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News

Researchers seeking secret of perfect pitch ; Scientists hope to identify gene for rare musical skill

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scripps howard news service Scripps Howard News Service

620 words

20 January 2002

Chicago Sun-Times

30; 3x

English

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Almost from the time he could walk, concert pianist Roy Bogas felt the pull of music--and an uncanny facility for recognizing, and eventually naming, notes.

Bogas, who performs for the San Francisco Ballet and other orchestras, can tell instantly whether a given tone is an A or a D or a G or any interval between.

Known as "perfect" or "absolute" pitch, it's a rare ability in adults, even among professional musicians, who typically have what's known as "relative pitch," or the ability to tell what a note is only when given a starting note as a reference.

Now, Bogas and other walking tuning forks are the focus of intense scientific interest as researchers hunt for the roots of this remarkable skill.

A team led by geneticists Jane Gitschier at the University of California at San Francisco and Nelson Freimer at the University of California at Los Angeles has begun a study to find the gene or genes that may contribute to absolute pitch abilities.

The team plans to recruit large numbers of people for its study and has just developed an online test for absolute pitch that prospective subjects can take (at <http://perfectpitch.ucsf.edu/>).

Researchers are particularly eager to find examples of absolute pitch in families. "What we are asking is whether or not this ability has a genetic aspect to it, and if it does, can we figure out what that gene is," Gitschier said.

Based on evidence so far, most scientists think that genes do play at least a subtle role, perhaps by keeping a developmental "window" open wider and longer during early childhood, when note-naming ability generally takes shape.

"We have interviewed and tested lots of people for this trait and found there is a familial aspect," Gitschier said. "There is also an environmental aspect--if you don't have early musical training, you're probably not going to develop absolute pitch."

The study's goal is to clarify how genetic predisposition might dovetail with life experience to produce what Bogas calls "a higher degree of sound memory" than most people can fathom.

Some earlier studies suggest that people lacking certain, as-yet- unidentified sound-processing circuitry in the brain may never achieve a sense of absolute pitch no matter how early their musical training starts.

One study of people with absolute pitch found 43 percent of siblings also had the ability to name notes instantly. In a separate study, researchers found the trait in only 3 percent of those whose music studies began before age 6.

Still, some experts argue that the quest for an absolute pitch gene is akin to searching for a gene for speaking French; it doesn't exist.

"I'm open-minded but skeptical," said **Daniel Levitin**, a cognitive neuroscientist at McGill University in Montreal. "I really don't understand what they think those genes might be coding for."

Still, some insist that genes play a role.

Those who have absolute pitch often seem to take it for granted, saying it requires no more effort to distinguish an E from a G than it does to tell red from blue. Many insist that note-naming is a skill anybody can learn.

"Get a pitch pipe or tuning fork and just carry it around for a couple weeks," said Ed Bogas, Roy's brother. "Keep

hitting the same tone, and eventually you will be able to predict it."

He makes it sound easy. But for some of us, it may take a little more than two weeks to learn.

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