What's New at McNeill Audiology

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Technology Update

Oticon Agil and Agil Pro

written by Kristina Plewes, M.Sc, Registered Audiologist

Speech is a very complex signal hidden amongst other environmental sounds which occur in our daily life. Attempting to separate the speech signal from background noise is a difficult task even for those with normal hearing. But for people with hearing loss this can be a daunting and exhausting task, which is why hearing in background noise is one of the most common complaints for hearing aid wearers.

If speech is distorted or unclear, then interpreting the content of what the speaker is saying becomes extremely challenging and stressful. The clearer the quality of the speech signal, the better the brain's ability to separate speech from background noise. Oticon is a Danish company that has been around for many years but stays extremely current with their technology. We recently had the opportunity to travel to Toronto to attend the launch of their newest hearing aid line: the ***Agil*** and their more advanced product, the ***Agil Pro***.

Both the ***Agil*** and the ***Agil Pro*** contain the most recent technology allowing for faster and more efficient signal processing. This new technology increases speech clarity and therefore leads to more natural sounding speech. The more naturally speech cues can be preserved, the clearer speech will be heard. With increased clarity of speech, less energy and focus is needed for the task of listening; thereby allowing residual energy to focus on other activities.

The following are some of the features found in the ***Agil*** and ***Agil Pro***:

SPEECH GUARD: As we speak, our voice constantly changes in volume and intensity. The closer the hearing aid is able to match the original signal, the more accurate the interpretation of the signal will be. When other background noises are present (i.e. restaurant chatter, dishes and cutlery clanging) traditional hearing aids can distort the speech signal while attempting to reduce the unwanted noise. When sudden noises are detected, **Speech Guard** acts rapidly to deal with the unwanted noise with less distortion and without interrupting the naturalness of the speech signal.

POWER BASS: Oticon has a remote control called the Streamer which can wirelessly connect music, television and the telephone directly to the hearing aid(s). With open-fit style hearing aids or hearing aids with large vents, a large amount of low frequency sound is lost. The **Power Bass** feature helps restore the 'lost' low frequencies thereby creating a richer and more natural sound quality.

MUSIC WIDENING: When listening to music in an enclosed space such as your living room or a concert hall the normal auditory system uses various cues which add to our perception of depth and richness to music. When listening to music directly through the hearing aid(s) using the Streamer, sound is often perceived as coming from inside one's head. The **Music Widening** feature helps to restore depth and richness thereby giving the hearing aid wearer the 'concert hall' perception of listening to music.

SPATIAL SOUND 2.0: As previously mentioned, the normal auditory system uses cues for various tasks such as hearing in noise and localizing where sounds are coming from. In background noise situations, such as a coffee shop, traditional hearing aids amplify the same amount on both sides making hearing in these circumstances difficult. With **Spatial Sound 2.0**, the hearing aids communicate together wirelessly to detect the noise of the espresso machine on one side and the speech signal on the other side so that the ear closest to the espresso machine will be made quieter and the ear closest to the speech signal will be made louder. This process helps to make the speech louder than the noise for better speech clarity.

Speech Guard, Power Bass and Music Widening are available with both the ***Agil*** and the ***Agil Pro*** hearing aids. **The Spatial Sound 2.0** concept is only available with the ***Agil Pro***.

The ***Agil*** and ***Agil Pro*** are available in many sizes and styles from a miniRITE (receiver-in-the-ear) BTE (behind-the-ear) aid to a power CIC (completely-in-the-canal). Some of the behind-the-ear styles come in three different power receiver options; a standard, medium or power receiver which can be changed should your hearing decrease over the life of the hearing aid.

Feel free to contact your audiologist should you have any questions about this new hearing aid product line from Oticon.❑

Hearing Loss is Common in People with Diabetes

Synopsis of an article in the US National Institues of Health Newsletter June/08

Hearing loss is about twice as common in adults with diabetes compared to those who do not have the disease, according to a new study funded by the American agency, National Institutes of Health.

