

Research Summaries Supporting the Value of Integrating Music for Learning
Guitars in the Classroom
February 1, 2015

Music is Good for the Brain: Nina Kraus, Ph.D.

Nina Kraus, Professor of Neurobiology & Physiology, Otolaryngology; Hugh Knowles Chair in the Department of Communication Sciences and Disorders at Northwestern University has long been researching the impact of music on infants, children and youth. Her studies, several supported by NAMM, reveal that sound and music dramatically influences language development. You'll find her wonderful work, presentations and videos here:

<http://brainvolts.northwestern.edu/>

Her work demonstrates that music can have a positive impact on the brain, which can also promote learning. "While more affluent students do better in school than children from lower income backgrounds, we are finding that musical training can alter the nervous system to create a better learner and help offset this academic gap." Dr. Kraus's substantial work has led her to conclude that music appears to remodel the brain to improve the connections between sounds and meaning, the process by which babies learn to speak. "Music automatically sharpens the nervous system's response to sounds." **Source: BBC Health-- <http://www.bbc.com/news/health-28703013> , April 8, 2014**

Music Improves the Brain: Dr. Aniruddh "Ani" Patel

Ani Patel, an associate professor of psychology at Tufts University and author of "[Music, Language, and the Brain](#)" says, "there's now a growing body of work that suggests that actually learning to play a musical instrument does have impacts on other abilities." These include speech perception, the ability to understand emotions in the voice and the ability to handle multiple tasks simultaneously. Here is a great lecture by Dr. Patel. <https://www.youtube.com/watch?v=ZqKFeuzGEns>

"If we know how and why music changes the brain in ways that affect other cognitive abilities," he says, "this could have a real impact on the value we put on it as an activity in the schools, not to mention all the impact it has on emotional development, emotional maturity, social skills, stick-to-itiveness, things we typically don't measure in school but which are hugely important in a child's ultimate success."

Music Can Help Develop Reading and Math Skills

Neuropsychologist Nadine Gaab says "There's a lot of evidence that if you play a musical instrument, especially if you start early in life, that you have better reading skills, better math skills, et cetera. The question is, what is the underlying mechanism?"

"There are a lot of different brain systems involved in successfully playing even a small musical piece: your auditory system, your motor system, your emotional system, your executive function system; this playing together of these brain regions, almost like in a musical ensemble." That level of precision in processing music, Patel says, is much higher than the level of precision used in processing speech. This means, he says, that developing our brains' musical networks may very well enhance our ability to process speech.

Patel further explains that brain plasticity results from experiences which engage the brain through emotion, are repetitive, and which require full attention. Experiences such as playing music. "So this idea," he says, "that music sometimes places higher demands on the brain, on some of the same shared networks that we use for other abilities, allows the music to actually enhance those networks, and those abilities benefit." **Source: WBUR CommonHealth Blog - <http://blogs.kqed.org/mindshift/2014/07/unpacking-the-science-how-playing-music-changes-the-learning-brain/>, Written by: By George Hicks**

Rhythm and Grammar are Partners in Language Development

In the study, Reyna Gordon, Ph.D. measured the grammar skills and music skills of 25 typically developing 6 year olds. While the two tests were different, Gordon found that children who performed well on the music skills test also did well on the grammar skills test. Musical experience, socio-economic backgrounds, or IQ did not matter. Gordon suggests that the similarities between the rhythms in music and the rhythms of language explain how children who did well on one test also did well on the other. According to the study, in grammar children's minds sort the sounds they hear into words, phrases, and sentences. The rhythm of language helps them to properly sort those sounds. In music, rhythmic sequences give structure to musical phrases and help listeners move to a steady beat.

<http://www.kindermusik.com/mindsonmusic/benefits-of-music/kids-tap-their-way-to-better-grammar/>