

# Sound News

**November 2014**

**Volume 27 number 11**

## Noise-induced hearing loss mechanism discovered

Loud noise can do permanent damage to our hearing without any other warning signs other than occasional ringing in the ears. Previous hearing loss research has focused on the link between hearing loss and the loss of hair cells in the inner ear. For decades, the hair cells have been considered the most vulnerable elements in the ear.

However, a study has analyzed the mechanism behind noise-induced hearing loss and found that the nerve fibers in the inner ear are even more vulnerable to damage. Researchers hope to use this knowledge to explore potential therapies that can re-establish the damaged connections between the nerves and hair cells.

A research group from Harvard Medical School investigated noise-induced hearing loss in three mammalian ears: mice, guinea pigs and chinchillas. Taking a closer look at a hair cell, the cell is connected to the cochlear nerve terminal by its synapses. A normal hair cell has roughly 20 synapses, in other words 20 connections to the cochlear nerve. By using confocal microscopes, researchers discovered no loss of hair cells in ears exposed to noise, but a striking loss of synapses, a part of the neurons. "Each missing synapse represents a cochlear nerve fiber that has been disconnected due to retraction. It no longer responds to sound" states Charles Liberman, lead researcher and Professor of Otology and Laryngology at Harvard. The findings suggest that every time we go to a loud concert or use tools without ear protection, we might be losing synapses or connections to the cochlear nerve, increasing the degree of hearing loss. Researchers say the current guidelines toward noise exposure are not adequate, since they are based on the assumption that noise-exposure causes only transient threshold elevation. The researchers hope that the damage done to the synapses may possibly be reversible, leading to potential cure of noise-induced hearing loss in the future.

The study was conducted by researchers from Massachusetts Eye and Ear Infirmary's (MEEI) Eaton Peabody Laboratory at Harvard

## Hand driers, French horns fireworks cause Loss

Noises around us can cause noise induced hearing loss. Obvious causes are people who work in environments with high levels of noise or listen to loud music through headphones or at concerts. Some less obvious sources:

**Hand driers** in public restrooms and work places are not typically perceived as being harmful. They are quieter now than previously, but around the age of 50, we see that more and more people get age-related hearing loss which is especially common among people in their 60's and 70's. Age-related hearing loss is also called Presbycusis. The treatment for this is always hearing aids. Modern super-fast hand driers can lead to hearing loss. With a noise level of up to 90dB, prolonged exposure to hand driers can lead to permanent hearing loss. Super-fast hand driers pass the required safety tests, but that tests are performed in large lab instead of concentrated sound as in a small public restroom.

**Fireworks** can lead to hearing loss if protection is not used. The noise levels from fireworks can reach 150-175dB. The recommendation from World Health Organization is not to be exposed to more than 140dB of peak sound pressure for adults and 120dB for children. Hearing loss caused by fireworks can be temporary or permanent and the loud sounds can also lead to tinnitus.

**French horn** Professional French horn players work in an environment harmful to their ears and their careers. Many French horn players suffer from noise induced hearing loss. Only 1 in 5 professional horn players use ear plugs to protect their ears. French horn players are exposed to 81-90dB for up to 48 hours per week. Nerve cells can be damaged as a result of noise exposure. When nerve fibers are exposed to noise levels higher than 100dB they lose their protective coating, myelin, and electronic nerve signals are disrupted. Noise induced hearing loss may be reversible. If treated immediately after being exposed to loud noise, the solution is the right medication right after the noise exposure.

## Leone's Line



### ARE YOU HERE?

Many of us no longer drive at night but we surely do miss you at our meetings.

**Reminder: Mark December 11th on your calendars now for the HLAA Annual Christmas potluck/gift exchange.** Members bring the side dishes, salads, desserts & the board does the Ham, rolls, coffee & beverage.

HOPE TO SEE YOU THERE!! AND NOVEMBER TOO!

## This and That

**Thank You's** from the HLAA board to The Hilyard Community Center for buying a new lapel mic that can be used at our general meetings.

**Secretary needed for HLAA Board Meetings**-long term commitment desired. Contact one of the following board members for more information: Shirley Perry, Andrea Cabral or Clark Anderson.

**THE BOX:** For your convenience we now have The Box where you can drop your questions anonymously to be answered at one of our general meetings.

