Journal of
The Association of Hearing Instrument Practitioners of Ontario

Signal

Winter 2011/2012 • Edition 92

Effects of Hearing Aids on Cognitive Functions and Depressive Signs in Elderly People

Publication Mail Agreement #40612637

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The Association of Hearing Instrument Practitioners of Ontario

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The mission of the Association of Hearing Instrument Practitioners of Ontario is to represent and guide its members in their practice which include, the testing, selecting and fitting, and dispensing hearing instruments and associated devices in the best interest of the hard of hearing, and may include the removal of cerumen from the external ear canal. Membership is available to hearing instrument practitioners or to those who have an interest in the hearing instrument profession.

Signal is the official journal of AHIP, the professional association of Hearing Instrument Practitioners of Ontario, incorporated in 1988 for the purpose of ensuring quality care for the hard of hearing. *Signal* presents technical and trade information to assist hearing instrument practitioners to better serve the hard of hearing.

Manuscripts
Researchers, practitioners, and others are invited to submit articles and papers for publication. *Signal* assumes no responsibility for return of unsolicited materials, and is not guaranteeing that every article of paper submitted will be published in *Signal*.

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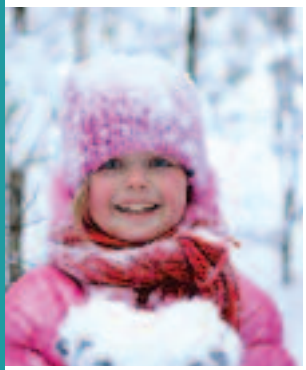
contents

FEATURES



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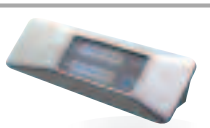

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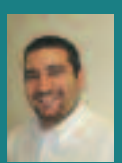

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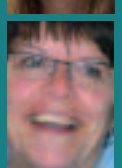

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Dear Members,

2011 with all its triumphs and obstacles has come to an end and 2012 will be a work in progress. With your board diligently corresponding with third party agencies and moving forward with the pursuit of regulation, 2012 will be a packed agenda full of goals and many accomplishments. Your board's dedication never stops fulfilling its responsibility in representing the entire membership. Now is the time to reflect on the accomplishments you have made and the ones that you set to achieve in the future. I would like to take this opportunity to thank you for being a wonderful group of highly educated, dedicated, and respected practitioners who truly care for the hard of hearing of Ontario. I am proud to be your president and it has been a great honour to represent you.

I wish you all a wonderful year and look forward to seeing you at symposium in May.

Respectfully Submitted,

Vivienne Saba-Gesa, HIS
President

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In signing this registration form I understand and hereby give my consent to the Association of Hearing Instrument Practitioners of Ontario for the use of my name as written above, or images taken while at the 2012 AHIP Symposium, which may be used by the organization for publication either/or on the organizations website, Signal magazine or such purposes as the organization considers appropriate.

☐ Check here if you have dietary restrictions & list them _____
(dead line for submission to AHIP office – **April 15, 2012**)

☐ Are you planning on attending the gala dinner? YES / NO (please circle one)

NOTE: - REFUNDS WILL NOT BE ISSUED AFTER MARCH 31st, 2012.

Dear Members,

I hope everyone has had a great holiday season and wish all a happy and prosperous New Year! As you can see by the AHIP membership mailings your board is very active on a number of important issues. If you have any questions or would like more information or clarification regarding any item please do not hesitate to call.

Before you know it, the Annual General Meeting (AGM) will be here on **May 4th 2012**, at this time all association business is reported, current issues discussed, and elections conducted. This term the Nominations Committee consists of Adam Perrie, Wendy Caswell, and John Tindale. The committee selects persons willing to stand as a board member and reports their slate of nominees 45 days preceding the AGM. If you are interested in having your name put forward on the slate of nominees please contact one of the committee members or call the AHIP office and we will forward you to one of the committee members. Conditions for running for the board is that you are a member in good standing and have been actively engaged as an active member for a minimum of two (2) years preceding the date of the election. This is your meeting and your chance to be part of history and influence the future.

