



Canadian Hard of Hearing Association North Shore Branch

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Mountain Ear

From the Desk of the President

So, I'm starting this letter on February 2, i.e. 02-02-2020. Too bad we don't have some sort of magic number like that to describe our common health issue. But it sure is a good way to remember sight issues. How about a little competition, can you come up with a formula, or something similar to "2020" that the hard of hearing community can attach to? I'll come up with a prize for the best suggestion offered, and maybe even a runner up one also.

Well, all the parties are now over and many of us can now concentrate on losing those few extra pounds that we may have gained, and also wonder how come we have already broken our New Year's resolutions. Oh well, there's always next year. Did you manage to get through the season without too many "eh?s", "say that again", "I didn't hear you's". Too many big gatherings can make joyous times so stressful! I hope that you have many weapons in your arsenal available to help with some of these difficult situations.

Of the various methodologies and general recommendations that I am able to pass on to you for the purpose of improving our communication efforts, probably nothing has had a better overall performance rating than my regular attendance at the Speech Reading course put on by Vancouver Community College. My wife and I are now taking the level 2 course. I know that in my last letter I strongly urged you to consider these courses, and I repeat that now. I am pleased to report that many of you have, and the 2 courses, levels 1 and 2, are both now full and ac-

April Presentation

Monday, April 20, 2020

7:00 pm at the Summerhill

135 West 15th Street,

North Vancouver

Guest Speaker

Ken Jones

**Director, Tinnitus Association of
Canada, President, BC Tinnitus**

Association and

**Facilitator of the Greater Van-
couver Tinnitus Self Help Group**

Topic

**"Tinnitus-nothing
you can do about it"**

False



**Everyone Welcome
Wheelchair and Hearing**



tive for this term. As the demand grows, Lisa will be putting on more courses, so sign up before they fill up. See the information on page 6 of this newsletter.

In my last letter I talked about getting “ourselves” out to the public a little more. As most of you know we are now in our second year presenting “Sound Advice” at Silver Harbour in North Vancouver. This venue has rapidly become as popular as the West Vancouver location, and Flo and Hugh continue to be the best advocates for improved hearing that we can imagine. I also mentioned that we were attempting to take Sound Advice to the “public sector”, and I can now report that our first Municipal Sound Advice will be at the North Vancouver City Hall in early June, specifically for City Hall employees.

As I come to the end of my thoughts just a reminder to put aside some time for the next Summerhill meeting and presentation. We have arranged for Ken Jones, the facilitator of the Vancouver Tinnitus Self Help Group to come and speak. It takes place at 7:00pm on Monday, April 20th, at the Summerhill, 135 West 15th St. in North Vancouver.

OK, let’s hope the snow is over with for the season and that spring is just around the corner. I’ll speak to you again soon,

Alan

Hearing Aids and the Brain

by Bill Friend

Our hearing is a complex system involving both our ears and our brain. Hearing starts as sound waves that reach the eardrum and cause it to vibrate. This vibration travels through the ear canal and reaches the cochlea where it stimulates sensory hair cells. These send neural signals to the brain where it uses special auditory circuits to translate these signals into speech, bird calls, train whistles or whatever type of sound the brain recognizes.

Normal hearing develops from birth as our brain learns from our environment to recognize the different sounds we hear and to categorize them. The ear-brain system changes as we age and becomes less efficient. Typically, some of the sensory hair cells become damaged or broken, particularly those in-

involved in the higher frequencies. Recognizing and understanding speech depends heavily on these higher frequencies. Also, as we age, our brain circuits can become less efficient and it can take longer for the brain to process the incoming sound as it competes with our other mental resources. This can be why it may be more difficult to understand what people are saying even though you seem to be hearing the sounds. They are just not making complete sense.

Hearing aids are generally the solution, but you have to recognize that hearing aids, even the best ones available at present can only aid but not completely cure your hearing loss. This is because the hearing aids can only process and amplify the sound that you are hearing. They cannot correct for the existing damage in your ear-brain system.