**Courage doesn't always roar—sometimes it says quietly,  
"I will try again tomorrow."**

Members: if you have changed your e-mail address please notify Karin Smith of the change [karinsm@efn.org](mailto:karinsm@efn.org)

Hearing Loss Assoc.-Lane County, Oregon Information calls are taken by Linda Diaz 790-1290

**HLA A** is published monthly for members of Hearing Loss Association of Lane County.

Annual chapter fee of \$10.00 can be mailed to HLA-LCO Inc. PO Box 22501, Eugene, OR 97402

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### Article Deadline: Second Thursday each month

Newsletter Editor	Leone Miller <a href="mailto:vngleone@comcast.net">vngleone@comcast.net</a>
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National website: [www.hearingloss.org](http://www.hearingloss.org)

Oregon website: [www.hearinglossOR.org](http://www.hearinglossOR.org)

Chapter website: [www.hearinglosslane.org](http://www.hearinglosslane.org)



## Out & About

\* **Donna Veal & Brenda Coleman** did a table for the Jan

Elliott-Stone Soup event

\* **Andrea Cabral** has done 3 events at the Hilton Center

\* **Clark Anderson** went to WA with OR Cap members

\* **Shirley Perry** visited with the new Vocational Rehabilitation counselor Jamie Thompson-Butcher

## Used hearing aids

*Mandy Mroz, director of Healthy Hearing*

A commonly asked question about hearing aids is whether they can be reused by someone else. There two main things to consider about used hearing aids: the physical fit and the technology available with the device.

There are many factors when trying to decide if used hearing aids might be right for you including: technology, style, features and fit.

The physical fit of the hearing aids can be described according to two basic styles: in-the-ear (ITE) and behind-the-ear (BTE) hearing aids. ITE hearing aids are custom-fit, or made specifically to fit an individual's ear canal. Because the shape of everyone's ear canal is unique; this style of hearing aid cannot be worn by another person unless the custom shell is remade, which is not always possible and may be cost-prohibitive.

BTE hearing aids are coupled to the ear via custom earmolds or standard ear tips. While someone else's custom earmolds cannot be re-worn, the hearing aids themselves may be reused by someone else, provided the device is reprogrammed by a practitioner to fit the second person's hearing needs. The new wearer would simply need to pair the hearing aids with new custom earmolds or ear tips. Therefore, BTE hearing aids are more likely to be reusable, depending on the technology built into the hearing aids.

Technology encompasses many aspects of the hearing aids, like the power source, the programming capability, the age of the circuit and how well it's working. A hearing care professional will need to evaluate the hearing aids to determine whether they will work for you. The practitioner may also need to send the hearing aids to the manufacturer for a thorough reconditioning or repair before it can be programmed for you to use.

The first step to determining if a used hearing aid will work for you is to see if they are appropriate for your type of hearing loss. Contact a hearing care professional near you for a complete hearing evaluation. Be sure to bring the hearing aids to the appointment. After quantifying your hearing ability, the practitioner will run electroacoustic tests to determine the amplification and programming capability of the hearing aids to determine if they might be appropriate for your hearing loss

The second step is to have the hearing aids fully inspected and tested by the hearing care professional to ensure they are still in good working order. If there are concerns, they might need to be sent to the manufacturer for reconditioning or repair. After the hearing aids are approved for your use, find out whether they are covered under any existing manufacturer warranty. If they aren't, consider whether you might want to purchase an extended warranty to cover any loss or damage.

Once the hearing aids are determined to be ready for you to wear, the practitioner will need to program them specifically for your hearing ability. Like any other hearing aid fitting, this programming may require more than one session to fine-tune the hearing aids to your specific hearing, preferences and lifestyle needs. You should expect to pay the professional for a testing and/or fitting fee, as well as any fees for reconditioning or repair that may be needed.

# Keeping Your Batteries Charged



## Information You Can Use

### Donating used hearing aids

If your hearing aid won't work for you, it might work for someone else. One of the best things you can do with used hearing aids - whether they're in great condition or need repairs - is to donate them to a charity that will accept used hearing aids to be repurposed, reprogrammed or recycled to assist others in need in both the U.S. and around the world. For example, the **Lions Clubs International Foundation** collects hearing aids at its recycling centers, which are located around the community in public places like libraries or in audiologists' office.

Check with a local hearing care professional to find charities in your area that collect used hearing aids

In the United States, 33 babies are born with hearing loss every day, making it the leading sensory disability in the nation. A survey shows how these children and their families meet barriers when receiving the necessary services and care - both from public and private providers.

Around the age of 50, more and more people get age-related hearing loss. Age-related hearing loss is especially common among people in their 60's and 70's. Age-related hearing loss is also called Presbycusis. The treatment for age-related hearing loss is always hearing aids.

## Hearing in Noise

Smiling and nodding. Chances are, we've all done it. Instead of asking the other person to repeat we smile and nod, and hope we didn't miss anything important. This familiar experience becomes more and more common as we start to lose our hearing ability. What once was a rare occurrence becomes a habit, and when it happens enough, eventually we miss out on important moments and conversations.

Usually, we think of hearing loss as just affecting the volume of the sounds that we hear. But most forms of hearing loss, including the gradual impairment that can develop with age, also diminish the clarity of sounds. For most hearing impaired folks, this problem is most keenly felt when they are trying to follow a conversation.

Word recognition is the ability to distinguish between different spoken words. People with hearing loss will often suffer from reduced word recognition for two main reasons:

**Fewer cues.** Many words in the English language are only distinguishable from each other by very small, subtle sounds. For a person with hearing loss, picking up on these small differences in sound can be a challenge. Many important sounds are high frequency, and are especially difficult for many people to hear (high-frequencies are often the first to go with hearing loss).