The AHIP 2012 Symposium will take place from **May 2–5 2012**. An AHIP Symposium Registration form can be found within this edition of the *Signal* and all updates can be found on the AHIP website www.helpmehear.ca.

Respectfully Submitted,

Joanne Sproule
Executive Director

Happy New Year everyone! Any interesting New Year's resolutions to share? I have the regular list that I remind myself of every January plus a couple new ones. The usual suspects are lifestyle changes that seem easy enough to adopt but I never seem to be able to maintain. I did manage to start waking up early to do yoga and have kept that up for a couple months. I have really noticed a difference so that helps drag my carcass out of bed, plus it is really nice to wake up and sip coffee in a quiet house before you jump into the day. Waking up early also helps get me to bed early which was also on the list. Now for putting less crap in my body, listening more, talking less (I know, good luck) and finally getting a portrait done. I looked into booking a sitting with a photographer but I am far too cheap. There is this neat do-it-yourself photo studio in Cambridge that I am thinking about trying out so I might drag my camera and tripod downtown and see what transpires. I guess we all will.

Now for this edition of *Signal* we have a member interview with retired member Dave Leckie and a few more wonderfully educational and entertaining submissions from member Adam Perrie. Gord Kerr from CIHS gives us an update on their recent activities and 'Did you Hear?' has returned which means it is officially a regular column. I am also thrilled to direct your attention to "Effects of hearing aids on cognitive functions and depressive signs in elderly people." This study is exciting and proves what many of us have suspected for years, hearing aids not only improve quality of life they slow down the degradation of cognitive functions in the elderly. What better advertising does one need? Read the study and share the findings with physicians and clients. Hearing aids are good for your health!

Lisa Simmonds Taylor, BA, HIS
Editor-in-Chief

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Dear Friends,

Thank you for your continued support for the work of Canadian International Hearing Services (CIHS). For those of you who brought your packages to the symposium, I can tell you that the AHIP office has forwarded them to us. As usual, many of you sent your hearing aids and equipment directly to us. Not a week goes by that we don't receive a package from somewhere in Canada.

While you were enjoying your symposium in Niagara Falls, members of CIHS were attending the Caribbean Association of Otolaryngologists (CAO) conference in St. Vincent and the Grenadines, West Indies. Normally there would be more than 80 ear, nose and throat doctors (ENTs) attending the conference but due to a conflict in their conference dates there were only 42 in attendance. Much like your symposium, the extracurricular activities are important. Instead of dinner shows and casinos we enjoyed island tours, boat rides and snorkelling with the turtles.

For the past few years CIHS has been providing training in the basic skills of audiology and the protocol for marketing hearing aids and assistive devices for some of the Caribbean ENTs and their staff. This has proven to be very successful and our services are expanding.

Having the conference in St. Vincent and the Grenadines gave us the opportunity to complete the final phase of a training program begun in 2010 for four nurses and a woman with a medical background. The nurses had completed the International Hearing Society correspondence course so CIHS was asked to provide them with the practical training. The first phase occurred for two weeks in January 2010 and the second phase for two weeks in May 2010. In May 2011 the candidates were examined and presented with certificates. The woman with the medical background also spent two months in Toronto this past summer observing in a variety of audiology clinics and ENT offices.

CIHS was saddened to learn of the passing of Margery Keller, wife of Peter. Peter and Margery not only shared their talent and time to train people from overseas but also participated in several training courses we offered in the Caribbean. We extend our sympathy to Peter and his family.

On a final note, we wish to extend best wishes to Alan Moore of Bernafon on his recent retirement. Alan has been a supporter and an inspiration to everyone at CIHS since its inception in 1976. Thanks Al!

