

Infant Massage in the NICU (Neo-Natal Intensive Care Unit) - by Lisa Bader

As an occupational therapist and CEIM working in a NICU, my job may be quite different from many CEIMs around the world. I wanted to share with you some insight into the world of premature infants and specifically what infant massage looks like in the NICU.

It is first important to have a basic understanding of the preemie brain. The brain of a premature infant is quite different from that of a full term infant. In 2003, a study revealed what had been suspected for years. The MRI of 260 babies born more than 10 weeks early and weighing less than 1250 grams were compared with those of full term infants. The premature babies had 30% less gray matter (the brain's thinking cells) than full term babies and 40% less white matter (connections) (Dunn, 2003). We also know that the brain of infants in the last trimester of pregnancy is wiring at 40,000 connections per minute! Furthermore, the infant's brain at 35 weeks weighs only two-thirds of what it will weigh at 40 weeks (Engle et al., 2007). In the third trimester, the progress in brain development depends upon experiences in the womb-or NICU in the case of premature babies (Graven, 2007). Nurses, parents, therapists, and doctors need to understand that they are affecting the infant's brain development with each and every interaction in the NICU. It is everyone's job to create adaptive responses versus maladaptive responses in the brain. In the NICU, protection of the developing brain from environmental insults and noxious stimuli is critical. This concept, called neuroprotection, is not new to the medical world but is a fairly new idea to the NICU. Neuroprotection encompasses all interventions that promote normal development of the brain and prevent disabilities.

Treatments such as infant massage, kangaroo care, and developmental care have PROVEN to be effective in promoting cognitive development. We begin portions of infant massage early on in the NICU, normally around 29-30 weeks estimated gestational age. Infant massage is considered a "positive touch treatment" in the NICU world. Positive touch is important because premature infants are exposed to an array of negative sensory experiences on any given day. A study by Carbajal et al., (2006), showed that over a 2 week period, 431 neonates experienced 30,174 painful procedures. Interestingly, 56% of heel sticks had no intervention. Another study

of 14 NICU's in Canada over a one week period showed that 46% of invasive procedures had no intervention (Johnston, 1997). The negative sensory input these infants experience can be "buffered" by positive sensory input. Parents are taught to massage their infant's foot at least once a day. In this way, and on a neurological level, the infant learns that "every time my foot is touched, it is not a negative experience" By simply pressing all over the foot and heel, the infant is experiencing positive sensory input, the brain is "wiring" in an adaptive versus maladaptive way, and the infant is less likely to walk on his tiptoes or refuse to wear shoes as a toddler.

We also instruct parents to initiate positive touch to the face and mouth as these infants are at a high risk of developing food aversions later on. They are taught to begin by bringing the infant's own hand to his mouth and touching around the mouth. They are later instructed to complete the face portion of infant massage, starting with two or three of each stroke and working up to six or eight strokes of each as the infant tolerates it. Again, all touch is slow and firm and it is imperative to watch the infant's cues. If an infant shows avoidance cues such as finger splaying, hiccups, gagging, a change in color or muscle tone, for example, the touch or massage must be stopped. The infant must be helped to decrease stress and reorganize himself.

Infant massage in its entirety is often not completed until the infant is 35-37 weeks of age depending on the difficulty of the infant's NICU course. Parents are usually instructed on a one to one basis by the CEIM in the NICU. They complete the massage with oil following therapist instruction and handouts. In our NICU, an infant massage class is offered twice a month and parents learn about all of the benefits of infant massage and learn all the strokes on a doll. Individual session times are then scheduled once the baby can tolerate a full massage.

Infant massage is not only critical to these babies' neuromotor and cognitive development, but also their emotional development. Parents are thrilled to be empowered very early on in the NICU stay to positively influence their baby's outcome. My job as an Occupational Therapist in the NICU has been made so much more meaningful since becoming a Certified Educator of Infant Massage.