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Unpleasant Sounds

April 25, 2012

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Eek--fingernails on chalkboards--could there be a worse sound?

This is Sandra Tsing Loh with the Loh Down on Science, saying well probably not for human ears.

Musicologists Michael Oehler and Christoph Reuter checked. They had listeners rank various sounds--chimes, blenders, white noise--on a pleasantness scale.

The absolute worst sound? Yup, nails on a chalkboard.

Why is that sound so awful? To find out, the duo remastered it, removing various frequencies.

They then had new listeners rate the remastered sounds. Some listeners knew they were fingernails. Others thought they were part of a modern musical composition.

While people listened, the team monitored their vital signs.

And? Subjects had a physiological response to sounds they rated as unpleasant!

The team thinks ear canal shape is partly to blame. It amplifies certain frequencies, which could make them painful. Fingernail sounds are in the 2,000d to 4,000 hertz range.

But--listeners also rated fingernails as worse than the identical fake musical composition. So where people think a sound comes from matters!

So teachers? Tell students you're performing a new musical composition ... on the chalkboard!

The Loh Down on Science, online, at [lohdow.org](#). Produced by 89.3 KPCC and the California Institute of Technology, and made possible by TIAA-CREF.

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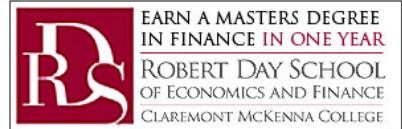
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