Gordon Kerr
CIHS Executive Director

Western Canadian Symposium for Hearing Health Professionals | April 12–14, 2012

We Bring Hearing to Life

Rev-up your curiosity, tantalize your senses, participate and accelerate your knowledge – join us at the Western Canadian Symposium in Calgary Alberta, April 12, 13, and 14, 2012. This symposium is being held in the heart of downtown Calgary at the TELUS Convention Centre. For more information visit www.wcs2012.com

It's a Boy!

Matt and Kristen Watson are proud to announce the birth of their third son Samuel Russell Watson, born on November 30th, 2011. His big brothers Charlie and Henry are having lots of fun helping and everyone is doing great.

It's a Girl!

Introducing Talia May Laidman, daughter of Scott Laidman and Kelly Van Hoek who was born May 13th 2011.

Margery Mary (Ford) Keller

KELLER, Margery Mary (nee Ford) – It is with great sorrow that we announce the passing of Margery, our beautiful wife and mother, early on Tuesday, August 30, 2011 at Rouge Valley Health System (Ajax). Margery was in her 81st year. The pain of her passing is simply unfathomable for her husband, Peter Anton, the love of her life and soul-mate of 59 devoted years (the girls in the family will now look after him)! Mom is deeply loved and missed by Deborah (Vollmer) and Lorna (Cassano), and son-in- law Gordon Vollmer. Grandma is cherished by Sarah and Daniel Vollmer (presently in South Africa), and Camille and Madryn Cassano. As a sister, Margery is tenderly adored by her brother George Ford. She also was loved sister to the late Evelyn Leger (Calgary) and the late John Ford (Toronto). Aunt Marge was a special aunt and great-aunt to several nieces and nephews. She was an irreplaceable presence in our lives, a dear friend and comforting shoulder to many and enough cannot be said about her. Margery was born in Montreal, and lived in Farnham and St. John's, PQ, Claresholm, AL, and Aylmer, Downsview, Scarborough and Dunnville, ON. She enjoyed reading and travelling and had a wonderful life, particularly during the last 27 years when her grandchildren were born. In her retirement, she enjoyed her hobby farm near Byng, ON and her country home in Ellicottville, NY. For many years Margery worked together with Peter at their company, the Union Hearing Aid Centre (Toronto), where she devoted herself to her clients and their parents. For this, we know, she is well-placed within many hearts. Our thanks to the doctors, nurses and paramedics of the Ajax Hospital who took care of Margery with special recognition to Dr. Baker for her excellent palliative care. Thanks also to the Prohome nurses who cared for her. Donations can be made in Margery's dear memory to the Peter and Margery Keller Fund, which pays in full for hearing aids for financially disadvantaged children who do not have or do not qualify for other assistance: The Peter and Margery Keller Fund, c/o The Foundation Office, The Hospital for Sick Children, 555 University Avenue Toronto, Ontario M5G 1X8, Reg. Charity No. 00010-36563-00000.

Spotlight On...

Dave Leckie (Retired Member), Wiarton, Ontario

By Lisa Simmonds Taylor, BA, HIS

East Coast 2003.

San Francisco Cruise 2009.

Arizona 2011.

In 1972 at 22 years of age Dave Leckie received an acceptance letter from the Ontario Provincial Police Department. That very same day, his dad asked him to join him in his hearing aid business. After some long thought (family businesses can be very stressful at times), he decided to serve and protect the hard of hearing. Dave received most of his training through correspondence courses offered by the National Hearing Aid Society out of Michigan. He also traveled all over the US to attend symposiums and take workshops and courses.

Hearing aids are definitely a family interest. Dave's uncle and cousin were also involved in the profession but in the manufacturing sector. Bob Johnson was the original owner of Widex (known as International Hearing Aids at the time) and EMI. Dave's cousin, Bob Jr. took over in 1972, eventually inheriting the businesses from his father. Dave has no regrets with his decision; he has found that there is always something new to learn each day, from the varied needs of the clients to the changes in the manufacturing of aids and hearing devices. Prior jobs included working as a foreman at Whiting Roll Up Door and in shipping at Ford. He also had a job after work stoking a coal fired boiler at a factory next door to Whiting. The $20 extra he earned from this task paid the rent at the boarding house where he was living. Seriously, this would have been late 1960s, so don't let that story cloud your judgement, that must have been a really old factory.

