

EAR AND HEARING HEALTH

DEPARTMENT OF AUDIOLOGY

Hearing Loss Prevention

Patients frequently ask what can be done to protect their hearing. Often this question is asked only after initial diagnosis of hearing loss that has likely accumulated over several years prior to the visit.

One of the most common reasons for hearing loss, and yet also the most preventable, is exposure to excessive noise levels. As a society, we have become increasingly tolerant of loud noise and judge these sounds to be “normal” or “common” and therefore acceptable. Though we may have mentally become accustomed to living in a noisy world, our ears have not become more resilient to the harmful effects of loud noise.

The sense organ for your hearing, the cochlea, is a snail shaped structure encompassed within the bone of the skull. The cochlea is fluid filled with rows of thousands of microscopic sensory hair cells arranged much like a piano keyboard. Waves of sound are transmitted through the cochlea stimulating the sensory hair cells. One end of the cochlea is coded for high pitched sounds; the other end best detects low pitched sounds. The sound waves hit the area of your cochlea coded for high pitches first, initially resulting in onset of hearing loss in those pitches. If these sound waves are too loud, the sensory hair cells can be permanently damaged, resulting in irreversible hearing loss.

Often, the first symptom of a noise-induced hearing loss is difficulty hearing clearly in group situations or environments with background noise. Most consonants that give us clarity and understanding are fairly high pitched sounds and are lost first as hearing loss develops. Imagine playing Wheel of Fortune without ever having the s, t, p, f, or h to assist you in solving the puzzle. Patients with hearing loss often can hear someone speaking; however, are unable to decipher many of the consonants are needed for clarity, creating frequent misinterpretation and often great frustration with communication. To the patient with high pitched hearing loss, it often sounds as if the person speaking is mumbling with a mouthful of mashed potatoes. Frustrating!

Although noise-induced hearing loss is typically cumulative with repeated exposure, this type of hearing loss can also be a result of a one-time exposure to a sudden intense sound such as an explosion or gunfire. One of our Audiologists actually sustained a mild hearing loss after attending a single concert. The louder the sound, the shorter the time period before hearing loss can occur.

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The Occupational Health and Safety Administration (OSHA) mandates use of hearing protection for workers in environments of 85 dB or greater to prevent hearing loss development. Activities outside of work are often louder than the sounds industrial workers are exposed to and yet hearing protection is worn infrequently. Did you know that firearms, ambulance sirens, concerts, and some sporting events actually exceed 100 dB? Even your lawn mower emits approximately 90 dB! These are all situations in which hearing protection should be used, but because we are “used to” these sounds, many people neglect to wear appropriate hearing protection.

Your hearing can be protected. Recent studies have demonstrated the increasing prevalence of hearing loss in younger patients. This trend is attributed in part to the increased noise exposure our younger generations have sustained, and yet this hearing loss is completely preventable through avoidance of loud noise and consistent use of proper hearing protection when loud noise is unavoidable.

Whether you head out back to mow the lawn, ride your Harley, or get tickets to your favorite concert or sporting event this summer, remember the importance of your hearing and grab a set of ear plugs. Ear plugs now or hearing aids later!

How Loud is too Loud?

As general rule of thumb, the sound or environment is too loud if:

- You have to raise your voice to be heard

Or if after exposure to the sound :

- You hear ringing, buzzing or hissing noises in your ears
- Your hearing seems “muffled”
- Your ears feel stuffy

If any of these are true, you have just exposed your ears to excessive levels of noise that may eventually develop into permanent hearing loss.

Noise Levels

Prolonged exposure to noise at 85 dB can result in hearing damage. Sounds at 100 dB can result in permanent damage after exposure for just 15 minutes! At 120 dB and louder, *immediate* onset of hearing loss may occur.

140 dB	Fireworks, custom car stereo at full volume
130 dB	Firearms, jack hammer
120 dB	Concerts, sporting events, jet taking off
110 dB	Sporting events
90 dB	Gas powered lawn mower, motorcycle
80 dB	Blender, hair dryer
60 dB	Normal conversational level
30 dB	Whisper

Too Loud for Our Littlest Ears

Unfortunately even the toys we provide to our youngest children often emit sounds loud enough to cause eventual damage to their hearing.

As parents providing these toys, we are unknowingly conditioning our children to accept loud noise at ages before they are able to express their preferences.

In 2004, an acoustics standard addressing the maximum permissible sound levels of toys was adopted in the United States. The standard advises that hand-held, table top, or crib toys cannot exceed 90 dB from a distance of 10” from the toy’s surface. Compliance with the standard, unfortunately, is voluntary.

