

# Development of Human Potential

## Encouraging infant intelligence prenatally and postnatally

Music, it warms the heart and soothes the soul, perhaps even stimulates the mind. Recent research is now indicating that certain music can stimulate the cognitive part of the brain, especially high frequencies like the high violin parts of Mozart. It also can reduce stress and bring the body into a harmony with thinking patterns, says Don Campbell, classical musician, composer and author of many books on music and healing.

There is even evidence that suggests music and dance may have preceded speech, which means that music and song may have been humanity's first language. The drums chanted in wartime battle and rattled in ceremonies such as weddings or harvesting. People respond to and are uplifted by all different forms of music from rap and jazz to country and classical.

However, there is one form of music research has only recently discovered that has the most profound effects on our mood and thought processes and can conceivably foster good health, higher IQ's and general well being. Classical music seems to impart balance and crispness, which brings an array of emotion to our inner self. In his short life Wolfgang Amadeus Mozart (1756 to 1791), a child prodigy who wrote operas and symphonies before the age of twelve, seems above all others to implore this unique gift of power, energy, and nurturing quality. In an interview in 1829, the then 64-year-old widow Constanze Mozart stated that Mozart's Quartet in D minor (K 421/417b) was written during the labor of her first pregnancy of six. She states that his mind was always composing, even during the precious moments before the birth of his son. Some hospitals are now implementing music during labor and birth. They have found this to be beneficial for the patient, her significant other, and the hospital staff.

Let's explore why scientists believe music has this ability to heal. Hans Jenny, a Swiss engineer and doctor describes the science of how sound and vibration interacts with matter. Vibrating sounds form patterns and create energy fields of resonance and movement in the surrounding space. We absorb these energies and they subtly alter our breathing, pulse, blood pressure, muscle tension, skin temperature, and other internal rhythms. In the medical arena, it has even been recommended that music can be instrumental in a patient's recovery time from surgery with fewer complications, reduced number of days spent in the hospital, and a more positive response to coping with future medical problems.

## Recent Research

A study in 1995 showed that music had a positive effect on premature infants in one newborn intensive care unit. The research study involved 20 oxygenated low birth weight infants. Ten infants listened to lullabies and 10 to recordings of their mother's voice. The infant's hearing music had significantly fewer occurrences of oximeter alarms (these are alarms that ring if the baby's oxygen saturation has dropped in his blood) during auditory stimulation than did those listening to the mother's voice. F. Rene Van de Carr, M.D. and Marc Lehrer, Ph.D., (While You Are Expecting Your Own Prenatal Classroom), conclude that growth hormone increased specifically in the brain areas they stimulated with music. "When we play musical notes, we stimulate neural growth factor in the brain region for music. And when the baby learns to kick three, four and five times, we stimulate the neural growth in the brain region for math." The University of South California Woman's hospital conducted a study on how outside influences, like sound, affected the fetus. Researchers observed an increase in a fetus's heart rate in the presence of music. A fetus also has the ability to respond to bright light, suggesting that learning may begin before birth.

Dr. Susan Ludington-Hoe, Founder of the Infant Stimulation Education Association at the University of California Los Angeles states that "while listening to music, the baby will also be responding to the music and will feel soothed and comforted." She believes that this is true because the beat of the music is similar to that of the mother's heartbeat. She concludes, the classical music of Mozart and Chopin seems to be especially soothing.

The most recent research published in the July 1998 issue of Neurological Research is the result of an experiment led by Dr. Frances Rauscher of the University of Wisconsin. As a follow-up to her other studies suggesting that music enhances spatial reasoning ability, she exposed rats to either complex music (Mozart), minimalist music (a Philip Glass composition), white noise or silence while in utero plus 60 days postpartum. The rats were then tested in a multiple T-maze. By day 3 the rats exposed to Mozart completed the maze more rapidly and with fewer errors than the rats assigned to the other groups. This and the host of other recent studies may show a causal relationship that early experiences determine which brain cells (neurons) will connect with other brain cells, and which ones will die away. Dr. Rauscher's study possibly indicates that music training generates the neural connections used for abstract reasoning, helpful for understanding mathematical concepts. Clearly, this research is in its infancy and more studies need to be done before one can emphatically state that listening to Mozart, nicknamed the "Mozart effect", by musician/composer Don Campbell is the magic bullet so touted by scientists.

## Personal Experiences

Especially true in early learning, even perhaps from before birth through early childhood when the brain is so vulnerable to enriching experiences that will mold the child into adulthood, we as parents should encourage a vast medium of music and activities to foster this cognitive development. Parents must be cognizant that just playing classical music is not going to make their children grow up to be brain surgeons. Their goals must be realistic and must include many different types of stimulation to encourage a well rounded, adjusted child. Talk to your babies more, read to them, hold them and love them more, and definitely play beautiful music for them. In my own experience with three-week-old twins, I play Mozart for them, albeit I can't resist the lovely Canon in D by Pachelbel! Nor can I resist the musical splendor of the great opera star Andrea Bocelli.

While the jury is still out whether classical music projects the promise of higher IQ's, increased emotional and spatial intelligence and better intuitive thinking processes, one thing is for certain, it does influence the maternal aspects of parenting. Beautiful, refined music uplifts me, it influences my thoughts, and brings me a sense of gratitude every time I look at and hold my precious bundles of joy. Perhaps when parents feel less stress and distraction from the world, babies are calmer and can sense security in those that care for them. What's the baby's reaction to music? If we are listening to opera or classical music during a feeding session, they will usually stop sucking, and open their eyes widely as if to be in heavy concentration, especially during the high notes or frequencies within each musical piece. Music can even put them to sleep, providing of course, they have a full stomach. I find that whatever the musical selection I play, it is most effective if the volume is low. Loud music hurts young ears.

In such a world as we live, with all the outside chaos, unfiltered noise, and stress, music can indeed be calming for young children as well as adults, and what an added bonus if it makes us smarter too!