When asked about his career Dave is a bit sketchy on exact dates and since this isn't a resume I don't see the point in stressing out about it. I look forward to retirement though. Dave says you dump all the stuff you don't need to know in favour of remembering things that are still relevant. (Retirement doesn't give me an excuse for why I already seem to have done that – I blame motherhood.) Anyway, Dave's father Jack started his clinic in Oakville in the 1960s and eventually moved into the Medical Arts Building downtown Toronto at the request of the ENTs. Dave worked for his father for a number of years in the Toronto office and various sub-offices until the 1980s when he started his own clinic in Richmond Hill. The Leckie's moved to Wiarton (beautiful spot) but Dave still worked in Richmond Hill. I guess this was before you had to mortgage your house to buy a tank of gas because he started off driving both ways. This didn't seem ridiculous to Dave as he loves to drive. Eventually he bought an apartment in Richmond Hill and stayed away from home Sunday to Thursday evening. When he got home he would kiss the dog and pat his wife. (I know this sounds backwards but the dog was super excited and the wife not so much, only because ER was always on when he got home and this was before the invention of the PVR.) He did this for about 6 or 7 years before he sold his business in 2003. When asked what his best achievement has been in his life he responded, "Larrilee and I celebrated our 30th anniversary in November. As achievements go,

we both agree that this is the greatest." Perhaps distance really does make the heart grow fonder.

Another proud achievement of Dave's is his involvement in the formation of AHIP. Some of the newer members might not be aware of this but AHIP wasn't our first professional association, in fact AHIP is a blended family, kind of like the Brady Bunch. The first association was formed in 1976 and was called the Ontario Hearing Aid Association (OHAA), in 1983 a separate association called the Association of Hearing Aid Dispensers (AHAD) emerged. In 1988, OHAA and AHAD joined forces and named the blended association AHIP and like any marriage it took some serious cooperation to make it happen. Dave Leckie was one of the members who worked to achieve this goal. He served on the board of AHIP for several years and was also on the steering committee for ADP.

Vancouver 2009.

So as we know, Dave loves to drive. After retirement he filled the void in a couple of ways. He volunteered to drive for Home and Community Support Services transporting people to and from the local Day Away Program and driving folks to and from medical appointments in Toronto, Hamilton, and London. This was a very satisfying experience. He also decided to try his hand at transport driving. He drove a big rig from Mississauga to Chicago, Indiana, Wisconsin, South Carolina, and Pennsylvania. Now, staying closer to home he drives a bus to the airport from the Grey-Bruce area. He really enjoys meeting interesting, friendly people and learning a lot about many things. With his passion for hitting the road it would only make perfect sense that he and his wife now drive to Arizona every winter. His hobbies and interests include driving, fishing with his dog Magee (Molly the cat sits these trips out) and traveling.

Magee.

Now a few words of wisdom from Dave.

A few years ago I made out a bucket list. I think everyone should have one – we all need dreams and goals. I have been lucky enough to have travelled to a number of countries and have done several cruises. I am happy living out of the city, in one of the most beautiful areas of Ontario.

I will not forget the many folks I have met along the way. The years in the hearing profession were great. The symposiums were the way the family of friends reunited each year. The manufacturing community really supports everyone and over the years we have seen so many great memories created by their teams. They too are one big family! In this profession when there is a tragedy, everyone feels it and we support each other.

I have seen the profession change from door to door sales to one that is second to none. The education that is available is absolutely amazing! The colleges and universities are wonderfully equipped now to give new students the best training we can offer! Our governments support our efforts and should be very proud of those who spend their lives in the hearing services. I know I am!

There are still a number of things on my bucket list that need to be accomplished – so if any of you know someone who owns a Prowler…

If you are a member and wish to participate in an interview for the *Signal*, please contact the AHIP office and ask to be forwarded the interview questionnaire.