The study found a strong and consistent link between hearing impairment and diabetes using a number of different outcomes. The researchers discovered the higher rate of hearing loss in those with diabetes after analyzing the results of hearing tests given to a nationally representative sample of adults in the United States. The test measured participants' ability to hear low, middle, and high frequency sounds in both ears. The link between diabetes and hearing loss was evident across all frequencies, with a stronger association in the high frequency range. Mild or greater hearing impairment of low or mid-frequency sounds in the worse ear was about 21 percent in 399 adults with diabetes compared to about 9 percent in 4741 adults without diabetes. For high frequency sounds, mild or greater hearing impairment in the worse ear was 54 percent in those with diabetes compared to 32 percent in those who did not have the disease.

Adults with pre-diabetes, whose blood glucose is higher than normal but not high enough for a diabetes diagnosis, had a 30 percent higher rate of hearing loss compared to those with normal blood sugar tested after an overnight fast.

Diabetes may lead to hearing loss by damaging the nerves and blood vessels of the inner ear, the researchers suggest. Autopsy studies of diabetes patients have shown evidence of such damage.

"Hearing loss may be an under-recognized complication of diabetes. As diabetes becomes more common, the disease may become a more significant contributor to hearing loss," said senior author Catherin Cowie, Ph.D., of the National Institute of Diabetes and Digestive and Kidney Disease, who suggested that people with diabetes should consider having their hearing tested. ❑

College of Speech & Hearing Health Professionals of BC.

written by Brent McNeill, M.A, Registered Audiologist

On April 1, 2010 the College of Speech and Hearing Professionals was officially formed and became fully responsible for registering and regulating audiology, speech-language pathology and hearing instrument-dispensing professionals under the Health Professions Act in British Columbia. You may have seen some of the news releases and the purpose of this article is to provide information about how and why the college was formed.

Prior to April 1, the professions of audiology and speech-language pathology were unregulated in British Columbia. In the 1970's the Board of Hearing Aid Dealers and Consultants was formed by the government to regulate those who sold hearing aids and all three of our audiologists have been regulated under this act. I sat as a member of the Board for four years and contracted with the Board to do examinations for them for another four years during the 1980's. British Columbia was one of the only provinces that regulated the sale of hearing aids with an Act that had power to enforce its regulations, providing a true benefit to people purchasing hearing aids that other provinces did not have.

However, the Hearing Aid Act became outdated and did not cover other aspects of speech-language pathology and audiology. The Ministry of Health has been active with the Health Professions Act to "increase accountability and transparency of B.C health professions ." There are now 24 health professions that have formed colleges to become regulated in BC.

You might ask "what does this mean to me?" When a hearing or speech professional indicates that they are an audiologist, speech-language pathologist or hearing instrument dispenser, they must :

- make the welfare of a client the registrant's primary concern;
- have the prescribed level of education to practice;
- participate in ongoing continuing education;
- follow the regulations for assessment and rehabilitation;
- use appropriate equipment that is calibrated on a regular basis; and
- adhere to the code of ethics.

These are only a few of the requirements that we must follow and I have summarized them in my own words. For more detailed information, I would recommend you go to the web page for the College and look at all 130 pages of the requirements. If there are any unresolved disputes between clients and a hearing and speech professional, the College can be contacted. Their powers of discipline are significant.

All three of our audiologists: Kristina Plewes, Edward Storzer and myself have been granted Certification as Audiologists as well as Certification in Cerumen Management. Kristina Plewes has also been given Certification in Cochlear Implant Management due to her training and experience in working with Cochlear Implants.

If you have questions regarding the College, please feel free to contact any of our audiologists. The website for the college is: www.cshhpbc.org ❑

Programming and Adjusting Digital Hearing Aids

Written by Edward Storzer, M. Sc, Registered Audiologist

A valuable characteristic of today's hearing aids is the amazing flexibility they provide in allowing programming adjustments to best suit the needs of the individual with hearing loss. Often our clients are surprised to learn that we can program and later fine-tune hearing aids to address challenges that were previously thought to be unresolvable.

