

# Supporting Intubated Infants: A New, Specialized Solution for Non-Nutritive Sucking

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Non-nutritive sucking (NNS) is a reflex which infants begin to develop very early in the gestational period, around 15 weeks into pregnancy. NNS in the neonate is a primitive reflex that is predictable and rhythmical; a fundamental infant skill that is important for oral feeding and self-regulation.<sup>1,3</sup> It is an involuntary response elicited when a tactile input is given in or around the mouth, resulting in the infant closing the mouth around the stimulus, developing an intraoral pressure system, and engaging in rhythmical compression and suction on the stimulus.<sup>2</sup> The usage of a pacifier in the early days/weeks after birth is a critical way to augment this reflex. NNS plays a vital role in the growth and development of an infant. Its many physiological benefits include development of sucking behaviors, improved digestion of feeds, creating a positive oral experience, pain relief, and its use may decrease length of hospital stay.

Many preterm infants have respiratory issues, including respiratory distress syndrome (RDS) and chronic lung disease (CLD) that require oxygen supplementation ranging from a few days to several months during hospitalization in the NICU. Ororhythmic pattern development for suck may be disrupted in these infants who are routinely subjected to abnormal tactile stimulation of sensitive peri-oral and intra-oral tissues during extended periods of intubation and cannulation. Trussing the lower face and nostrils with tubes and tape also restricts the range and type of oral movements. In animal models, the combination of sensory deprivation and motor restriction has been shown to disrupt the development of sensorimotor areas of the brain, including motor cortex and cerebellum. This is consistent with the notion of a critical period during late gestation and early

postnatal life, when manipulation of the trigeminal sensory field to treat RDS may significantly alter the structure and function of the developing brain, delay attainment of oromotor skills such as NNS, and may negatively impact the transition to oral feeds.<sup>5</sup>

An infant's sucking behaviors may widely vary throughout growth. NNS can be affected by preterm birth. Preterm infants may not have the muscle strength necessary to successfully suck.<sup>2</sup> Developing strong sucking patterns depend on NNS, and tools like pacifiers help the infant practice these sucking skills directly after birth.

NNS helps improve the way that the infant ultimately feeds and accordingly improves digestion. Effective NNS interventions not only decrease the incidence of adverse events like oxygen desaturation, apnea, and bradycardia but may also lessen long-term issues such as feeding or eating aversion.<sup>4</sup> Several enzymes/hormones have been implicated in the facilitation of digestion through NNS: lingual lipase, gastrin, insulin, and motilin. Experts believe that NNS stimulates the secretion of these enzymes/hormones through vagal innervation in the oral mucosa.<sup>6</sup> Evidence suggests that providing non-nutritive sucking opportunities to premature infants during gavage feeding may have beneficial effects on oxygen saturation, gastrointestinal function, growth, and development. NNS use has also been linked to improving the initiation and duration of the first nutritive suck, enhancing weight gain and reducing transition time between gavage and oral feeding.<sup>6</sup>

NNS creates a positive oral experience for the infant. NNS is one of infants' first methods of self-organization and self-soothing. Particularly with a pacifier, NNS is believed to have a calming effect on infants and is commonly used as a non-pharmacological intervention in nurseries and neonatal intensive care units.<sup>6</sup> The data indicates that oral sucrose combined with NNS generates a more effective synergistic effect than either of these interventions alone.<sup>5</sup> When NNS and the usage of other pain reducing agents come together, infant pain and anxiety can be greatly reduced.

Study findings by Pineda et al consistently revealed that infants who had increased length of time on a mechanical ventilator or other respiratory supports had reduced NNS

performance.<sup>2</sup> These critical infants do not have the tools to gain the skill, comfort and stability they so desperately need. Drawing on 20 years of clinical experience observing pacifiers modified for this specific patient population, WarriorNP developed **Numi™**, a breakthrough pacifier specifically engineered for intubated infants. Supporting NNS even during endotracheal intubation, Numi's™ innovative design fits comfortably under the endotracheal tube, keeping it midline and secure without compromising infant comfort. Crafted from BPA-free, medical-grade silicone, Numi™ is soft, flexible, and safe—offering soothing comfort and essential oral motor stimulation from the earliest moments of life. By reducing discomfort and helping prevent oral aversion, Numi™ supports the healthy development of sucking patterns and promotes positive oral experiences for even the most medically fragile newborns. With Numi™, babies can experience the benefits of NNS—no matter their medical condition. Numi™ is available in 2 sizes, for all warriors big and small. Please visit [www.warriornp.com/numi-nicu-pacifier](http://www.warriornp.com/numi-nicu-pacifier) for your free sample.



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