**Impaired cognitive processing.** As you listen others speak, your brain is busy converting many different sounds into individual words, as well as separating the speaker's voice from background noises like street traffic. The longer a person lives with untreated hearing loss, the more impaired their speech processing becomes.

*See pg 5*

## Need Help Paying Your Monthly Phone Bill? OTAP

Oregon Telephone Assistance Program (OTAP) may provide a reduction in the monthly telephone bill for Oregonians who receive qualifying benefits.

E-MAIL: [puc.otap@state.or.us](mailto:puc.otap@state.or.us)

### PHONE:

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**Monday - Friday 8 a.m. to 5 p.m.**

## Having Trouble Or Unable To Communicate By Telephone? TDAP

Telecommunication Devices Access Program (TDAP) loans adaptive telephone equipment at no cost and with no income restrictions to eligible Oregonians who are hearing, cognitive, vision, speech or mobility impaired.

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Membership in HLAA is \$20 student, \$35 individuals, \$45 for couple/family, \$60 professional. It includes the award-winning bi-monthly magazine, *Hearing Loss*. Write HLAA, 7910 Woodmont Ave., Ste. 1200, Bethesda, MD 20814; 301-657-2248 (Voice); 301-657-224 (TTY); 301-913-9413 (Fax) or [www.hearingloss.org](http://www.hearingloss.org). Get the latest e-news: <http://www.hearingloss.org/membership/Sen.asp>.

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*Above: Molly Buckles, MS  
and Katherine Swem, Au.D*

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**Can't Hear With  
Background  
Noise?**

Or do you have difficulty understanding words on TV or having a telephone conversation? 30 million Americans have this type of hearing problem. Hearing aids help very little when there is noise present and make it *worse* in loud noise. They work best in low noise, "living room" situations. Background noise (especially speech) and long distances to the sound source, make you unable to distinguish words.

I know because I struggled with this problem for over 10 years as my hearing got worse until I discovered the existence of Assistive Listening Devices (ALDs). These devices bring the sound source closer while at the same time increasing the high frequencies that make words crisp. This improves your understanding dramatically in noisy backgrounds. Personal amplifiers, like the **Audable Personal Listener (\$79.99 - w/ headphones & earphones)**, are used in restaurants, automobiles, and small groups to enable you to UNDERSTAND what is being said. **45-day price refund.**

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## Help us Spread the Word!

**Do you know someone who might like to know about the help available with HLA? Send us their name and address and we'll send them a Welcome Packet.**

### ***Hearing in Noise continued.***

Some people with hearing loss also suffer from damage to the bones in their middle ear, their cochlea, or their brain's auditory nerves. All of these can also reduce the clarity of perceived sound.

### **Can Hearing Aids Help Me Understand Speech?**

The effectiveness of hearing aids for increasing word recognition depends on the cause of the hearing impairment. For many people with age-related hearing loss, hearing aids can increase their ability to hear important word cues. In addition, many new hearing aids have cutting-edge technology that helps to separate speech from other sounds in the background, amplifying the conversation that you want to hear rather than the noise of the wind or the crowd.

Early intervention is very important, however. The longer a person lives with hearing loss, the harder it will be for him or her to discriminate between different sounds, even with assistance.

***Gleaned from Hearing Planet***



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## Hearing Loss Assoc. of Lane County Chapter Fee and National Membership Form

Please fill out this form /survey and turn in at the general meeting or mail to HLA - Lane Co., PO Box 22501, Eugene, OR 97402.

I have enclosed: Chapter fees \_\_\_\_\_ \$10.00 Chapter Donation of \$ \_\_\_\_\_  
National dues \_\_\_\_\_ \$35.00 (regular) \$70 \_\_\_\_\_ (professional)\*

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Why are you joining us?

What most interests/puzzles you about hearing or hearing devices?

Are you interested in volunteering? What would you like to do?

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Would you like to be on our email news list: \_\_\_\_\_ Yes \_\_\_\_\_ No

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If the month & year on your mailing label have already passed, it's time to renew your membership! Please use the form on page 6 to pay your dues

2580 Hilyard St., Eugene, OR

**NOVEMBER 13th 7 pm**

**"Less Bah Humbug-Tech and Tips to Reduce Holiday  
Hearing Headaches"**

Hearing in groups is always difficult. Hearing during holiday gatherings can be additionally difficult for several reasons. This webinar will review the challenges as well as several technological and logistical solutions to ease the stress of listening and enjoying the holidays.

There will be a discussion about this webinar event along with a skit from our very own Donna Veal.

**Calendar**

**Board Meeting Nov. 4**  
3:30 to 5 pm Members Welcome  
Hilyard Community Ctr.  
2580 Hilyard St  
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Membership meetings are the 2nd Thursday of the month. They are accessible for all degrees of hearing loss by amplification—loop assistive listening systems.  
**Real time captioning by CC Reporting (Debby, Chris, ad Jan)**