

MP3 Players and Hearing Loss

Apple has sold more than 40 million iPods since 2001. This does not include purchases of other brands of MP3 players such as Sony, Zune, Creative Zen etc. Their popularity is due to their portability, memory size, sound quality and long battery life. One can listen to their MP3 player for hours or even days without having to listen to the same song twice. They are used by people of all ages, while working out at the gym, commuting on the train or bus, or even while working.

Audiologists are concerned that people are causing damage to their hearing and are likely to suffer loss of hearing and tinnitus due to iPod use. The iPod volume should be limited to 90 dB or two-thirds volume. Apple's MP3 device currently exceeds this volume and is estimated at about 120 dB. France and other European countries have enacted laws that limit the volume of iPods and other devices to 100 dB, however even this is too loud and could cause future hearing problems. Damage to hearing caused by high volume is determined by its duration. Continuous listening to an MP3 player, even at a seemingly reasonable level can damage the hair cells in the inner ear which transmit sound to the brain. Below is OSHA's Permissible Noise Exposure chart:

<u>Sound Level</u>	<u>Maximum Duration per Day</u>
90 dB	8.0 hours
92 dB	6.0 hours
95 dB	4.0 hours
97 dB	3.0 hours
100 dB	2.0 hours
102 dB	1.5 hours
105 dB	1.0 hours
110 dB	30 minutes
115 dB	15 minutes

Every time you increase a sound level by 3 dB, listening for half as long will produce the same amount of hearing loss. For example, if you listen to your iPod on the train or bus on your morning commute to work or school, the noise level on the bus or train is approximately 90 dB. If you like listening to your

iPod at 20 dB above that, you are in the range of 110 dB. At that sound level you could be causing damage to you hearing after 30 minutes of listening.

However, there is a solution. MP3 players use dime-sized, disc-shaped earphones called ear buds which are the problem. These ear buds sit in the lower portion of the bowl of the ear and do not block out extraneous noises such as traffic or bus/train noise. Therefore in order to hear the music you are forced to increase the volume of the MP3 player in order to hear the music. The solution? Sound-isolating earphones are now available from companies such as Future Sonics, Shure and Etymotic, which reduce ambient noise outside the ears so that listeners don't have to pump up the volume as high. Another option is noise-canceling headphones from Bose and other companies. These battery-driven headphones cover the entire outer ear and work by picking up outside noise and then emitting a counter frequency that cancels out the noise. People are under the impression that a lower volume won't get the same quality of sound. However, the fact is that good headphones actually allow you to hear more detailed nuances in the music without the damaging volume. Although not as effective as the above, there is also a less expensive alternative, custom iPod ear buds from Starkey Laboratories.

If you are currently using the standard ear buds that are supplied with your MP3 player it is recommended that you do not exceed two thirds of the volume and that you limit your listening to a maximum of one hour per day. It's like using sun block to prevent skin cancer; ultimately you need to make the right choice to avoid hearing loss.

Lisa Bonneau, M.S., R.Aud, Aud(C)
Director of Audiology, The Hearing Loss Clinic

Links

www.etymotic.com

www.futuresonics.com

www.shure.com

www.bose.ca

*For more information on Custom iPod earbuds from Starkey Laboratories, please click on the Accessories Tab on our website homepage.