NTrainer Treatment Reduces Suck Spatiotemporal Variability in Preterm Infants

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The purpose of this study was to determine the spatiotemporal stability of non-nutritive suck (NNS) pressure trajectories in preterm infants who received NTrainer oromotor therapy. Candidates for NTrainer therapy demonstrated minimal NNS output and delayed transition-to-oral feeds. The NTrainer has been shown to promote NNS output by providing patterned somatosensory stimulation through a silicone pacifier, mimicking the temporal organization of suck. Infants' NNS pressure signals were digitized cribside in the neonatal intensive care unit before and after NTrainer therapy (mean interval = 2.75 weeks) and compared to matched controls. NNS motor pattern stability was calculated based on time- and amplitude-normalized digital representations of the suck pressure signal, producing a single quantitative value termed the non-nutritive suck spatiotemporal index (NNS STI). A Multilevel Regression Analysis revealed a significant interaction effect for treatment and pre/post measures ($p < .01$), indicating that while all infants who qualified for NTrainer therapy started with similar NNS STI scores, only treated infants demonstrated significant improvements in oromotor spatiotemporal stability. Thus, NNS STI represents an objective measure of ororhythmic pattern formation in preterm infants at risk for oromotor dysfunction and can be used to objectively gauge the emergence of functional suck.