Vitro Develops Novel Stem Cell Technology for Use in Treatment of Hearing Loss

Vitro Diagnostics, Inc. (otcqb:VODG), dba Vitro Biopharma, announced development of technical advancements with application to treatment of hearing loss in animals and human through commercialization of a variety of stem cell products to prevent, reverse and restore hearing in cases of hearing loss.

Hearing reduction or loss is estimated to affect approximately 22 to 36 million individuals globally. Effective treatments of this condition thus represent a multi-billion dollar market that is expected to increase as the population ages. Hearing loss or reduction can occur by several causes including environmental exposure to excessive sound and it is commonly associated with aging. This market is primarily served by providers of digital and analog hearing aids. Digital devices provide improved hearing enhancement to users at increased cost. A predominant cause of hearing loss is presbycusis, a condition thought to result from degeneration of hair cells and other structures in the inner ear that through signaling to the auditory nerve, result in the auditory perceptions underlying hearing.

Vitro's therapeutic products include molecular compositions to promote, maintain and restore inner ear hair cells and related structures together with adult stem cell transplantation to restore hearing loss. Vitro's intellectual property has application to hearing restoration and prevention of hearing loss through a series of products envisioned to provide various treatment options for hearing loss. Vitro's discoveries may lead to new pharmaceutical agents that stimulate activation of native adult stem cells to regenerate inner ear hair cells, together with other cells derived from adult stem cells, without the necessity of stem cell transplantation. Recombinant cytokines including erythropoietin and granulocyte colony stimulating factor are now widely used for therapeutic activation of the hematopoietic stem cell system for treatment of adverse effects of chemotherapy and represent major products of the biotechnology industry.

http://www.betterhearing.org/press/news/Vitro_Stem_Cell_Technology_Treatment_of_Hearing%20Loss_pr11012011.cfm

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The Link between Chronic Disease and Hearing Loss: Are You At Risk?

Hearing loss isn't a harmless condition to be ignored. In fact, hearing loss often coexists with other serious health problems. And a growing body of research indicates that there may be a link. Studies show that people with heart disease, diabetes, chronic kidney disease, Alzheimer's disease, and depression may all have an increased risk of hearing loss.

When left untreated, hearing loss alone can lead to a wide range of physical and emotional conditions. Impaired memory and the impaired ability to learn new tasks, reduced alertness, increased risk to personal safety, irritability, negativism, anger, fatigue, tension and stress are among its more common side effects. But when untreated hearing loss coexists with a chronic illness, the likelihood is all the greater that the individual will experience exacerbated levels of stress and diminished quality of life.

Here's the good news: Research also indicates that professionally fitted hearing aids can help improve quality of life for people with chronic diseases when hearing loss does coexist.

The Link between Hearing Loss And Certain Chronic Diseases

Numerous studies have long linked untreated hearing loss to diminished psychological and overall health. But an emerging body of research is now revealing a link between hearing loss and other chronic health conditions.

For example, hearing loss is about twice as common in adults with diabetes compared to those who do not have the disease, according to a study funded by the National Institutes of Health (NIH) and published in the *Annals of Internal Medicine*.

The link between unaddressed hearing loss and depression also is compelling. An Italian study found that working adults aged 35 to 55 who were affected by mild to moderate hearing loss in both ears reported higher levels of disability and psychological distress — and lower levels of social functioning — than a well-matched normal control population.

Perhaps the link between cardiovascular disease and hearing loss is the most widely recognized. In a study published in the June 2010 issue of the *American Journal of Audiology*, the authors reviewed research that had been conducted over the past 60 plus years. They found that the negative influence of impaired cardiovascular health on both the peripheral and central auditory system, and the potential positive influence of improved cardiovascular health on these same systems, was found through a sizable body of research.

"With so much evidence emerging on the potential link between hearing loss and various chronic illnesses, it becomes all the more pressing for people to identify and address hearing loss early on," Kochkin says. "Talk to your doctor. Get your hearing checked. And be assured that in most cases, today's state-of-the-art hearing aids, programmed to the specific hearing requirements of the individual, can help people hear better and thereby regain quality of life."

