

The Art of Music and the Art of Medicine

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Music can be the sound of the human body and mind moving in different ways.

Newborns are apt for a human cultural invention, similar to birds that are ready to fly as soon as they are born. This invention is art; it is music as it is the art that combines sounds of voices and instruments that have emotional expressions in common. Therefore, it can be said that the child is born in a process of development and maturation of the only art present at birth: music. Listening to music stimulates the temporal cortex of the right hemisphere in children. Moreover, if we add the human voice to the sounds of one or more instruments, the stimulation also spreads to the left hemisphere, encompassing the left temporal cortex and the oculo-frontal cortex, the latter being the site of the expansion of emotions. Therefore, it seems to be clear that opera is the ideal pattern of brain stimulation. Brain stimulation starts in utero at about 20 weeks of gestation, continues through birth, and expands later through the first and second stages of infancy. Brain stimulation leads to the recognition of the color and variety of the opera in both cerebral hemispheres.

A study using Doppler echography on the fetal middle cerebral artery allows, through data analysis, to separate the effect of high-pitched sounds that cause vasoconstriction, from low-pitched sounds that are likely to cause vasodilation. Other studies, using magnetic resonance imaging, have shown that timbre preferentially stimulates the right hemisphere, while rhythm is the preferential stimulant of the temporal cortex of the left hemisphere.

The development of music in children results from the interaction of the genetic code with environmental learning. Rossini, born in Pesaro, Italy, played a percussion instrument in the orchestra of his father at the age of six and later a trumpet. After his father was arrested, he moved with his mother, an opera singer, to Bologna where he received musical lessons from the best teachers in the city. At the age of 12, Rossini started composing, debuting his first opera in Venice at

the age of 18. The Barber of Seville, the work that made him known to the world, was presented in Rome when Rossini was 22 years old.

The fetus retains information, creating engravings and musical memories in brain structures, and developing neuronal networks that undergo maturation at birth and later during the first and second stages of childhood. Experiments carried out in neonatal intensive care units have revealed the advantage of using lullaby music in preterm infants, including an increase in the sucking reflex, a decrease in the heart rate, and a promotion of well-being that manifests itself in a decrease in cortisol. It is between 20 and 25 weeks that the fetus begins to react to the mother's pulse and breathing as well as voice and steps, developing rhythm, timbre, tonality, harmony, and properties of music that were present at birth. Later, in early and late childhood, music becomes essential for the improvement of cognition, learning, and attention. The complementary effects of music in intensive care units are well known, such as the reduction of pain, facilitation of the recovery of health, and decrease in hospitalization time and the amount of medication.

Art of music is the ideal companion for the art of medicine as it teaches how to listen and understand the emotions of patients; especially at a time when new technologies and digital evolution separate medicine from art, increasing its distance from the patient who might become closer to the disease. The provision of telemedicine consultations follows the same path, where the patient is less necessary to be labeled and treated. Music should be remembered as a complement to the art of medicine by parents with children to educate. They should choose music for their children to practice in their spare time as an important aspect of life, not as a ritual to entertain them and show to their friends.

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