

## Millions risk hearing damage by listening to music louder than a pneumatic drill on their MP3

By [Daily Mail Reporter](#)

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Millions of Britons are risking their hearing by listening to music at a volume louder than a pneumatic drill, a study revealed today.

One in ten people regularly turns their MP3 up to a higher volume than a drill on a building site, research found

A further one in six listening to their MP3 player at a level which is more deafening than an aeroplane taking off.

One in 20 regularly plug into their music which is more thunderous than a train hurtling past in a station, a car alarm ringing in your ears and even screaming children.



**Deafening: Nine in ten said they didn't know what the safe level of sound was for**

## their ears

Nearly one in five (17 per cent) have been left with ringing ears after listening to blaring music for a long period of time.

Peter Worthington, director of The Hearing Company who commissioned the study, said: 'These results prove that most Brits are blissfully unaware how a simple everyday pleasure of listening to music can actually be harmful to their hearing.'

'Damage begins when ears are exposed to noises louder than 85 decibels for prolonged periods of time.'

'A pneumatic drill, for example, reaches 110 decibels, which means that millions of Brits are listening to their music at a level of almost 40 per cent higher than is naturally safe. A shocking statistic.'

The study, which polled 2,000 adults, also found a quarter turn off their 'volume limiter' and one in 20 listen to music at its highest volume level.

Worryingly, nine in ten said they didn't know what the safe level of sound was for their ears and 43 per cent said they weren't bothered that loud music might be damaging their hearing.

### **Damaging: Millions are listening to music at a decibel level louder than a pneumatic drill or a speeding train**

One in 20 said their music is often noisier than road works, or a car back-firing.

Four in ten of those who have been left with ringing ears said it started to hurt after just ten minutes.

It also emerged one in five listen to music full blast in the car - and one in twenty have been distracted by it blaring so loudly they have had a near miss.

One in three have also made themselves jump as they haven't heard someone approach them and one in 14 have had a close call crossing a road while out jogging.

The study found one in five listen to loud music because it 'sounds better the louder



it is' and 7 per cent said it's the 'only way to enjoy it'.

Another 14 per cent claim it drowns out outside noises, while 3 per cent said it blocks out their own singing.

Four in ten have gone out for the night and danced next to a loud speaker for their hearing to return to normal five hours after they

wake up the next day.

Mr Worthington added: 'These results don't mean the fun needs to come out of listening to music, but our aim at The Hearing Company is to educate the public on the importance of protecting their hearing.

'Protecting it now will reduce deafness in the future.

'Getting your hearing tested should be part of your regular health-check routine such as visiting the dentist or optician.'

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**Doctor's advice**

**Loud music and deafness**

My teenage children spend all day bombarding themselves (and the rest of the house) with the latest rock music. As a teenager I was obsessed with Genesis, Pink Floyd and Yes, so I don't want to stop their fun, but could they be damaging their hearing?

Mike, 43

**Dr Trisha Macnair responds**



You're right to worry. Recent research has shown that as many as one in five teenagers has already done damage to their ears and put their hearing at risk because of exposure to excessively loud music - that's three times as many as in the 1980s. The problem is set to worsen as today's rock fans grow up.

Our ears can put up with very high levels of noise for very short periods of time, but the louder the noise, the less time you can spend listening to it before damage is done. Most of us can put up with noises of 90 decibels for up to eight hours without permanent damage, for example, but at 100 decibels the maximum time is one hour.

**Deafness on the dance floor**

Most nightclubs play music at 110 decibels, and the noise there is particularly dangerous because you can't get away from it. As many as 80 per cent of people leaving nightclubs find their ears are buzzing or ringing - a sign that noise levels are above the safe limit.

Several European countries have legislation to limit noise on the dance floor. In the UK there is no such regulation to protect clubbers or concert-goers, although Control of Noise at Work Regulations should be implemented in the entertainment industry by April 2008. These regulations aim to protect the workers, but should also help to reduce noise exposure to customers too, for example by keeping noisy areas such as the dance floor well away from the bar, and limiting overall noise levels.

Dance drugs, such as ecstasy, are also thought to increase the risk of hearing damage because clubbers tend to dance for longer under louder volumes of noise when taking them.

Another danger factor is the use of mp3 players or iPods. People who use them regularly (several times a week) are at risk of hearing loss in the higher frequencies of sound, which affects their ability to hear speech.