Tinnitus Discovery Could Lead to New Ways to Stop the Ringing

Neuroscientists at the University of California, Berkeley, are offering hope to the 10 percent of the population who suffer from tinnitus - a constant, often high-pitched ringing or buzzing in the ears that can be annoying and even maddening, and has no cure.

Their new findings, published online last week in the journal Proceedings of the National Academy of Sciences, suggest several new approaches to treatment, including retraining the brain, and new avenues for developing drugs to suppress the ringing.

"This work is the most clearheaded documentation to this point of what's actually happening in the brain's cortex in ways that account for the ongoing genesis of sound," said Michael Merzenich, professor emeritus of otolaryngology at UC San Francisco and inventor of the cochlear implant, who was not involved with the research. "As soon as I read the paper, I said, 'Of course!' It was immediately obvious that this is almost certainly the true way to think about it."

Loud Noises Kill Hair Cells

According to coauthor Shaowen Bao, adjunct assistant professor in the Helen Wills Neuroscience Institute at UC Berkeley, tinnitus – pronounced TIN-it-tus or tin-NIGHT-us – is most commonly caused by hearing loss. Sustained loud noises, as from machinery or music, as well as some drugs can damage the hair cells in the inner ear that detect sounds. Because each hair cell is tuned to a different frequency, damaged or lost cells leave a gap in hearing, typically a specific frequency and anything higher in pitch.

Experiments in the past few years have shown that the ringing doesn't originate in the inner ear, though, but rather in regions of the brain – including the auditory cortex – that receives input from the ear. Bao's experiments in rats with induced hearing loss explain why the neurons in the auditory cortex generate these phantom perceptions. They showed that neurons that have lost sensory input from the ear become more excitable and fire spontaneously, primarily because these nerves have "homeostatic" mechanisms to keep their overall firing rate constant no matter what.

One treatment strategy, then, is to retrain patients so that these brain cells get new input, which should reduce spontaneous firing. This can be done by enhancing the response to frequencies near the lost frequencies. Experiments over the past 30 years, including important research by Merzenich, have shown that the brain is plastic enough to reorganize in this way when it loses sensory input. When a finger is amputated, for example, the region of the brain receiving input from that finger may start handling input from neighboring fingers.

Drugs Can Boost Inhibitors

Another treatment strategy, Bao said, is to find or develop drugs that inhibit the spontaneous firing of the idle neurons in the auditory cortex. Hearing loss causes changes at junctions between nerve cells, the so-called synapses, that both excite and inhibit firing. His experiments showed that tinnitus is correlated with lower levels of the inhibitory neurotransmitter GABA (gamma-aminobutyric acid), but not with changes in the excitatory neurotransmitters.

He demonstrated that two drugs that increase the level of GABA eliminated tinnitus in rats. Unfortunately, these drugs have serious side effects and cannot be used in humans. He has applied for several grants to start screening drugs for their ability to enhance GABA receptor function, increase the synthesis of GABA, slow the re-uptake of GABA around nerve cells, or slow its enzymatic degradation.

http://www.betterhearing.org/press/news/Tinnitus_discovery_could_lead_to_new_ways_to_stop_ringing_pr091511.cfm

Mild Hearing Loss Linked to Brain Atrophy in Older Adults

Early Intervention Could Prevent Slide toward Speech Comprehension Difficulties

A new study by researchers from the Perelman School of Medicine at the University of Pennsylvania shows that declines in hearing ability may accelerate gray mater atrophy in auditory areas of the brain and increase the listening effort necessary for older adults to successfully comprehend speech.

When a sense (taste, smell, sight, hearing, touch) is altered, the brain reorganizes and adjusts. In the case of poor hearers, researchers found that the gray matter density of the auditory areas was lower in people with decreased hearing ability, suggesting a link between hearing ability and brain volume.