Our hearing losses are individual to each of us. There is “no one-size-fits-all” solution. This individuality depends greatly on how severe and what type of deterioration has occurred to the ear-brain system. When the hearing aids are introduced into the system, they pick up the sound waves and modify and amplify them before they reach the eardrum. These modified signals now change the way the brain responds. Under the best of circumstances this will cause significant improvement in a person’s speech understanding abilities. It is important to recognize, however, that while hearing aids modify and amplify the sounds we are hearing, there is still a period of adjustment that must take place in the brain. We are now hearing sounds differently, and just as we had to learn the sounds in our environment when we were growing up, we start a similar part of the process all over again. This is because the new hearing aids are delivering different sounds to the brain and even sounds that we may not have been able to hear for some time. Speech will sound louder and even more clearly but it is not the same as you were hearing before the hearing aids. Sound frequencies that you were not hearing before are suddenly re-introduced. Perhaps turning on the tap now sounds to you like Niagara Falls and other high frequency sounds grate on your nerves or people sound like they are speaking too loud. What is happening?

All the while over the years you were losing some of your hearing, your brain was making adjustments to minimize the loss. Brain circuits were being diverted

from other tasks to help you hear as best as possible. The brain was turning up the volume of the weaker signals coming from the ear. This adjustment is a slow process and it takes time for the brain to respond properly. When you start to use hearing aids, the new, strong, signals from the hearing aids start a process that will cause the brain to start to turn down the volume. It takes the average person at least 3 weeks to readjust to these new stronger signals. During this period of adjustment, the new sound delivered by your hearing aids will gradually begin to sound normal again. To help with this adjustment the best thing that you can do is to wear your new hearing aids continually. Put them in first thing in the morning and wear them all day. People who say "I tried my hearing aids and they sound too loud so I put them away in a drawer" are not giving their brain a chance to adjust. Hearing aids are not like eye glasses that you just put on and get instant correction. Remember that ear damage.

Hearing aids do not always work well for everybody. There is still much we cannot explain about the variance in hearing aid outcomes. The things that we can explain fall into two categories:

(1) user centered variables such as age, attention, motivation and biology; and (2) the versatility of the particular hearing aids being used and how well these hearing aids were adjusted for the individual's hearing loss.

Some of the user centered variables, age and biology, have already been discussed. The importance of attention and motivation cannot be over-emphasized. They are the only factors the user can control. If you approach your use of hearing aids with a positive attitude and the expectation that you will succeed, the result will be much better than if you set yourself up for failure. If you persist and give your brain the time to adjust itself, you should get good speech understanding back.

The hearing aids that you purchase and how they are adjusted by your hearing clinician for your particular needs is also very important. Modern hearing aids do much more than just amplify the sound waves that they receive. The speech recognition programs built into the hearing aids modify the sound waves in ways that adjust to your particular hearing loss. They change them in ways that help the brain respond positively to the sounds that they send to

the eardrum. The role that the audiologist or practitioner plays in helping you hear better is crucial.

In summary, if you are planning on trying hearing aids to help you hear better, get your hearing aids early, before your ear-brain system has deteriorated too much.

Find a good hearing professional and get a complete hearing test.

Tell them as much as you can about how your hearing loss is affecting your lifestyle and what you would like to have changed.

Try the hearing aids with the expectation that they will help you.

Give your brain time to re-adjust to the new sounds that you are hearing.

Go back regularly for fine-tuning until they are completely satisfactory to you.

Buying a Hearing Aid for the First Time

by Susan Gelinis

Do your "homework" first: talk to other hearing aid wearers about their experiences with hearing aids and hearing clinics. Come to a Sound Advice session.

Arrange for a hearing test at a hearing clinic. You can see your doctor first to see if there are any medical conditions that have to be dealt with first such as ear wax. The doctor in turn may refer you to an ENT (Ear, Nose, Throat Specialist). The audiologist or HIP (Hearing Instrument Practitioner) will, however, refer you to your doctor if she/he suspects any medical issues.

Discuss what brands, types and styles of hearing aid are available and which are suitable for your hearing loss. Your audiologist/HIP is the best person to tell you what type of hearing aid is best for your hearing loss. The type of hearing aid you get depends on: (1) your hearing loss and how much amplification you need; (2) your lifestyle and areas where you want your hearing to improve; (3) your own abilities in handling the different features of hearing aids.

Discuss your hearing loss with your audiologist/HIP and have your audiogram explained to you. Be informed about your type of hearing loss.

Be prepared to talk openly about your hearing loss issues. Have a list of situations where you hear well and where you don't hear well and where you would like to hear better.

