

HEALTH & FITNESS

- [FITNESS](#)
- [NUTRITION](#)
- [RELATIONSHIPS](#)
- [MIND MATTERS](#)
- [ALTERNATIVE HEALTH](#)

Music can tune up your brain

May 9, 2006 - 12:17PM

Parents who play Mozart for a baby - or a pregnant belly - with the long-range hope of a letter of acceptance to Harvard should know their project is futile.

On the other hand, exposing a child to great music - as a listener and as a player - will eventually pay off in increased smarts.

"Nothing activates as many areas of the brain as music," researcher Donald Hodges recently told an audience of University of Miami students and faculty.

On the screen above him, Hodges showed scans of the brain in the midst of musical activity. Both hemispheres were lit up, in Hodges' words, "like a pinball machine."

Hodges is Covington Distinguished Professor of Music Education and director of the Music Research Institute at the University of North Carolina at Greensboro. He was on campus as part of the Stamps Family Distinguished Visitors Series to share his findings on the relation of music to the brain.

And to answer a question that has been floating around both scholarly and popular culture for a while: Does music make you smarter?

"The answer is 'no' in a superficial sense," Hodges said. In 1993, experimenters claimed that listening to a Mozart sonata would make your IQ increase by eight points. Subsequent work, Hodges explained, proved that such listening would sharpen a subject's spatial-temporal relationships momentarily. After a short while, the subject would go back to being just smart as before. Or dumb.

But, he explained, a rich environment makes a difference: "The brain: Use it or lose it. The more education you have, the more the interconnections in the brain. Music changes the brain."

Admitting that this research moves at a slow pace - it is prohibitively expensive - Hodges outlined some major findings:

- Disproving earlier assumptions that musical activity takes place in the right hemisphere of the brain, the activity occurs with equal vigour in the left - or rational - hemisphere. Music is an emotional and intellectual activity that engages all the brain. Almost.

- During performance, there is almost no activity in the frontal lobe, where conscious thought takes place. When Yo-Yo Ma is playing his cello in concert he's not thinking, Hodges argued. All the thought took place earlier and if he were to think now it would impede his playing. He is

simply performing, much like a highly trained athlete.

- "Music is always a physical activity," Hodges said. "Musicians are small-muscle athletes." And not just the performer. A listener sitting still in a classical concert hall is having the area of the brain that controls motion stimulated. Thus, that convention - not moving during classical performances - is unnatural.

Hodges learned how the brain reacts to music by making musicians perform in the most difficult conditions. Theresa Lesiuk, who teaches music therapy at University of Miami, was one of Hodges' subjects when they were both working in San Antonio. In her campus office, she recalls the experiments.

"I had to lie down in a gurney with an IV of radioactive material in me. They put a mask over my face and I was blindfolded. Then my head was placed in a tube."

And on a keyboard she had to play Bach. A PET scan picked up the radioactive material and showed which areas of the brain were activated. Images from those scans were what Hodges showed at his University of Miami lectures.

"We had to do this several times and the IV tube kept getting caught as I played. 'Ow!'"

"We have to know what the brain is doing," says Shannon de L'Etoile, who heads the music therapy program at the University of Miami. "Hodges' work is our bread and butter."

De L'Etoile explains that a person with brain damage from a stroke may not be able to speak, but can sing because the area that controls music is not damaged. A therapist will get the patient to sing a phrase, then change it to spoken language with an exaggerated rhythm, and finally to natural language. "We are rerouting through the healthy part of the brain," de L'Etoile explains.

"The spinal chord reacts immediately to rhythm," says de L'Etoile, who says that such therapy can be used with Parkinson's patients.

And, researchers have learned that autistic children are capable of reproducing patterns of music, which a therapist can translate to language and to unlock the social interactions autism prevents.

Lesiuk, whose work focuses more on psychotherapy, is researching the high burnout rate of computer system designers and how music can help. In therapeutic situations, music can help a patient reflect on the lyrics of a song or express their feelings. And not just happy feelings - music can help unblock anger.

At University of Miami, Hodges had said that "music makes you smarter because it helps you understand yourself as a human being and your relationship to the world." Echoing him, Lesiuk believes that "music can help us unblock the search for our inner self."

Except that Hodges goes beyond the individual search. Waiting at the University of Miami for a ride to the airport and his next lecture destination, the researcher explained how "like mathematics, music is a necessary way of understanding the universe."

Dismissing notions that music is just "ear candy," Hodges said that "the foetus has the ears

working already and a newborn can pick out the mother's voice - for the baby, it is music."

His research asks the question: What in the brain allows this bonding? "The brain is a rhythmic pattern detector," Hodges said, repeating a statement he had made at his lecture.

Hodges explained that "contemplative music" - classical composers like Bach - was actually an exception. "The vast majority of music is functional music," he said.

To illustrate his point, he searched in his luggage for a recording of postal workers in Ghana cancelling stamps, "the most boring, repetitive work," he explained. The recording was, as Hodges' promised, mind-blowing.

The workers chanted to the precise beats and counterbeats of their hitting the envelopes. The gorgeous harmonic chanting and the complex polyrhythms were hypnotic - all it needed was one of those DJs who specialise in remixing world music to be a hip new dance groove.

"No music exists asocially," Hodges asserted.

His research into the relation of music to the brain has convinced Hodges that music is "absolutely pervasive in the human condition." Time and again, Hodges as well as the University of Miami music therapy professors insisted that all humans are musical, though some are more sophisticated than others.

"Conductors can detect errors in melody, harmony and rhythm," Hodges said in his lecture. And Lesiuk told of musicians who can identify, just from reading a music score, passages likely to make a listener's arm-hair stand on end.

Nonetheless, Hodges insisted, all humans are musical, regardless of training. Or IQ. "From the least to the most intelligent, everyone can have a meaningful music experience," he said.

- KRT

[Subscribe today for as little as \\$3 a week for weekend home delivery - SAVE 21%](#)

Copyright © 2006.