"As hearing ability declines with age, interventions such as hearing aids should be considered not only to improve hearing but to preserve the brain," said lead author Jonathan Peelle, PhD, research associate in the Department of Neurology. "People hear differently, and those with even moderate hearing loss may have to work harder to understand complex sentences."

In a pair of studies, researchers measured the relationship of hearing acuity to the brain, first measuring the brain's response to increasingly complex sentences and then measuring cortical brain volume in auditory cortex. Older adults (60-77 years of age) with normal hearing for their age were evaluated to determine whether normal variations in hearing ability impacted the structure or function of the network of areas in the brain supporting speech comprehension.

The studies found that people with hearing loss showed less brain activity on functional MRI scans when listening to complex sentences. Poorer hearers also had less gray matter in the auditory cortex, suggesting that areas of the brain related to auditory processing may show accelerated atrophy when hearing ability declines.

http://www.betterhearing.org/press/news/Hearing_Loss_Link_Brain_Atrophy_pr08312011.cfm

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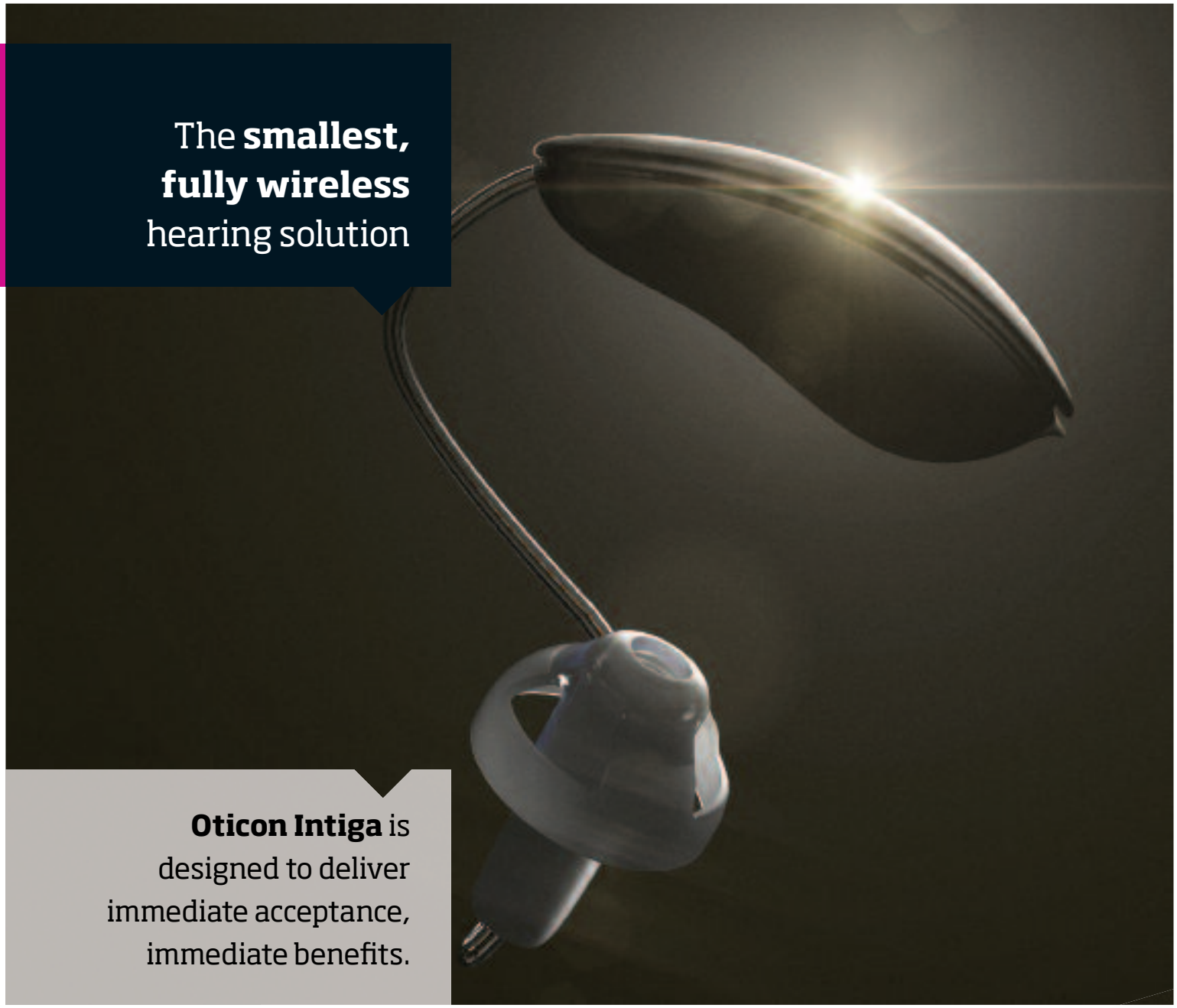