Annually, the Sight and Hearing Association releases a noisy toy list. The nonprofit organization tests current popular toys for potentially dangerous noise levels. Several of the toys on the list this year emit noise that exceeds 100 decibels. Sounds at this level place the child at risk of hearing damage within 15 minutes of play!

Are any of these toys in your child’s toy box? A little spring cleaning may help protect your little one’s hearing.

Cars Shake ‘N Go Mater by Fisher Price

Little People ABC Letter Sounds

Disney High School Musical

Rockerz Boomin’ Drums

Speed Racer Mighty Mach 5

Racing Wheel

Kawasaki Ninja Rad Rippers Wheelie Bike

The Dark Knight Electronic Ninja Sword

Press and Go Animal Parade

Neopower Saber and Fazer

Nick Jr The Backyardigans

Sing ‘n Strum Guitar

Nano Blaster

Playskool Song Magic Guitar

Razzle Dazzle Brobee Microphone

Play-A-Song Thomas & Friends

“It’s Great To Be An Engine”

True Heroes 2 in 1 Space Blaster



The Next Generation: Discussing Hearing Loss Prevention with Your Child

Just like adults, children are at risk for noise-induced hearing loss.

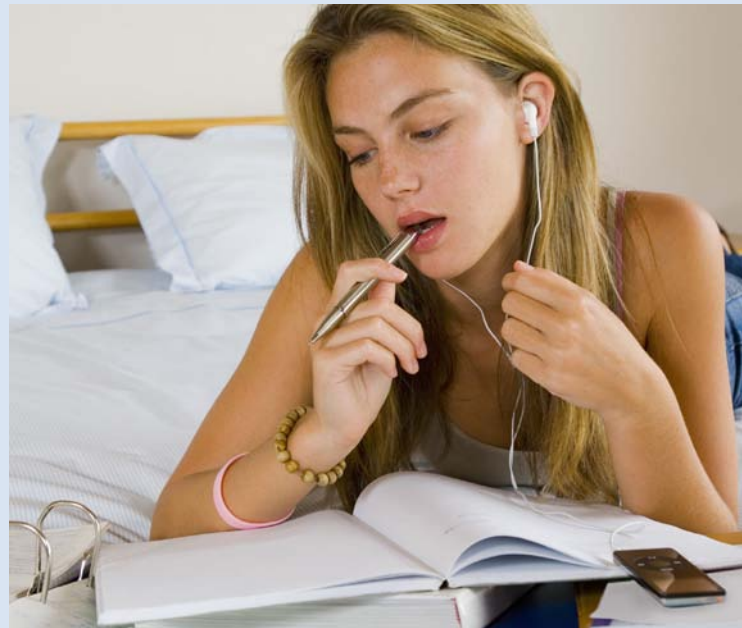
As parents of children in an ever increasingly noisy society, discussion of healthy habits and healthy hearing choices early in childhood is important so that these decisions become natural choices to follow throughout their lifetime. Experts estimate that approximately 12% of children already have some level of noise-induced hearing loss, yet only 16% of teens and young adults reported that they have heard, read or seen any information on noise-induced hearing loss.

Kids grow up too fast! Recreational exposure to excessive noise levels begins at unbelievably young ages. Even elementary children today encounter recreational sources of noise loud enough to result in permanent hearing loss. Ask any 7 year old girl if she would like to see either Hannah Montana or the Jonas Brothers in concert or any boy if he would like tickets to a NASCAR race. By 3rd grade, our children are beginning to ask for their first MP3 players.

“Tweens,” children between the ages of 8 and 12 years old, are at ideal ages for hearing loss prevention education. Children at these ages are beginning to not only express interest in activities such as concert attendance and MP3 player use, they are also old enough to understand the importance of hearing conservation and are making more independent choices. “Tweens” are also thankfully more receptive to information and opinions presented by their parents than their older siblings often are.

So what can parents do?

- Talk to your kids early and often about the permanent dangers of noise.
- Keep hearing protection available for your children and demonstrate proper insertion and use.
- Protect the ears of children who are too young to make the decision to protect their hearing.
- Set examples for your children. Wear your earplugs while using power equipment and mowing the lawn. Keep the volume down on your MP3 player, stereo, and television.
- Take opportunities to point out professional musicians using in-the-ear monitors designed to protect their hearing.
- Several online educational resources exist to assist parents in talking to their children about noise.
www.listentoyourbuds.org *www.turnittotheleft.com*
www.hearinet.com *www.noisyplanet.nidcd.nih.gov*
- Set safe volume limits on your child’s MP3 player if possible and restrict use of MP3 players to reasonable amounts of time.



