



Musical Notes - March 2011

Play MP3s safe—and low

By Joyce Heid

First introduced to the public in the 1970s, the portable stereo, otherwise called a boom box, achieved the height of its popularity in the 1980s. Some boom boxes were as large as three feet long and could play music so loudly that parents implored their teenagers to, “Turn that music down, or you’ll go deaf!”]

Today, you would be hard-pressed to find a teenager carrying a stereo on his or her shoulder. Instead, he or she is carrying an MP3 player in a pocket. And it's not just teenagers who are carrying these players; even preteens are part of what is often called the MP3 Generation, with ear buds replacing speakers and tiny digital audio players replacing giant boom boxes.

Turn Down the Damage

Jeremy, 14, and Makenzie, 11, are part of the MP3 Generation, each having their own iPod.

Their mother, Rene Kraft, of Pasadena, remembers listening to loud music through huge stereo speakers when she was their age. She says that, even though her children's iPods may be smaller, she knows the danger of hearing loss is still there.

That’s why Kraft has imposed strict limits on their use, saying, “If it doesn’t get turned down, it gets taken away.”

Julie Norin is a doctor of audiology with the Hearing and Speech Agency, in Baltimore. Norin believes that children today may very well be at a greater risk due to the excessive noise exposure starting at such young ages.

“Excessive noise exposure will definitely contribute to any potential age-related hearing loss down the road,” says Norin.

She explains how sound can damage a child’s hearing.

“Most people are not aware that noise actually increases in sound pressure level when it reaches the ear, travels through the ear canal, and reaches the inner ear. This is to ensure that sound is able to travel through the fluid of the inner ear and reach the hair cells at a strong enough level to stimulate the auditory nerve at normal hearing levels,” she explains. “The hair cells are responsible for releasing neurotransmitters that stimulate the auditory nerve, sending the signal to the brain. All of the structures [ear canal, eardrum, middle ear bones, hair cells, and auditory nerve] have to be functioning well in order for sound to reach the brain at normal hearing levels.

“When the auditory system is exposed to sound at hazardous levels, it essentially becomes too much for the auditory system to handle,” Norin continues. “An impulse sound, such as gunfire or explosion, can cause the eardrum to burst, or the hair cells within the cochlea (a spiral tube forming part of the inner ear, which is the essential organ of hearing) can weaken, bend, break, or disintegrate if the sound pressure level is too strong. When this happens—whether it is exposure over long-term, such as from improper use of an MP3 player or exposure to an impulse sound—the structures within the auditory system can no longer function at full capacity, which causes a decrease in the ability to hear at normal levels.”

Keep It Down

Many people believe that using headphones instead of ear buds is safer. Not true. More important than the transducer is the decibel level coming through the headphones or ear buds, which to be safe, should be 85 decibels or less, as sound levels become hazardous at 90 decibels.

Now consider that some MP3 players are capable of producing sound at greater than 100 decibels.

Norin acknowledges that keeping them turned down to the right level can be difficult for listeners to discern, so she proposes an alternative to traditional ear buds as a safety measure.

“I usually suggest to parents that they monitor the volume level very closely as well as purchase volume-limiting ear buds. They are specifically designed for use by children, and they limit the output to 85 decibels, regardless of how much the volume on the device is turned up.”

Volume-limiting ear buds also can be used with other devices that use headphones, such as DVD players and handheld gaming systems.

Norin also urges parents to limit the length of time their child uses an MP3 player, just as they would limit exposure to television or the computer. She warns that MP3 players can be used as long as 12 hours before needing to be recharged, but ear damage can occur in as little as 15 or 20 minutes if the volume is up too high. Finally, she asks parents if they've noticed their child playing the television at a higher volume than usual, talking louder than is customary, or asking him or her to repeat what they've just said.

If you suspect that your child already may be developing a hearing loss, Norin says to contact an audiologist and schedule an appointment to have your child's hearing evaluated.

In fact, even without symptoms, Norin says, "I recommend to any concerned parents, to have their child's hearing tested whether they suspect a hearing loss or not, in order to establish a baseline. And then, at the very least, return for annual hearing tests to monitor for any changes." **BC**

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