

[Click here to print](#)

MailOnline

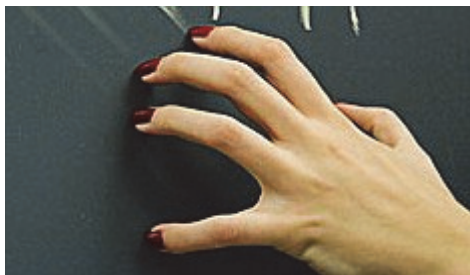
Revealed: Why fingernails down a blackboard sound so awful

By [Rob Waugh](#)

Last updated at 8:07 AM on 4th November 2011

- **Ear 'amplifies' sound at that frequency**
- **Sound still disgusts people even when they think it's 'experimental music'**
- **Sound ranked above squeaking polystyrene and scraping a plate with a fork**

 Like 120



The sound of nails down a blackboard is horrible to us because it makes us think of the experience - but also because our ear canals are 'designed' to hear noise at that frequency

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.

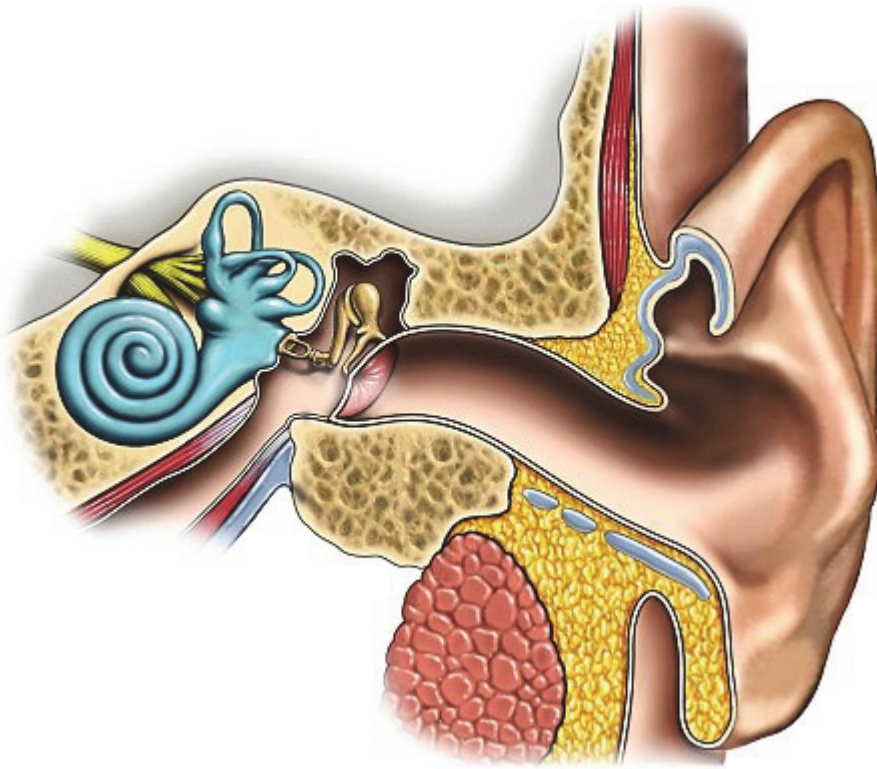
Our ears are 'built' to hear sounds at that frequency because it's similar to human speech.

The researchers used a test where some listeners thought they were listening to 'difficult' experimental music, and others were told they were listening to various horrible sounds.

Nails on a blackboard ranked above sounds such as a fork scraping on a plate and squeaking polystyrene.

The researchers - led by Michael Oehler of the Macromedia University for Media and Communication in Cologne, Germany - found that the listeners who'd been told they were listening to fingernails were more disgusted and appalled than those who hadn't.

But the psychological effect didn't account for HOW unpleasant we found the sound.