A frequent concern raised by parents is their children’s use of MP3 players. Used appropriately, MP3 players pose no risk to hearing sensitivity, however, often children and adults alike set the volume higher than what is considered safe. MP3 players can easily reach 100 dB or higher. Sounds at this level can result in hearing loss after listening for only 15 minutes! Many MP3 players have software upgrades available that allow the maximum output to be adjusted to safer levels. For the popular iPod series of devices, visit www.support.apple.com and use the search box to locate “maximum volume” for your particular device. For other brands, check the user manual or website for information.

Talk to your youngsters early and often about the real dangers of loud noise. Perhaps with early and consistent education, the increasing prevalence of noise-induced hearing loss can finally be slowed with our next generation.

Happy Earth Day 2009!

Founded to raise environmental awareness of important issues, Earth Day has evolved since its inception in 1970 in the United States to become a global celebration observed in more than 140 countries.

Hearing aid battery recycling

Years ago, hearing aid batteries were comprised largely of mercury and required special disposal precautions. The batteries we utilize today are zinc air and patients typically dispose of these button batteries in their household garbage. However, manufacturers have traditionally continued to add a small amount of mercury to these batteries to reduce leakage and slightly extend battery life. Due to increasing environmental concerns, most manufacturers have agreed to eliminate the use of mercury in hearing aid batteries by June 2011. "Mercury free" battery lines have already been introduced by both Rayovac and Energizer in late 2008.

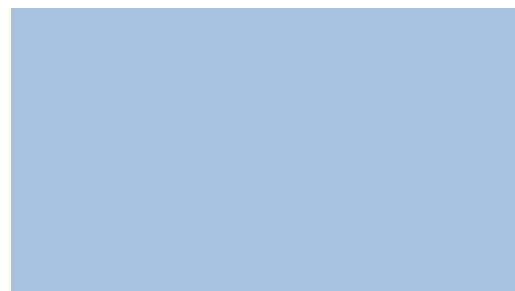
Although mercury free batteries are a wonderful earth friendly step in the right direction, environmentalists also warn that decaying batteries release harmful zinc into the ground and water table. Though it is not yet illegal to throw hearing aid batteries in your common trash in Illinois, some states including California have now enacted battery recycling mandates. Many of our local communities offer recycling drives that accept used batteries for recycling. To aid your efforts to be more "green," each of our three Audiology offices has established collection bins. Just grab your used batteries before your next appointment, and we will personally deliver them to an appropriate recycling center.

Hearing aid donations

Does the warmer weather have you motivated to spring clean & organize those drawers? "Retired" hearing aids can also be recycled. Organizations such as Lions Club Foundation and HearNow recondition, repair and recycle hearing aids for use by patients who are otherwise unable to afford the instruments. Donated hearing instruments are considered a charitable tax deduction and these organizations will provide a donation receipt for use in filing your taxes. Your tax accountant can best help you determine the deductible amount for your specific donation.

If you have hearing aids you wish to donate to such an organization, mention your wish to your audiologist. We can assist you in ensuring they are directed to the proper organization.

For more information on recycling other common household items, visit www.earth911.com to find a recycling center or organization near you.



So Many Choices!

The best method of hearing protection is simple avoidance of loud noise, however, this is obviously not always possible. The second best method is proper use of hearing protection. There are several options of ear plugs readily available in both retail stores as well as from your audiologist.

Universal sized ear plugs are typically constructed of inexpensive foam and readily available in retail stores. Proper insertion requires rolling the plug between your fingers until the foam is tightly compressed before insertion into your canal. Only 1/3 of the plug should remain outside the ear canal. These plugs provide wonderful noise reduction when inserted properly in situations where conversation or music enjoyment is not critical. However, many users complain of difficulty hearing music or speech when wearing foam ear plugs due to greater reduction of high pitched sounds.

Custom musician's plugs are created from impressions of your ear canals to ensure a comfortable fit. These ear plugs incorporate special filters within the plug that reduce noise evenly at all pitches resulting in an improved ability to understand speech and appreciate music. Due to the improved sound quality, this type of plug is typically utilized by musicians, nightclub employees, and spectators at sporting or music events. Proper insertion of custom fit plugs is quite easily achieved as the plugs will only fit in your ear in the manner intended. Though the initial investment (\$125) for this type of plug is higher, normally they can be worn for several years before replacement and patients typically prefer the comfort as well as the sound quality.