**Recovery time**

Most clubbers recover from the temporary damage to their hearing within a day or two. The ears need at least 16 hours to recover from two hours' exposure to a 100-decibel sound to prevent long-term hearing loss. Some people are more sensitive and need a longer recovery time.

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Deafness and hearing problems

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- Hearing
- News: MP3 users 'risking hearing loss'

**Elsewhere on the web**

- NHS Direct: hearing impairment
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What your children can do:

- Use earplugs
- Take regular breaks from the noise - at least ten minutes every hour
- Take longer periods of rest from prolonged excessive noise
- Keep as far from the source of noise as possible
- Try to have some noise-free days, as most damage is from repeated exposure

*This article was last medically reviewed by Dr Trisha Macnair in February 2008*

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## iPod's Popular Earbuds: Hip Or Harmful?

ScienceDaily (Dec. 16, 2005) — Turn 'em down and turn 'em off. That's the advice of Dean Garstecki, a Northwestern University audiologist and professor, when it comes to using those ever-present earbuds favored by iPod and MP3 music listeners everywhere.

In the 1980s, audiologists began cautioning lovers of loud music about hearing loss that could potentially result from use of their Walkman or portable compact disc (CD) players when those devices were on the cutting edge of music listening. With iPods the hot holiday gift for music lovers of all ages, Garstecki is encouraging safer use of the popular music listening devices.

"We're seeing the kind of hearing loss in younger people typically found in aging adults. Unfortunately, the earbuds preferred by music listeners are even more likely to cause hearing loss than the muff-type earphones that were associated with the older devices," Garstecki said.

Not only are earbuds placed directly into the ear, they can boost the sound signal by as much as six to nine decibels. "That's the difference in intensity between the sound made by a vacuum cleaner and the sound of a motorcycle engine," said Garstecki, professor and chair in the Roxelyn and Richard Pepper Department of Communication Sciences and Disorders.

In addition to the more intense sound signal, today's music listening devices -- with their longer battery life and their capacity to hold and conveniently play lots of music -- also encourage users to listen for longer periods of time than did the older portable devices. That, too, increases the potential for hearing damage, according to Garstecki.

"I have an audiologist friend at Wichita State University who actually pulls off earphones of students he sees and, in the interest of science, asks if he can measure the output of the signal going into their heads," said Garstecki. He found that often students were listening at 110 to 120 decibels.

"That's a sound level that's equivalent to the measures that are made at rock concerts," said Garstecki, chairman of Northwestern's communication sciences and disorders department. "And it's enough to cause hearing loss after only about an hour and 15 minutes."

The solution, according to Garstecki, is the 60 percent/60 minute rule. He and other hearing specialists recommend using the MP3 devices, including iPods, for no more than about an hour a day and at levels below 60 percent of maximum volume. "If music listeners are willing to turn the volume down further still and use different headphones, they can increase the amount of time that they can safely listen," Garstecki added.

To avoid sustaining permanent hearing loss in the middle ranges --the range required to hear conversation in

a noisy restaurant, for example -- Garstecki recommends the use of older style, larger headphones that rest over the ear opening.

Another option is the use of noise-canceling headphones. "Unlike earbuds, noise-canceling headphones quiet or eliminate background noise. That means listeners don't feel the need to crank up the volume so high as to damage their hearing," Garstecki said.

"The problem is noise-canceling headphones are more costly and more visible than the tiny earbuds. For image-conscious teenagers and adults, they may be a hard sell."

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*Adapted from materials provided by Northwestern University.*

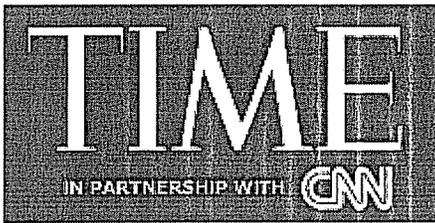
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Monday, Jul. 28, 2008

## How Bad Are iPods for Your Hearing?

By Laura Blue

Hearing loss is more common than ever before. About 16% of American adults have an impaired ability to hear speech, and more than 30% of Americans over age 20 — an estimated 55 million people — have lost some high-frequency hearing, according to a new study published Monday in the *Archives of Internal Medicine*. The finding has got experts — and concerned parents — wondering anew: Does listening to loud music through headphones lead to long-term hearing loss? **Brian Fligor**, director of diagnostic audiology at Children's Hospital Boston, explains how much damage your headphone habit might cause — and how to mitigate your risk.