Generally, each type of hearing aid comes in different models: from a basic level just "bare bones" model to a premium level model that requires a knowledge and need for additional technology. The audiologist/HIP will explain some basic features:

Where the battery goes. Changing batteries can be difficult for people with dexterity problems. Rechargeable options are available with most hearing aids which eliminate the need to change batteries.

Whether the hearing aids will have a dome or a mold.

What the little toggle switch or button is used for: ie. to change volume, to change programs, etc.

Assess your comfort level with technology and your need for the technology:

A telecoil is essential if you go to venues with a loop system or you want to enhance your ability to talk on the phone.

Wireless connections are necessary to connect to the TV and cell phones.

Remote controls help change programs in your hearing aids with greater ease.

Remote microphones allow you to hear others in small groups.

Ask questions about free trial periods, cost of batteries, warranties, product services, and assistive devices.

Ask about senior discounts and other organization discounts.

Once you've got your aids, make sure you learn how to insert your hearing aids correctly. Make sure you know how to clean and store the aids. Ask about keeping your aids in a dehumidifier.

Ask about follow-up appointments and care of your hearing aids. These are important for your hearing rehabilitation.

Keep a list of your progress and problem areas to take to your follow-up appointments. It takes time to adjust to your new hearing aids. Your brain needs to learn the new sounds you will be hearing and adjust to them. This can take up to a few weeks or months.

Always look for support when there is a problem.

The following article is reprinted here with permission and is from the blog section of the website www.hearinglosshelp.com where you will find many more interesting articles. Neil Bauman, Ph.D. is a hearing loss coping skills expert and the owner of the website from which the articles are taken.)

1,000 Genes Affect Hearing in Humans

by Neil Bauman, Ph.D.
© July, 2019

You may have thought that most hearing loss is caused by hair cells dying. You would have been right if you were just thinking about hearing loss due to exposing your ears to loud noises. At the same time, you'd be mostly wrong if you ignored all the other kinds of hearing losses, especially the numerous kinds of genetic hearing losses.

Likely you have heard about the Connexin 26 mutation of the GJB2 gene—the most common known cause of congenital sensorineural hearing loss. But that is only one of hundreds of genes/genetic mutations known to affect hearing.

Up to now, researchers have discovered a whopping 400 genes that can affect hearing in humans. However, by extrapolating from what they know about genes that cause hearing loss in mice, they think that there are yet still another 600 genes involved in auditory function in humans that remain to be found. (1) This suggests that there are at least 1,000 different genes that can affect hearing in humans.

According to professor Karen Steel, Ph.D., researchers can make this prediction because, “despite the difference in the size of the inner ear and the spectrum of frequencies detected, there are remarkable similarities in the anatomy, physiology, genetics, and pathology of the auditory system in mice and humans”. (1)

Recently, researchers have discovered another 38 genetic mutations in mice that cause hearing loss. Of these new mutations, they found that numbers of the mutations had normal auditory brainstem response thresholds but abnormal waveforms. This may correlate with the finding that many people report difficulty hearing in noisy environments, but when tested, have normal audiograms. (1)

By analyzing these various genetic mutations in mice, researchers have realized that there are a wide range of underlying pathologies that can lead to hearing loss and that a large number of different genes likely are involved.

Of the 38 genes mentioned above, all suggest that similar genes in people will cause hearing losses also. In fact, they have already “found evidence that two of these mouse genes are also mutated in human families with inherited deafness”. (1)

Obviously, there are an enormous number of different kinds of hearing losses caused by genetic mutations in these many different genes! It should be no surprise then, that some of these genetic mutations result in profound hearing loss, while others only show a mild hearing loss of perhaps 20 dB or so. Some cause hearing loss across all or most frequencies, and other only result in hearing loss at certain frequencies.

For instance, some hearing losses are in the high frequencies (the typical ski-slope hearing loss). Others are low-frequency losses (the rare reverse-slope hearing loss). Still others are flat losses (roughly the same hearing loss at all frequencies).

Furthermore, these various hearing losses arise from different underlying pathologies. For example, several genes were associated with conductive hearing loss due to middle ear inflammation. Other mutations cause such things as abnormal inner hair cells and defects of inner and outer hair cells. Still other

mutations result in flaws in the synapses that transmit signals from the hair cells to the auditory nerve. In addition, some genetic mutations result in reduced endocochlear potentials—think of the cochlear “battery” as half run down.

