A. Ezeonodo, L. Hannula, and L. N. Haiek. 2013. 'Expansion of the baby-friendly hospital initiative ten steps to successful breastfeeding into neonatal intensive care: expert group recommendations', *J Hum Lact*, 29: 300-9.
- Nyqvist, K. H., C. Rubertsson, U. Ewald, and P. O. Sjoden. 1996. 'Development of the Preterm Infant Breastfeeding Behavior Scale (PIBBS): a study of nurse-mother agreement', *J Hum Lact*, 12: 207-19.
- Pados, B. F., J. Park, and P. Dodrill. 2018. 'Know the Flow: Milk Flow Rates From Bottle Nipples Used in the Hospital and After Discharge', *Adv Neonatal Care*.
- Pados, B. F., J. Park, S. M. Thoyre, H. Estrem, and W. B. Nix. 2015. 'Milk Flow Rates From Bottle Nipples Used for Feeding Infants Who Are Hospitalized', *Am J Speech Lang Pathol*, 24: 671-9.
- Pados, B.G., et al. 2016. 'Milk Flow Rates from bottle nipples used after hospital discharge', *MCN Am J Matern Child Nurs*, 41: 237-43.
- Park, J., et al. (2019). "Standard Recipes for the Preparation of Thickened Barium Liquids Used in the Diagnosis of Dysphagia." *Clin Nutr Res* 8(4): 265-271.
- Park, J., S. Thoyre, G. J. Knafl, E. A. Hodges, and W. B. Nix. 2014. 'Efficacy of semielevated side-lying positioning during bottle-feeding of very preterm infants: a pilot study', *J Perinat Neonatal Nurs*, 28: 69-79.
- Park, J., et al. (2018). "Systematic Review: What Is the Evidence for the Side-Lying Position for Feeding Preterm Infants?" *Adv Neonatal Care* 18(4): 285-294.

- Pickler, R. H., J. M. McGrath, B. A. Reyna, N. McCain, M. Lewis, S. Cone, P. Wetzel, and A. Best. 2010. 'A model of neurodevelopmental risk and protection for preterm infants', *J Perinat Neonatal Nurs*, 24: 356-65.
- Pickler, R. H., B. A. Reyna, J. B. Griffin, M. Lewis, and A. M. Thompson. 2012. 'Changes in Oral Feeding in Preterm Infants Two Weeks After Hospital Discharge', *Newborn Infant Nurs Rev*, 12: 202-06.
- Pineda, R. G. 2011. 'Predictors of breastfeeding and breastmilk feeding among very low birth weight infants', *Breastfeed Med*, 6: 15-9.
- Raczynska, A. and E. Gulczynska (2019). "The impact of positioning on bottle-feeding in preterm infants ($\leq$ 34 GA). A comparative study of the semi-elevated and the side-lying position - a pilot study." *Dev Period Med* **23**(2): 117-124.
- Segami, Y., K. Mizuno, M. Taki, and K. Itabashi. 2013. 'Perioral movements and sucking pattern during bottle feeding with a novel, experimental teat are similar to breastfeeding', *J Perinatol*, 33: 319-23.
- Simmer, K., C. Kok, K. Nancarrow, A. R. Hepworth, and D. T. Geddes. 2016. 'Novel feeding system to promote establishment of breastfeeds after preterm birth: a randomized controlled trial', *J Perinatol*, 36: 210-5.
- Suskind, D. L., D. M. Thompson, M. Gulati, P. Huddleston, D. C. Liu, and F. M. Barody. 2006. 'Improved infant swallowing after gastroesophageal reflux disease treatment: a function of improved laryngeal sensation?', *Laryngoscope*, 116: 1397-403.
- Woods, C. W., T. Oliver, K. Lewis, and Q. Yang. 2012. 'Development of necrotizing enterocolitis in premature infants receiving thickened feeds using SimplyThick(R)', *J Perinatol*, 32: 150-2.
- Yilmaz, G., N. Caylan, C. D. Karacan, I. Bodur, and G. Gokcay. 2014. 'Effect of Cup Feeding and Bottle Feeding on Breastfeeding in Late Preterm Infants: A Randomized Controlled Study', *J Hum Lact*, 30: 174-9.