**Q:** How much hearing loss does an iPod cause?

**A:** It depends on the person, it depends on how long you're listening, and it depends on the level at which you're setting your iPod.

If you're using the earbuds that come with an iPod and you turn the volume up to about 90% of maximum and you listen a total of two hours a day, five days a week, our best estimates are that the people who have more sensitive ears will develop a rather significant degree of hearing loss — on the order of 40 decibels (dB). That means the quietest sounds audible are 40 dB loud. Now, this is high-pitched hearing loss, so a person can still hear sounds and understand most speech. The impact is going to be most clearly noted when the background-noise level goes up, when you have to focus on what someone is saying. Then it can really start to impair your ability to communicate.

This would happen only after about 10 years or so or even more of listening to a personal audio device. One patient I had used his headphones instead of earplugs when he was on his construction job. He thought as long as he could hear his music over the sound of his saws, he was protecting his ears — because he liked the sound of his music but didn't like the sound of the construction noise. He had a good 50 dB to 55 dB of noise-induced hearing loss at 28 years old. We asked a few pointed questions about when he was having difficulty understanding people, and his response was classic.

"When I'm sitting at home with the TV off, I can understand just fine," he said, "but when I go out for dinner, I have trouble."

There is huge variation in how people are affected by loud sound, however, and this is an area where a number of researchers are conducting studies. Certainly a huge part of this is underlying genetics. We know how much sound causes how much hearing loss based on studies that were conducted in the late '60s and early '70s, before employers were required to protect workers' hearing in noisy work environments. What was found is that when people are exposed to a certain level of noise every day for a certain duration, they're going to have a certain degree of hearing loss on average. But the amount of hearing loss might differ by as much as 30 dB between people who had the toughest ears and those with the most tender ones — a huge variation. Unfortunately, we don't know who has the tougher ears and who has the tender ones until after they've lost their hearing. So, as a clinician, I have to treat everyone as if they had tender ears.

Particularly with noise-induced hearing loss, the primary area where the ear is damaged is not the eardrum, not the part of the ear that you can see and not the bones that are inside the middle ear — it is actually deeper inside. It's where the nerve that brings the sound message up to the brain connects with the inner ear, and it involves some very specialized cells. These are hair cells, and specifically we're looking at the outer hair cells. When they're overexposed or stimulated at too high a level for too long a duration, they end up being metabolically exhausted. They are overworked. They temporarily lose their function, so sound has to be made louder in order for you to hear it. These cells can recover after a single exposure, but if you overexpose them often enough, they end up dying, and you lose that functional ability inside your inner ear. The cells that die are not replaceable.

As far as a rule of thumb goes, the figures we got in our studies were that people using that standard earbud could listen at about 80% of maximum volume for 90 minutes per day or less without increasing their risk for noise-induced hearing loss. But the louder the volume, the shorter your duration should be. At maximum volume, you should listen for only about 5 minutes a day.

I don't want to single out iPods. Any personal listening device out there has the potential to be used in a way that will cause hearing loss. We've conducted studies of a few MP3 players and found very similar results across the MP3 manufacturers. Some in-the-ear earphones are capable of providing higher sound levels than some over-the-ear earphones. That said, studies we've done on behavior show that the type of earphones has almost nothing to do with the level at which people set their headphones. It's all dictated by the level of background noise in their listening environment. When we put people in different listening environments, like flying in an airplane — we used noise we'd recorded while flying on a Boeing 757 commercial flight, and we simulated that environment in our

lab — 80% of people listened at levels that would eventually put their hearing at risk. On the subway system here in Boston, the ambient noise levels are very comparable to the level on an airplane, although it sounds very different. The noise is sufficiently high that it induces people to listen to their headphones at excessively loud volume.

I'm a self-professed loud-music listener. I use my iPod at the gym, and I love it. I think it's one of the greatest inventions ever. I even advocate that people listen to music as loud as they want. But in order to listen as loud as you want, you need to be careful about how long you're listening. I would also strongly recommend that people invest in better earphones that block out background noise. Some of the research we did studied earphones that completely seal up the ear canal. These are passive sound-isolating earphones, as opposed to the ones that are active noise cancelers that block out some of the noise. As far as I can tell, both would allow people to listen to their headphones at their chosen level — and more likely at a lower volume than if they were using the stock earbuds.

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