Our ears are 'designed' to amplify sound at the frequencies of human speech - the researchers think that the shriek of nails down a blackboard could be amplified because it's at a similar frequency

Even listeners who had been told they were listening to music still had a measurable 'disgust' response.

The researchers measured heart rate, blood pressure and skin conductivity to work out which sounds were the worst.

The researchers used recordings of fingernails and chalk, removing frequencies to work out which had the worst effect.

Removing the 'scrapiest' parts of the nail-on-blackboard sound made no difference to how unpleasant people found it.

They found that there is a physical response to sounds such as nails on a blackboard - and surprisingly, the 'worst' sounds were those in the range of human speech, and in particular the range between 2,000Hz and 4,000Hz.

The shape of the human ear canal might be to blame for just how unpleasant we find the sounds of nails on a blackboard.

Because the sound is 'similar' to human speech, acoustically speaking, it's amplified within our ears.

The sound of nails down blackboards is disturbing to us because it lurks within the range that we're programmed to hear most intensely - the frequency range of the human voice.

Comments (21)

- [Newest](#)
- [Oldest](#)
- [Best rated](#)
- [Worst rated](#)

[View all](#)

Just reading the article had my skin crawling !!

- Grumpy Granny, Co. Durham, 04/11/2011 22:10

Click to rate __ Rating 12

[Report abuse](#)

Our main recognition centre will be in the human speech range. It is more likely we are directly associate that sound with empathetic physical pain. I am sure if you hear brakes squeeling and then a thud, people will feel the same sickening feeling.

- Evan, Slough, 04/11/2011 13:15

Click to rate __ Rating 5

[Report abuse](#)

And to think I was just pondering on this very conundrum in the bath this morning...

- Liz, Elsewhere, 04/11/2011 10:32

Click to rate __ Rating 6

[Report abuse](#)

I hope these researchers were volunteers and were not paid. If they got a wage for this crap someone should be shot for blatant waste of money.

- Silly Billy, ENGLAND, 04/11/2011 10:12

Click to rate __ Rating 5

[Report abuse](#)

Fascinating. Still no cure for the common cold though.

- FRANK, SLOUGH, 04/11/2011 09:57

Click to rate __ Rating 10

[Report abuse](#)

Takes me right back to the classroom 60 years ago where there was always some wag putting us through this torture with the blackboard.

- gk, uk, 04/11/2011 09:48

Click to rate __ Rating 3

[Report abuse](#)

The views expressed in the contents above are those of our users and do not necessarily reflect the views of MailOnline.

Site Web

- [Headlines](#)
- [Most Read](#)
- [Mission to Mars: Nasa gears up to send robotic laboratory and laser-armed rover to red planet](#)
- [Have a merry e-Christmas! Consumer's guide to downloadable gifts](#)
- [Jumping Jupiter! Scientists find evidence of a mystery fifth giant planet that was ejected from the solar system](#)
- [Half of all water-damaged mobile phones in the UK have been dropped in the toilet, study finds](#)
- ['You can stop talking now!' Apple tells the voice of Siri not to talk about his work](#)
- [Russia's Mars dream ends, and now a toxic nightmare begins as its crippled fuel-filled probe heads back down to earth](#)
- [A real-life Mighty Mouse: Rodent with double the normal muscle strength created in lab](#)
- [How to get a teenager to do your laundry... the invention that combines an arcade game and a washing machine](#)
- [Now you see me... species of octopus uses dual camouflage system to baffle all predators](#)
- [Mind-bending tour of our solar system, via Einstein's laws of relativity](#)
- [Did Charles Babbage invent the programmable computer in 1830?](#)
- [Mobile market booms in Africa, with 735 million using phones for everything from banking to mini cinemas](#)

