

## Music and Brain Research

While the human brain is still a mystery, in the last 10 years much has been discovered about the growing brain of the human baby and young child.

This research suggests that healthy babies are born ready to learn.

The brain of a child between birth and 3 years has a greatly higher metabolic rate and is two and a half times more active than an adult brain. At birth all the neurons are present to provide a framework for the brain. It is through a process of "myelination" that synapses grow and connections between neurons are formed.

This only occurs as a baby responds to outside stimulation, usually as they interact with an interested carer. Babies' responses create and reinforce brain growth: a greater number of responses means greater stabilization of connections.

As we cuddle, talk and sing to a baby (thus encouraging their pleasurable response) we are contributing to brain growth.

Researchers speak about windows of opportunity for learning, referring to the fact that different parts of the brain are genetically programmed to achieve myelination at different stages in a baby's early brain development. If these developmental opportunities are missed it is harder to achieve these milestones later. We might see this same principle if we try to learn a new language as an adult. It is not an impossible task but significantly more difficult to forge the new brain pathways needed than it would be if we were learning that new language as a young child when the brain offers multiple pathways for language learning.

Opportunities to experience music through speech, song and movement must be available, frequent and enjoyable to create a rich environment. A rich environment results in more brain connections and ensures that critical periods for brain development are not missed