

This is your child's brain on music

BY MISTY HARRIS, POSTMEDIA NEWS JULY 22, 2010



Kids' brain power, it turns out, is radically better boosted by learning to play music than just listening to it, according to a report published this week in the journal *Nature Reviews Neuroscience*.
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Parents, step away from the Mozart MP3s.

Kids' brain power, it turns out, is radically better boosted by learning to play music than just listening to it, according to a report published this week in the journal *Nature Reviews Neuroscience*.

Researchers at Northwestern University in Illinois find overwhelming evidence that musical training enhances the brain's adaptive abilities, priming the nervous system for improved language acquisition, speech, memory, attention span and vocal emotion.

In other words, unlike the transient "Mozart effect," which in the mid-90s had parents thinking symphonic CDs were a gateway to baby Einsteins, active engagement with music physically changes neuroplasticity.

"Even kids who've had 20 minutes a day of music lessons — which isn't a whole lot — will, after a year, demonstrate changes in how their nervous system responds to sound, be it music or speech," says lead author Nina Kraus, professor of neurobiology and physiology at Northwestern.

"But these benefits are specific to individuals who've actively engaged in musical training. It's like with anything else, you don't get something for nothing."

Kraus's conclusions are the result of her own extensive research, as well as a "deep and careful review" of auditory science from around the world.

It's been discovered, for example, that musicians' heightened awareness of changes in pitch makes them more adept than non-musicians at learning new languages. This enhanced "neural activation" has also been found to make musical children more sensitive to changes in speech, helping with phonologic spelling and vocabulary.

Most notably, however, Kraus says playing an instrument teaches the brain to enhance relevant sounds in complex processes — a skill especially helpful to those with learning disabilities that make them vulnerable to background noise.

"Musicians are always pulling out melody and harmony lines, and the sound of their own instrument," says Kraus, also director of Northwestern's Auditory Neuroscience

Laboratory. "You can imagine how that would impact a child's ability to learn in a noisy classroom."

Musicologist Mary Ingraham calls the findings "extraordinary" and hopes they'll help change policy-makers' outlook on the arts, which in the U.S. and Canada are often among the first programs on the block when cuts come.

Ingraham suggests the most convincing argument in a "left brain, left brain, left brain" education system may be music's capacity to help kids cut through the informational clutter being thrown at them.

"It's about listening in the context of chaos," says Ingraham, associate professor of musicology at the University of Alberta. "Musicians have the ability to see both the forest and the trees, and maybe move more freely between the details and the big picture."

Although it's best to begin musical training during childhood, Kraus says it appears the physiological benefits can be experienced at any age.

Older people, for example, often assume their difficulty tuning into group conversations is due to peripheral hearing loss when, in fact, they may suffer from an auditory processing problem — something that music study could help resolve.

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