-
- [Is the future orange? The Earth's temperature has risen 1C since the 1950s, claims study](#)
- [Russia's Mars dream ends, and now a toxic nightmare begins as its crippled fuel-filled probe heads back down to earth](#)
- [Jumping Jupiter! Scientists find evidence of a mystery fifth giant planet that was ejected from the solar system](#)
- [It might not look much like the Batmobile, but Nissan's concept car can drive itself to you using only your smartphone... and park on autopilot](#)
- [Texas scientist makes strands of 'invisibility cloak'](#)
- [The world may end in 2012... but it won't be because of a solar flare, says Nasa expert](#)
- ['You can stop talking now!' Apple tells the voice of Siri not to talk about his work](#)
- [Apple finally trying to fix infuriating 'autocorrect' feature... so your iPhone stops fighting your spelling](#)
- [Rising from beneath the waves: A new Canary Island emerges as underwater volcano hits the surface](#)
- [Now you see me... species of octopus uses dual camouflage system to baffle all predators](#)
- [Mind-bending tour of our solar system, via Einstein's laws of relativity](#)
- [Mission to Mars: Nasa gears up to send robotic laboratory and laser-armed rover to red planet](#)
- [MOST READ IN DETAIL](#)

Ads by Google:

[Brit Living in Germany?70K+ in UK Pension Fund? See The Benefits of moving it to a QROPS.www.ExpatPension.org](#)
[Solve Vibration Problems](#)Get Tables, Breadboards & More. Visit For Quality Line Of Products![www.KineticSystems.com](#)
[Your source on hearing](#)Advice to help your hearing - large website on hearing and hearing loss[www.hear-it.org](#)

GADGET REVIEWS

iPhone 4S

[Is it worth upgrading to iPhone 4S? It might not be - the best features are all the ones available as a free download for iPhone 4.](#)

Atomic Floyd Superdarts

[Initially it's hard to understand why anyone would want to spend £199 on headphones - but once you've tried a premium brand there's no going back.](#)

Krups Coffee Machine

[We spend up to £2,000 a year in coffee shops feeding our caffeine habits - so it's no surprise these machines are so popular.](#)

Logitech iPad 2 Keyboard Case

[If you are one of the few who do a lot of typing on your tablet, you may just find a use for this Logitech keyboard.](#)

TDK Soundcube

[Almost every new electronic accessory seems to be designed solely to be compatible with the iPod, iPhone, iPad or Mac. But these speakers are more versatile.](#)

The Tefal Actifyr

[The Actifyr is a table-top, low-fat fryer. Seriously low-fat and so seriously healthy. A kilo of chips needs just a tablespoon of oil!](#)

Ads by Google:

["Goodbye Psoriasis" Read How Psoriasis Symptoms Can Disappear. Discover Now!www.Equilac.co.uk](#)
[Fernstudium an der FernFH](#)Qualifiziertes Fernstudium im techn. Bereich an der FernFH.[www.wb-fernstudium.de](#)
[Künstliche Zähne pflegen](#)blend-a-dent: 3. Zähne Produkte. Zahnpflegetipps & Tricks hier![www.blend-a-dent.de](#)
[Selling hearing aids?](#)Join Widex. We have one of the lowest return-rate in the industry.[www.widex.pro/dispenser](#)
[Latest Trend in Nail Tips](#)Stunning Nail Wraps, Fast and Easy Must Try for Nail Professionals![trendy-wraps.com](#)
[2011 "Editor's Choice"](#)Blow Your Mind Not Your Budget Big Sound From Small, Stylish Orbs![www.OrbAudio.com](#)
[Top Tagesgeld-Zinsen](#)Tagesgeld-Konten mit Top-Zinsen im aktuellen Online-Vergleich![Tagesgeld.Vergleich.de](#)
[Buy Rare Chemicals](#)3,3-Difluoro-1-cyanocyclobutane benzyl vinyl ether, and more.[Www.FocusSynthesis.Com](#)

Find this story at www.dailymail.co.uk/sciencetech/article-2056640/Revealed-Why-fingernails-blackboard-sound-awful.html

Published by Associated Newspapers Ltd

Part of the Daily Mail, The Mail on Sunday & Metro Media Group

© Associated Newspapers Ltd