Obviously, you no longer can assume that all hearing loss is due to hair cells dying. This is just not true. Each of the above conditions come from very different causes—but all are ultimately from specific genetic defects.

It’s interesting that some of these genetic mutations caused hearing loss from childhood through old age. However, many of them show normal childhood auditory brainstem responses (ABR) followed by progressive hearing loss as the person gets older.

It would be great if ear specialists could develop better diagnostic techniques so they can tell exactly where and from what the hearing loss developed.

For example, they already know that people with the GJB2 genetic mutation have excellent results when they have cochlear implants. They also know that people with genetic mutations that affect the cochlear nerve do not do as well with cochlear implants. (2)

They also know that people with the A1555G variant of the 12S rRNA gene are very susceptible to hearing loss from taking any of the aminoglycoside antibiotics. (3)

Perhaps one day soon they will find exactly which genes cause Large Vestibular Aqueduct Syndrome (LVAS/EVAS). They already know of two “marker” genes, but not the specific genes that actually cause the hearing loss.

Also, I wouldn’t mind knowing the genetic origin of the extreme reverse-slope hearing loss that runs in my family.

(1) Steel, Karen. 2019. Lessons about Hearing Loss from Mice. *Hearing Journal*, Vol. 72, No. 7, July 2019, p 6.

(2) Decoding Genes. In: *Hearing Health*. Hearing Health Foundation. Summer 2019. p. 20.

(3) Bauman, Neil. 2010. Genetics and Aminoglycoside Ototoxicity. In: *Ototoxic Drugs Exposed*. Integrity First Publications. Lynden, WA.

Vancouver Community College Fall Speechreading Courses

Registration is now open for Fall Speechreading courses! The Speechreading course promotes skill development and attitudinal change towards communicating with a hearing loss. Participants, including individuals who have hearing loss and their partners, reflect on how hearing loss affects communication. The course allows the students the opportunity to create more effective personal communication, to identify and select communication strategies and tools, to increase self-confidence levels, and to become more effective at self-advocacy. The students also practice Speechreading: they detect differences in mouth movements, discriminate and identify visual aspects of speech, and incorporate visual information with what they hear with the goal of improving personal communication.

Students will learn:

Advantages and limitations of Speechreading
How to combine what you see with what you hear
How to identify factors that affect your ability to communicate
How to use a variety of strategies to communicate more effectively
How to behave assertively in difficult situations
Tips for stress reduction and relaxation
The class meets for 2.5 hours, once per week, for 12 weeks. This Fall, we have three time options and two locations available:

Wednesday afternoon, 1:00 pm-3:30 pm

Dates: April 8th—June 23rd (filling quickly)

Thursday afternoon, 1:00 pm-3:30 pm

Dates: April 9th—June 24th (many seats available)

Location: Silver Harbour Seniors' Activity Centre, North Vancouver

Tuesday evenings, 7:00 pm—9:00 pm

Dates: April 7th—June 23rd Location: Vancouver Community College (Broadway Campus), Vancouver

Tuition and fees for the course are \$270.05, but a senior tuition waiver is available for those 65 and over (Cost will be \$93.40.)

For more information, or to request registration forms, contact Lisa Dillon Edgett: 604-871-7348 or ldillonedgett@vcc.ca

All opinions expressed in this newsletter are those of the contributors and not necessarily those of the Canadian Hard of Hearing Association or CHHA – North Shore Branch.

Sound Advice

Presented by:

**The Canadian Hard of Hearing
Association**

North Shore Branch

Now at 2 Locations

When we meet, we discuss topics and issues dealing with hearing loss. We look forward to seeing you there. Bring a friend, a family member, they are welcome too.

The group meets on the First Friday of each month from 10:00 AM to 11:30 AM at the West Vancouver Seniors' Centre's Social Rec Room.

We also meet on the Last Monday of each month

From 10:00 AM to 11:30 AM at the Silver Harbour Seniors' Centre In North Vancouver in the Card Room

(No meetings in July & August)

**Subjects to be addressed include:
Technology;**

About Speechreading;

Expert Coping Strategies;

Improving Hearing Environments

For Infomation call:

604-926-5222