



The Power of Music

Rewiring the Brain Through Sound, Rhythm, and Performance.

In the Nov/Dec 2006 “From the Editor,” I told readers about an incredible experience I had as a young neurologist-in-training. I was making hospital rounds with Dr. John Hammerstad, my neurology professor, to see a man who had suffered a stroke that left him unable to speak. The man was frustrated and agitated as he labored to communicate with us. I was completely at a loss as to what to do. After I made several unsuccessful attempts at examining the patient, my wise professor smiled and suggested that we all sing “Happy Birthday.” I thought Dr. Hammerstad had lost his mind. But he began to sing and motioned for me to follow suit. Dr. Hammerstad then invited the man to join us, which he did. The patient smiled as he sang, and his tension visibly diminished.

That was my first introduction to the power of music as a therapeutic force. In this issue of *Neurology Now*, we are very fortunate to have the insights of “rock star” neurologist Oliver Sacks on the healing potential of music. He speaks of rhythm as a motivating force and recalls a particular song that helped him pull himself to safety when he injured his leg. My own children insist that their exercise sessions are enhanced when they listen to music. A ploy for upgraded iPods and iTunes gift cards? Interestingly, research findings support what they have learned by experience.

Dr. Sacks also says we tend to retain memories about things we are able to *do* long after we have lost memories of facts and experiences. When I took piano lessons in college, my piano teacher used to tell me to practice a piece until it became “hard wired.” My music classmates and I joked about needing to have better “motor memories” so we could play our instruments with more proficiency. But this phenomenon isn’t limited to musical performance: Any athlete will tell you that practicing a physical task over and over not only allows them to perform that task better; it also allows them to perform well without thinking about it. You may not consider yourself a musician

or an athlete, but if you have learned to ride a bicycle, you will understand what I am talking about.

Research using the newest brain-imaging methods confirms that changes occur in both brain activity and brain connections with the practice of many tasks, from playing piano to sports. I find the flexibility of the brain—something neuroscientists call “plasticity”—to be fascinating. Think of it: When you practice doing something, you are actually changing how your brain functions and altering the connections that are made between different brain areas! And because different functions sometimes share the same pathways, the mastery of one activity can help enhance the performance of another. That is the principle behind how singing—or as Dr. Sacks describes it, intonation therapy—might aid recovery for people who have lost the ability to speak. It is also the principle behind the theory that musical training in children might help enhance mathematical skills.

The good news is that work with older individuals and people with brain injury due to neurological diseases suggests that it is never too late to build or reinforce the networks in your brain. I’ve added piano practice to my list of New Year’s resolutions this year. I am very excited about this as an area of research because it allows all of us to be in control of improving our brain health in many different ways. If you have a story about how music—or learning a new skill of any kind—has helped you, we’d love to hear about it! Email us at neurologynow@lwwny.com. Thanks for sharing your time with us.



It’s never too late to strengthen the networks in your brain.

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