

Gloria Camp-Espargaro tests out an iPod Touch at an Apple store in New York.
PHOTO: BLOOMBERG NEWS

Health warning: iPods could seriously damage your hearing

Cranking up the music may well be fun, but scientists are unsure how much is too much

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Seventeen-year-old Nicholas Silva has one way to escape the tensions of teenage life: He picks up his beloved iPod. The Cambridge Rindge and Latin School junior places the earbuds snugly into his ear canals and sets the volume bar as high as possible. For him, there is no such thing as a mute button standing between him and the full-pitched vocals of his favorite rappers, Kanye West and Rick Ross.

"When it's louder, you're in the zone," he said sitting with friends at the food court in the CambridgeSide Galleria last weekend.

But audiologists say that teenagers such as Silva may be heading into a new, dreaded zone: Irreparable hearing damage.

Since iPods were launched eight years ago, some 200 million of these MP3 players have been sold worldwide, giving young and old the convenience of storing thousands of songs on a feather-weight portable device with enduring battery life. The advance in technology means extended listening time; for teens, that listening is often done at an especially high decibel level, research shows. And that poses some tangible risks.

Researchers say the sensory cells in our inner ear — which transmit sounds to our brains — can only take so much auditory bombardment before they begin to wilt, irreparably, and die.

The damage teens suffer now may not show up until they're in their 40s and asking friends in crowded restaurants, "Could you repeat that?"

Or it may appear sooner. Some young adults in their 20s — who listened at high levels hour after hour, day after day — are being diagnosed with hearing at the level of a typical 50-year-old, according to Brian Fligor, a former amateur rock guitarist who is now director of diagnostic audiology at Children's Hospital Boston.

Teens often fail to realize just how much they crank up the volume to compensate for the clanging of the subway or the chatter in the cafe, research shows. Boys tend to turn up the iPod volume louder than girls, and peer pressure can influence volume levels, according to a recent study at Children's Hospital Boston.

"I tell them you can listen loud — but you have to listen smart," said Fligor, author of the study.

The obvious question for iPod fanatics is: How much is too much?

The science of hearing loss is murky, and like a lot of areas of public health, a person's vulnerability is a combination of genetic predisposition and hard-to-measure environmental hazards. All people suffer some age-related loss

that shows up anywhere from their 40s to 60s, but how much loud-noise exposure you can sustain depends on whether you are born with tough or tender ears. Some ears fully recover from an ear-ringing blaring rock concert; others are permanently weakened by it.

Because more men show up complaining about hearing loss, some doctors concluded that more men have susceptible ears; however some researchers believe that men's ears over the decades are just more exposed to aggravating sounds, such as loud machinery in factories or gunfire in the military.

When it comes to setting safe guidelines for iPod users, today's audiologists rely largely on a 1970s federal government study of more than 1,000 workers in various industries. They concluded that 8 percent of workers who were exposed to 85 decibels for more than eight hours a day, for 40 years, suffered serious, noise-related hearing impairment.

It may seem arbitrary to transfer that 85-decibel level to iPod use, but many audiologists have found it a useful guide.

Fligor, who has authored several studies about iPod use among teens and young adults, has some general guidelines for the typical user: Based on available data, he recommends iPod users of any age listen to no more than 90 minutes a day if the volume is set at 80 percent of its capacity — roughly a 90-decibel level.

If the volume bar were set at 60 percent, which reflects about 75 decibels, Fligor said, one could probably listen "all day" without risking serious damage; if it were set at 90 percent of maximum capacity, or nearly 100 decibels, a person could listen safely only for about 20 minutes a day.

Giving iPod advice is more art than science, and not all doctors are willing to set such specific listening guidelines. Sharon Kujawa, director of audiology at Massachusetts Eye and Ear Infirmary in Boston, said she cannot yet give specific recommendations for iPod users — not until more research is done. She said "people are all different" and it is not possible now to establish safe guidelines, other than "err on the side of caution."

Today's iPods can be set to automatically limit maximum volume, which Fligor measures as about 105 decibels.

