

Science in Our World: Certainty & Controversy

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An Evil Sound

By **MATTHEW TYLER WINSLOW** on November 14, 2011 9:17 PM

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If I had to describe the sound of fingers scraping down the chalkboard, without using profanity, I would use the words massively unpleasant. The tragic tone is enough to make one involuntarily shiver with a mix of agony and disgust. Why does the sound of fingernails on a chalkboard seem to pierce the human ear and cause so much discomfort? The answer is simply that the frequency of the noise emitted usually ranges between 2000 and 4000 HZ. Those high frequencies are far from satisfying to the human ear. Furthermore, according to musicologist Christoph Reuter, and Michael Oehler the human ear is built in a way that amplifies the frequency of the chalkboard scraping to the n^{th} degree.

Reuter and Oehler conducted a study in order to measure the physical response to the fingernails scraping down a chalkboard and how much of the physical response was due to a psychological factor. The results of their study were presented to the Acoustical Society of America ([yes it's a real organization](#)) and showed that a person's mindset helped determine how unpleasant the scraping noise actually was to an individual. The study involved two groups of people. The sound of fingernails scraping on a chalkboard was played to both groups. The catch was that before the appalling noises were played, one group was told that they'd be hearing some "contemporary" music, but the other group was beforehand warned of the horrendous scraping noise that they would be subjected to. The study found that about the same amount of physical response could be measured in both groups. A change in the electrical activity in the participant's skin was measured in both cases, directly following the delivery of the dreadful sound. The difference arose when the group who expected to hear contemporary music found the sound slightly less frightful than the group who knew it was coming. Thus, Reuter and Oehler believe that they proved a psychological factor is involved in the hair-raising fingernails on a chalkboard experience.

Regardless of a psychological factor or not, I pity the poor individuals who were tortured during the process of Reuter and Oehler's study. I would not wish the horrific sound upon anybody. The human ear is not built to be receptive of any such noise and it should be shielded from the horrid sound at all costs.

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