Perfect pitch may be genetic: study

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Perfect pitch may be part of the genetic programming of certain individuals, a study suggests.

Scientists believe nature as well as nurture can help gifted singers hit the right note. People with perfect pitch have the ability to sing any note at precisely the right frequency without a reference tone to guide them.

Perfect, or absolute, pitch is extremely rare, but more common among speakers of tonal languages, such as Mandarin Chinese, who have musical training.

Although a link has been seen between learning music and perfect pitch, most people lack the ability even with musical training.

To investigate if it is acquired or innate, US scientists studied 27 English-speaking adults including seven with the gift. All began extensive musical training before the age of six.

Participants were given a standard memory test which involved recalling a series of numbers in correct order. In two versions of the "digit test", numbers were either presented visually or spoken over headphones.

Individuals with perfect pitch far outperformed the others in the audio test while the two groups were evenly matched when recalling numbers on a screen. The finding is significant because previous research has shown there is a genetic component to speech memory.

Study leader Professor Diana Deutsch, from the University of California at San Diego, said: "We have wondered if perfect pitch is as much about nature or nurture. What is clear is that musically trained individuals who speak a non-tone language can acquire absolute pitch, but it is still a remarkably rare talent. What has been less clear is why most others with equivalent musical training do not.

"Our finding, therefore, shows that perfect pitch is associated with an unusually large memory span for speech sounds, which in turn could facilitate the development of associations between pitches and their spoken languages early in life."

The research was presented at the annual meeting of the Acoustical Society of America in Kansas City, Missouri.