Roland Eavey, the former director of pediatric otolaryngology at Massachusetts Eye and Ear and now chief of otolaryngology at Vanderbilt University Medical Center in Nashville, said today's youth are far too oblivious to the dangers of premature hearing loss.

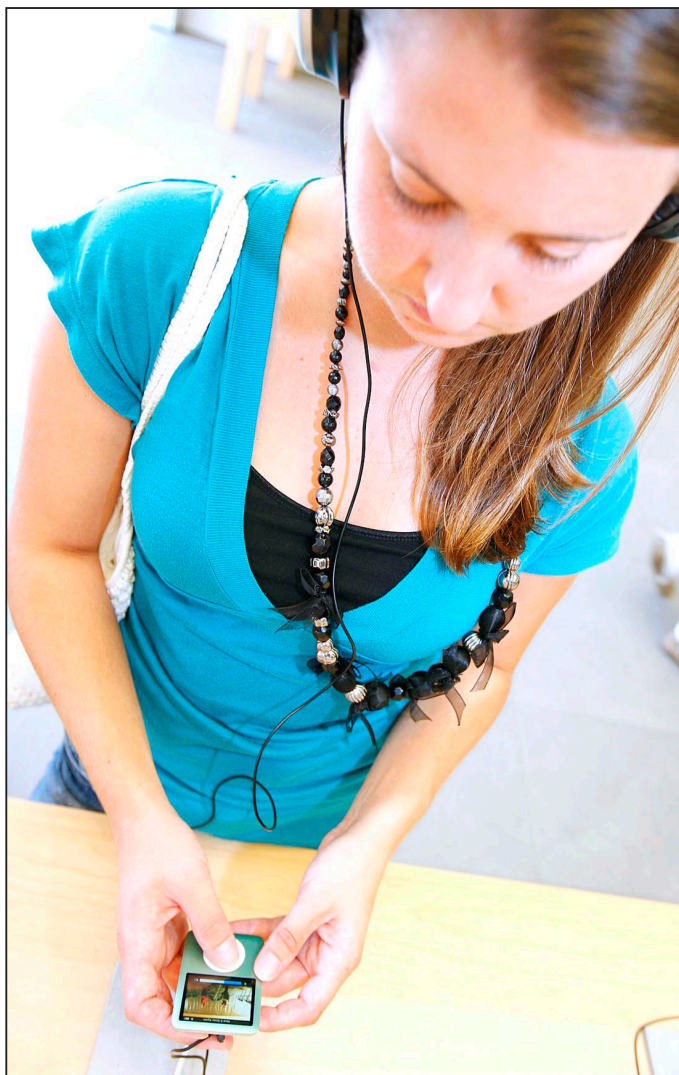
He found that only 8 percent of adolescents ranked hearing loss as a major health problem, while more than 40 percent saw sexually transmitted diseases, substance abuse, depression, and smoking as serious issues, according to a 2005 report that examined attitudes of nearly 10,000 teenagers and young adults who responded to a Web-based survey posted on MTV.com.

That same survey found that 61 percent of them experienced ringing in their ears or some hearing impairment after a concert, and 43 percent after being at a club. Only 14 percent had used protective earplugs. Eavey emphasized that noise-related damage can be alleviated, in part, by giving one's ear a rest between exposures.

Teenagers who think their ears are immune from damage need only know about the hearing levels of the Who's guitarist, Peter Townshend, or rock guitarist Jeff Beck. These performers, now in their mid-60s, suffer from permanent noise-related hearing damage and they speak publicly about the need for more ear protections for musicians.

Fligor, who confesses that he too often loves to "listen loud," tries not to be a purist. He said

teenagers should remember that the occasional shriek-filled, booming rock concert is probably fine. Taking in a favorite hip-hop song at the iPod's full volume also isn't going to ruin their ears on a given day "as long as you don't listen to more than one song."



Sommer Schwartz test drives an iPod Nano at the Gateway Apple Store in Salt Lake City, Utah.
PHOTO: BLOOMBERG NEWS