ETY plugs are a new option currently offered through our Audiology Department. These plugs are pre-molded, available in two sizes to accommodate smaller canals, and incorporate the same type of filter in the musicians plugs in an inexpensive design. At just \$12 a pair, these plugs provide a wonderful alternative in hearing protection for patients who occasionally attend concerts, night clubs, loud movies or restaurants where hearing protection is necessary but conversation is also important.

Whatever your need for hearing protection, give us a call. Your audiologist can help you find hearing protection that best meets your particular situation.

Hearing Aid Assistance Tax Credit Update

Hearing loss is often a neglected health concern. Most insurance policies including Medicare specifically exclude benefits for hearing aids leaving the financial burden completely on the patient. Many patients cite financial concerns as a primary factor in their decision to not pursue amplification when hearing difficulties were first noticed.

The Hearing Aid Tax Credit legislation was drafted in response to these concerns and reintroduced for review by Congress in March 2009. The proposed act would provide a \$500 tax credit per hearing aid purchased for dependents or individuals 55 years of age or older. This deduction would be allowable once every five years for a maximum deduction of \$1000 for two hearing aids. With the renewed interest in health care reform in Washington, this bill has wide bipartisan support in Congress as well as several hearing health organizations and advocacy groups supporting it.

To find out more information regarding this important piece of legislation and to voice your support, please visit www.hearingaidtaxcredit.org. Be sure to share the information with family and friends. If you don't have internet access, contact your audiologist for assistance in ensuring your voice is heard.



Welcome!

With the continued expansion of our services and growth of our patient base, it became necessary once again to expand our staff of professionals. Welcome to Carrie Graf Birdwell, Au.D. who joined our department in February as an experienced audiologist. As a department, we continue to recruit professionals who believe in a patient centered approach to providing excellent care; Dr. Birdwell fits in wonderfully. She is currently available to see patients in our Naperville location.

Congratulations!

Congratulations extended to friend and member of our Audiology team, Kristen Evans Davia Au.D. and her husband on the birth of their first child, Samuel, born in January. The little guy is adorable, healthy and happy. Dr. Davia has now returned from maternity leave and looks forward to continue caring for her patients in our Lombard location.



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Who's Who in our Department



Linda Berry, M.S., CCC-A : Ms. Berry earned her Master's degree in Audiology in 1990 from Illinois State University. She worked in a variety of settings before joining DuPage Medical Group in 1994. Ms. Berry enjoys the variety that our department offers while working closely with the physicians in the Otolaryngology Department to provide excellent hearing healthcare to our patients. Her clinical interests include rehabilitation with our senior population and electrophysiology assessments.



Carrie Graf Birdwell, Au.D. : Dr. Birdwell completed her doctorate degree at Salus University in 2008 in addition to her Master's degree obtained from University of Illinois Urbana-Champaign in 2005. She joined DuPage Medical Group in February 2009 with experience in a variety of diagnostic services and patient populations. Her clinical interests include vestibular assessments and digital amplification.



Kristen Evans Davia, Au.D. : Dr. Davia completed her doctorate degree at A.T. Still University in 2008 in addition to her Master's degree from Ohio State University in 2002. She joined DuPage Medical Group in 2002 to complete her clinical fellowship year and stayed on as a licensed and certified clinical audiologist. Her clinical interests include vestibular and electrophysiologic diagnostics. Dr. Davia has a specialty in the area of tinnitus assessment, counseling and management including Neuromonics tinnitus treatment.



Stacy Michels, M.A., CCC-A : Ms. Michels earned her Bachelor's degree in Communicative Disorders as well as her Master's degree in Audiology from Northern Illinois University. She joined DuPage Medical Group in August 2005 after completing her clinical fellowship year as an educational audiologist. Ms. Michels enjoys the full range of diagnostic services our department offers and hopes to contribute her knowledge regarding FM systems and CAPD testing. Her clinical interests include electrophysiologic assessments and hearing conservation.



Mary Theiler, Au.D. : Dr. Theiler completed her doctorate degree at A.T. Still University in 2006 in addition to her Master's degree from Northern Illinois University in 1996. She joined DuPage Medical Group in 2000 with experience in the areas of pediatrics. Her clinical interests include digital amplification and hearing assistive technology as well as our BAHA program. Dr. Theiler has a specialty in the area of tinnitus assessment, counseling and management including Neuromonics tinnitus treatment.