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Research and Extension

Building Baby's Brain

The Role of Music

Music has a powerful effect on our emotions. A quiet, gentle lullaby can soothe a fussy baby, and a majestic chorus can make us swell with excitement. But music also can affect the way we think.

In recent years, researchers have learned a lot about how the brain develops. Babies are born with billions of brain cells, called neurons. During the first years of life, those neurons form connections with other neurons. Over time, the connections our brains use regularly become stronger.

Children who grow up listening to music develop strong music-related connections in the brain. Some of these music pathways actually affect the way we think. Listening to classical music seems to improve our spatial reasoning, at least for a short time. And learning to play an instrument may have an even longer effect on certain thinking skills.

➤ Does Music Make Us Smarter?

Not exactly. Music seems to prime our brains for certain kinds of thinking. After listening to classical music, adults can do certain spatial tasks more quickly, such as putting together a jigsaw puzzle.

Why does this happen? The classical music pathways in our brain are similar to the pathways we use for spatial reasoning. When we listen to classical music, the spatial pathways are "turned on" and ready to be used. This priming makes it easier to work a puzzle quickly. But the effect lasts only a short time. Our improved spatial skills fade within about an hour after we stop listening to the music.

Learning to play an instrument can have longer-lasting effects on spatial reasoning, however. In several studies, children who took piano lessons for six months improved their ability to work puzzles and solve their other spatial tasks by as much as 30 percent. Why does playing an instrument make such a difference? Researchers believe that musical training creates new pathways in the brain.

➤ Why Classical Music?

The music most people call "classical" — works by composers such as Bach, Beethoven or Mozart — is different from other types of music such as rock and country. Classical music has a more complex musical structure. Babies as young as 3 months can pick out that structure and even recognize classical music selections they have heard before.

Researchers think the complexity of classical music is what primes the brain to solve spatial problems more quickly. So listening to classical music may have different effects on the brain than listening to other types of music.

This doesn't mean that other types of music aren't good. Listening to any kind of music helps build music-related pathways in the brain. And music can have positive effects on our moods that may make learning easier.

➤ What Can You Do?

Parents and child care providers can help nurture children's love of music beginning in infancy. Here are some ideas:

- ***Play music for your baby.*** Expose your baby to many different musical selections of various styles. If you play an instrument, practice when your baby is nearby, but keep the volume moderate. Loud music can damage a baby's hearing.
- ***Sing to your baby.*** It doesn't matter how well you sing. Hearing you sing helps your baby begin to learn language. Babies love the patterns and rhythms of songs. And even young babies can recognize specific melodies once they've heard them.
- ***Sing with your child.*** As children grow, they may enjoy singing with you. Setting words to music actually helps the brain learn them more quickly and retain them longer. That's why we remember the lyrics of songs we sang as children, even if we haven't heard them in years.
- ***Start music lessons early.*** If you want your child to learn an instrument, you don't need to wait until elementary school to begin lessons. Young children's developing brains are equipped to learn music. Most 4- and 5-year-olds enjoy making music and can learn the basics of some instruments. And starting lessons early helps children build a lifelong love of music.

- ***Encourage your child's school to teach music.*** Singing helps stimulate the brain, at least briefly. Over time, music education as a part of school can help build skills such as coordination and creativity. And learning music helps your child become a well-rounded person.

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