

1 Making Music Boosts Brain's Language Skills

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3 Do you have trouble hearing people talk at cocktail parties? Try **practicing** the piano before you leave the house. Musicians—
4 from karaoke singers to professional cello players—are better able to hear **targeted** sounds in a noisy **environment**, according to
5 new research that **adds** to **evidence** that music makes the brain work better. "In the past ten years there's been an explosion of
6 research on music and the brain," Aniruddh Patel, the Esther J. Burnham Senior Fellow at the Neurosciences Institute in San
7 Diego, said today at a press briefing. Most recently brain-imaging studies have shown that music activates many **diverse** parts of
8 the brain, including an **overlap** in where the brain **processes** music and language. Language is a natural aspect to consider in
9 looking at how music **affects** the brain, Patel said. Like music, language is "universal, there's a strong learning component, and it
10 carries complex **meanings**."

11 12 Above the Din

13 For example, brains of people **exposed** to even casual musical training have an **enhanced** ability to generate the brain wave
14 patterns associated with specific sounds, be they musical or spoken, said study leader Nina Kraus, director of the Auditory
15 Neuroscience Laboratory at Northwestern University in Illinois. Kraus' **previous** research had shown that when a person listens
16 to a sound, the brain wave recorded in response is physically the same as the sound wave itself. In fact, "playing" the brain wave
17 produces a nearly identical sound. But for people without a trained ear for music, the ability to make these **patterns decreases** as
18 background noise **increases**, experiments show. Musicians, by contrast, have **subconsciously** trained their brains to better
19 recognize **selective** sound patterns, even as **background** noise goes up. The **overall** effect is like a person learning to drive a
20 manual transmission, Kraus said. "When you first learn to drive a car, you have to think about the stick shift, the clutch, all the
21 different parts," Kraus told National Geographic News. "But once you know, your body knows how to drive almost
22 automatically." At the same time, people with **certain** developmental disorders, such as dyslexia, have a harder time hearing
23 sounds amid the din—a serious problem, for example, for students straining to hear the teacher in a noisy classroom. Musical
24 experience could therefore be a key therapy for children with dyslexia and similar language-related **disorders**, Kraus said today
25 at the 2010 **annual** meeting of the American Association for the **Advancement** of Science.

26 27 Singing Music's Praises

28 Similarly, Harvard Medical School neuroscientist Gottfried Schlaug has found that **stroke** patients who have lost the ability to
29 speak can be trained to say hundreds of phrases by singing them first. In research also presented today at the AAAS meeting,
30 Schlaug **demonstrated** the results of intensive musical therapy on patients with **lesions** on the left sides of their brains, those
31 areas most **associated** with language. Before the therapy, these stroke patients **responded** to questions with largely **incoherent**
32 sounds and phrases. But after just a few minutes with therapists, who asked them to sing phrases and tap their hands to the
33 rhythm, the patients could sing "Happy Birthday," recite their addresses, and communicate if they were thirsty. "The
34 **underdeveloped** systems on the right side of the brain that respond to music became enhanced and changed structures," Schlaug
35 said at the press briefing. Success **varied** depending on how recently a person had had a stroke and the **severity** of the damage,
36 he noted. But several patients were **eventually** able to teach themselves new words and phrases by turning them into **tunes**, and
37 few were even able to move beyond simple phrases and give short speeches. Overall, Schlaug said, the experiments show that
38 "music might be an alternative **medium** for **engaging** parts of the brain that are otherwise not engaged." Northwestern's Kraus
39 agreed. She added that musical training, whatever the age, should be universally **encouraged**, since it can play a key role in
40 education, clinical therapies, and even in **protective** measures for keeping the brain sharp as people age. "Plus," she said, "it's just
41 inherently wonderful."

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43 Source: [The National Geographic](#)