

Striking a chord with the psyche

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If music be the food of love, what other emotions can it toy with and why? **Claire O'Connell** reports

Have you ever listened to a piece of music and felt instantly uplifted? Perhaps a certain melody evokes pangs for a loved one.

And imagine how the film *Jaws* would lose its terror if the killer shark's ominous soundtrack was replaced with a slapstick ditty. Music is integral to our lives and can stimulate our emotions, says physiologist and musician Dr Harry Witchel, who tomorrow will host an interactive demonstration in Dublin's Royal College of Surgeons about music, pleasure and the brain.

Witchel, a senior research fellow in physiology at the University of Bristol, will join French-horn player Dominic Nunns and clarinettist Karl Dürr-Sørensen from the New London Orchestra to demonstrate how different musical traits can affect the brain to evoke strong feelings.

As well as looking at the pleasurable effects of music, they will examine what makes certain pieces scary or disgusting, and ponder the mystery of why people willingly listen to sad music.

"We mix the scientific information with examples using live music played by professional musicians," says Witchel, who welcomes the benefits of having musicians on stage to alter specific traits and nuances.

"We can take pieces of music and change them very slightly to show people all you do is alter one small thing and everything else changes in terms of your response and you get pleasure from it," he says.

Music tends to evoke emotions in three ways in the brain, explains Witchel. The first, and most important, is that it elicits memories or associations. "These can be culturally based or idiosyncratic to an individual, which is why two different people can get completely different responses to the same piece of music, he says.

Cultural associations can be particularly powerful, says Witchel who uses the example of football themes.

"When people hear these they think patriotic thoughts just because the tunes have been associated with the football."

Anyone who has fervently belted out a few bars of their country's sporting anthem will probably agree.

Music can also provide "iconic" sounds that consistently elicit a particular emotion or visualisation, according to Witchel. Iconic sound can be almost anything that people translate consistently, like a dog barking or car horns, but you can make them with music too, he says.

Finally, music can play with expectations, which Witchel describes as the sophisticated aspect that adults often enjoy most.

"When you have expectations and then the instrumentalists either do or don't meet with them, it will have an emotional effect on you," he says. For example, it's an effective trick the Beatles used by fading out a melody slowly only to slap a surprising wallop at the end.

Witchel, who is also a drummer, is currently researching the effects music can have on people's heart rhythms and other bodily responses.

"We find generally that when people are listening to music it changes them dramatically from when they are not listening to music. It seems like a trivial observation, but it fits with the idea that music soothes the savage beast, and that people just by attending to music change their approach to all situations," he says.

"Most people will respond to music by waiting longer on the telephone or in queues. It does make people calmer and more patient and you can certainly see that physiologically as well."

But given the broad and often personal nature of responses to music, the experimenters initially found it difficult to select pieces that evoked emotions like happiness or fear consistently across the subjects.

"Not only do people have different interpretations of the same piece of music but most musical pieces actually move around a lot emotionally in the course of 10 or 20 seconds," says Witchel.

"To find a musical piece that is homogenous in its emotional outlook is quite extraordinary, but we were able to find a very small number of pieces that had these consistent effects in the groups of people that we were looking at."

So to invite a happy mood, the researchers play I'm a Believer, by the Monkees.

"Traditionally, most people used Vivaldi's Primavera, but we found people were bored by it because they had heard it too often. But nobody gets angry or bothered at the Monkees, everyone seems to think of it as a feel-good tune."

To evoke fear, they play the chilling Night on the Bare Mountain by Mussorgsky, while Barber's mournful Adagio for Strings is perfect for bringing on sadness, according to Witchel.

"Of all the pieces that I use, the most consistent physiological responses are to Barber's Adagio - it is the most reliable piece of stimulus I have ever seen," he says. And to round it off, the experiments disgust listeners by subjecting them to "an incredibly badly played piece of violin music, really appalling".

Witchel has a wide interest in music and is also an advocate of public engagement in science. He has been involved in other projects like Fame Lab, which encourages scientists to communicate their work in a way that's relevant to a wider audience.

He also provides expert analysis on Big Brother. "That is a lot of fun. I tend to commentate on things that are related to body language but also again elicitation of emotions and how you can read those."

- *Music, Pleasure and the Brain will be hosted by the Royal College of Surgeons tomorrow at 6.30 pm. Tickets are free but must be booked in advance and are limited to two per person. Call 01 402 2749.*

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