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# The most painful sound

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London - To many, it is the most excruciating noise in the world.

But scientists have long been puzzled as to why the screeching sound made by fingernails running down a blackboard makes us flinch.

Music experts now claim the shape of our inner ear is to blame for the blood-curdling effect.

The research could eventually be used to eradicate the annoying sounds made by high-pitched machinery such as vacuum cleaners.

In an attempt to find out why certain noises have such a powerful effect, musicologists asked listeners to rank sounds in order of dislike.

The recordings included fingernails scratching down a blackboard, chalk against slate and squeaking polystyrene.

The researchers, based in Germany and Austria, monitored levels of distress in the volunteers, including their heart rate, blood pressure and the electrical conductivity of their skin.

The high-pitched blackboard sound was declared the worst by participants. The study found that skin conductivity - a measure of unease - changed significantly when listeners heard the noise.

Crucially, the shape of the ear canal acts to give extra amplification to sounds in the 2,000 to 4,000Hz range, making fingernails on a blackboard unnaturally loud - to the point of being painful. - Daily Mail

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