

You are in: [Sci/Tech](#)

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[Front Page](#)
[World](#)
[UK](#)
[UK Politics](#)
[Business](#)
[Sci/Tech](#)
[Health](#)
[Education](#)
[Entertainment](#)
[Talking Point](#)
[In Depth](#)
[AudioVideo](#)

[BBC SPORT](#)
[BBC Weather](#)

SERVICES

[Daily E-mail](#)
[News Ticker](#)
[Mobiles/PDAs](#)
[Feedback](#)
[Help](#)
[Low Graphics](#)

Looking for genetic perfection



Roy's brother has perfect pitch - but not his daughter

By Maggie Shiels in California

US scientists are trying to find the gene, or genes, responsible for the rare musical ability known as perfect pitch, which allows a minority of the population to "hear" the world differently from everyone else.

The study team, led by Dr Jane Gitschier, at the University of California at San Francisco, and Nelson Freimer in Los Angeles, is exploring the belief that this is a gift that is passed down from generation to generation.

“
It's important for a child to hear music in their environment from the beginning
 ”

Roy Bogas, concert pianist

Simply put, perfect pitch, or absolute pitch as it is also known, is the ability to recognise and eventually name notes. Most musicians have what is called relative pitch, which means they can name notes but only when given a starting note as a reference.

Dr Gitschier, who trained as a classical opera singer, subscribes to the "nature not nurture" theory to explain how individuals acquire this remarkable ability.

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Early age

"This is a controversial topic and I think you cannot learn perfect pitch," she told BBC News Online. "I think with people who have absolute pitch, they are not making any kind of calculation and I think to learn perfect pitch almost automatically means you are making a calculation.

"You are thinking about it. It's a conscious effort as opposed to an unconscious effort if you have perfect pitch."

For Roy Bogas, a concert pianist who performs with the San Francisco Ballet and other orchestras, perfect pitch is something he says he has always been aware of.



"There is a narrow window of opportunity for those with absolute pitch to realise the ability"

"It has always been there right from the beginning," he explained seated at his baby grand in his home in Berkeley. "It was discovered as soon as I could say what the name of the note was. You have to learn what those names are and immediately I could identify it. So, when I was three years old it became obvious."

'Use it or lose'

Indeed the scientists say that perfect pitch is useless without that ability to name what it is that you are hearing. And Dr Gitschier espouses the view that there is a narrow window of opportunity for those with absolute pitch to realise the ability that is in their grasp.

"Previous studies, as well as our study, strongly show that you need to be exposed to early music training, normally by the time you are six," she said.

"And if you are not, even if you have what we think is this perfect predisposition for the ability to have perfect pitch, then you will not develop perfect pitch."

The "use it or lose it" conundrum is one that Roy Bogas also agrees with.



Dr Gitschier (r) and Amy Kistler use an online test

"It's important for a child to hear music in their environment from the beginning. Fortunately for me, my parents loved music.

"My father played piano and was always playing one piece or another, and I would sit watching fascinated. And I simply took over and began to do the pieces he was working on and they could see I had some ability."

While Dr Gitschier is confident her work may succeed in naming the "perfect pitch" gene or genes within five years, some experts argue that it is a fruitless quest similar to searching for a gene for speaking French.

"I'm open minded but sceptical" says Daniel Levitin, a cognitive neuroscientist at McGill University in Montreal, Canada, who has been researching issues of sound perception in the brain.

He claims while some people may be born predisposed to language or music, the genetic differences are likely to be extraordinary subtle and difficult to isolate.

'Sealed letter'

As well as trying to pinpoint the genes responsible, the research team is also aiming to explore the genetic link. To that end, they are on a recruiting drive and are especially interested in families with perfect pitch.

Researcher Amy Kistler says they have developed an online music test and so far 10% of the 900 people who have taken it have perfect pitch.

Dr Gitschier is certain there is a strong family link.

"We have found that a person who is the sibling of an individual who is tested as having perfect pitch is 15 times more likely to be born with absolute pitch as somebody else in the population who doesn't have a sibling but who has also had early musical training.

"To us that says there is a high risk to that person that they're going to have perfect pitch. We call that a heritability factor."

Roy Bogas says that while his brother Ed, a popular music composer, also has perfect pitch, no one else in the family does.

"My parents did not have perfect pitch, and my daughter does not have it. You wonder how it is passed on. It is possible that it is a genetic link which may skip generations, passed on, as Rilke put it, as a sealed letter."

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GO



[^^ Back to top](#)

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