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DIANA DEUTSCH
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Psychologists Probe Perfect Pitch

SAN DIEGO--People with perfect pitch can identify a musical note as easily as the rest of us spot colors. But this rare and coveted ability may be hard to acquire naturally. A new study suggests that people's chances of learning perfect pitch may depend more on their native language than on their musical training.

Previous research has shown that perfect pitch is more common in Asia than in the United States, where only 1 in 10,000 people has the ability. Some scientists assumed that genetics and onset of musical training were solely responsible for the difference.

A team of researchers led by Diana Deutsch, a psychologist at the University of California, San Diego, decided to test this theory by comparing the perfect pitch abilities of Chinese and American music students who either spoke Mandarin or English as a native language. They divided the students into subgroups based on onset of musical training, played a piano note for them, and then asked them to identify the note. The Chinese students outperformed the American students in every group. Even when comparing Chinese students who didn't begin their musical training until age 8 with American students who started their musical training at age 4, 40% of the Chinese students had perfect pitch whereas only 15% of the Americans did, according to Deutsch's results, which were presented at the Acoustical Society of America meeting, held here this week.

Deutsch says the Chinese students' advantage arises from their native language, Mandarin, which is a tonal language. In a tonal language, changing a word's pitch changes its meaning; for example, the Mandarin word "ma" can mean mother, reproach, horse, or hemp depending on the pitch the speaker uses. According to Deutsch, learning to differentiate pitches and their meaning early in life prepares children for the acquisition of a second tonal language--such as music.

Aniruddh Patel, a neuroscientist at the Neuroscience Institute in San Diego, finds the study compelling. "I think everyone is going to be surprised and impressed," he says. But he believes it would be interesting to find out more about the nature of the students' musical training. "Maybe the Chinese were given more practice in note naming," he says.

--**NADJA GEIPERT**

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