Essentially, all current hearing aids are digital. This means that a miniature computer chip in the hearing aid is programmed to instruct the device how to amplify and alter the sounds that the user hears. The amazing (and ever-expanding) processing capabilities of these chips have enabled us to manipulate how sounds are processed in ways that were unimaginable ten to fifteen years ago. Importantly, the programming of these hearing aids is not pre-set, but unique for every fitting, and based entirely on each user's individual auditory needs.

When we have completed the discussion and choice of a new hearing aid (or hearing aids), and the fitting appointment has arrived, we take into account several factors when programming the instrument(s) for the first time:

1) Hearing Test Results – The testing we do informs us as to what type of hearing loss is present, the degree of loss at all important frequencies, and the user's ability to understand speech. We use this information and predictive formulas to calculate how much amplification we should provide at all frequencies.

2) User Experience – A previous hearing aid user will have adapted to many of the experiences of amplified hearing that a first-time user will find new and different. We use this information to help us balance user benefit with user comfort.

3) User Preferences – We can set the hearing aid to work more automatically or manually, and provide the user with unique settings based on their listening needs.

We aim to provide our clients with a hearing aid fitting that will be comfortable and beneficial from the beginning, but we may not know whether the initial programming is ideal until the user wears it in a variety of day-to-day situations. At follow-up appointments, it is useful to discuss how the user is adapting to the hearing aid(s) and to pin point situations that may be problematic. Based on these discussions, we may choose to adjust programming settings such as:

a) overall volume,
b) speech clarity,
c) background noise reduction,
d) the volume of loud sounds or soft sounds specifically,
e) sharpness or tinniness,
f) occlusion effect (hearing your own voice),
g) feedback cancelation,
h) wind noise,
i) telephone settings,
j) television/music settings.

This is just a partial list, and your audiologist will walk you through other options for programming adjustments, depending on the type of hearing aid you have. Some adjustable features are of the "bells and whistles" variety, designed to make your hearing aid experience even more enjoyable.

Finally, when discussing programming adjustments, it is important for hearing aid users (especially those new to hearing aids) to remember that speech and other sounds will have a new and different quality to them that requires your brain to adapt. Often what sounded "natural" was what someone with hearing loss got used to, and we should be conscious of not making adjustments that will result in "natural" sounding hearing aids that are not providing adequate benefit. Technology today still cannot reproduce what a completely healthy hearing system is capable of achieving, but with the incredible processing capabilities of modern hearing instruments and the many programming adjustments available at our fingertips, we are closer than ever to providing users with the most beneficial and comfortable hearing experience possible. ❑

McNeill Audiology Participants

in the Sound & Silence 10 K Run/Walk FundRaiser for Island Deaf and Hard Of Hearing Centre

Walk/Run McNeill Audiology Crew Left to right: Ian Cooper, Andrea Chapin, Kristina Plewes (runner), Brent McNeill (runner), Ron Basi, Gwen Basi & Casey

Research Assistance

Information about **hearing options, new technology, solutions for wax** and much more.
www.healthyhearing.com

Canadian Academy of Audiology
www.canadianaudiology.ca

Canadian Hard of Hearing Association
www.chha.ca

Consumer Corner of the Canadian Association of Speech-Language Pathologists and Audiologists
www.caslpa.ca/english/resources/consume_info_facts.asp

Widex
www.widex.ca

Phonak Corporation
www.phonak.com

Tinnitus Association of Canada
kadis.com/ta/tinnitus.htm

Unitron Hearing
www.unitron.com

Oticon /Phonic Ear
www.oticon.ca

Island Deaf & Hard of Hearing
www.idhhc.ca

Musicians' Clinics of Canada
www.musiciansclinics.com/home.asp

ClearSounds
www.clearsounds.com/

The Human Auditory Physiology Laboratory, U.B.C., Dr. David Stapells, Director
http://www.audiospeech.ubc.ca/haplab/haplab.htm

School of Audiology and Speech Sciences, U.B.C.
www.audiospeech.ubc.ca/

Sennheiser Set 830 TV Listeners
www.sennheiser.com/sennheiser/home_en.nsf/root/press_releases_250309-set830

Starkey S Series
www.starkeycanada.ca/products/hearing-instruments/s-series/s-series-features.jsp

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