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PEOPLE FIRST

ImpressEar Electric S-50 Impression Gun

By Adam Perrie

Are you getting carpal tunnel syndrome from squishing out all that silicone all day long? Are you bored of making smiles in the impression? Has the magic of making it look like rose petals long since faded? Well, have I the tool for you!

Long ago over wobbly pops with colleagues at symposium we determined that there was a need for a powered impression gun. Sketches included a model powered by a weed whacker. This version was ruled out as the fumes in the office might get overpowering. The second sketch was a model with two backpack-mounted canisters of silicon feeding to a cordless drill with a mixing attachment and hoses. Very similar to the Proton Pack powered by the Particle Accelerator used in *Ghostbusters*. We felt this had the greatest potential, and portability.

Sadly, Particle Accelerators are offered on eBay as often as working Judson Superchargers. In my search I stumbled onto Westone labs and my hopes of making millions on this grand idea were dashed as I realized that powered impression gun had already been invented.

Upon realizing that the price of it fell within my signing authority I picked up the phone and ordered one up! Within a week I was the proud new owner of the Impress Ear Electric S-50 Impression gun. After charging it overnight and loading up the silicone I was ready to shoot.

It is definitely a different feel and the procedure is a little different. Practice on the desk top a few times, and then proceed to try it on a student or staff before unleashing it on patients. Of particular note is the flow control. I am very cautious when taking impressions and set the flow control on the low side to ensure that I am not building up pressure within the patients ear. The flow of the silicone in the ear canal is very similar to using regular impression material. Keep the cannula tip buried in the material to prevent holes and voids, yet slowly move the impression gun back as the canal and then concha fill to make sure that you aren't over pressurizing the ear canal or overloading the concha in the intratragic notch. Let the impression material "push" the tip, don't use the tip to push the material.

The material has very low viscosity compared to traditional impression materials (it's runny). It flows very nicely and with practice it has definite advantages over other material in taking long, comfortable impressions. The low viscosity that makes it excellent for accuracy in the canal does make it a little challenging in the concha. You rapidly discover that if you overload or put too much material in the bowl the weight of the material will begin to pull it away and this loading results in distortion in the helix portion of the ear as the material begins to cure. Cure rate is very fast and is easily half the time of traditional impression material.

While the material is viscous and accurate it is also irritatingly sticky until it sets. You find yourself wanting to touch it, it's new, and it is hard to make that rosette pattern and next thing you know there is uncured silicone on your finger, then your thumb, then your

other hand, and then you find yourself at home being asked by your wife why there is green stuff in your hair and on your shirt.
Once set, the material is no longer sticky and has a nice soft rubbery texture with excellent tear resistance. The lower shore value and high tear resistance allows it to come out of ears much more gently without the trauma of forcible pulling harder materials over delicate tissues.

Another significant benefit to this style of impression material (you can use it with a hand operated impression gun) is hygiene. The mixing tips that are used (cannula) can only be used for one patient. You can take impressions of one ear, then the next with about 1 minute time to spare in between. When the material sits for more than three minutes it hardens in the cannula and effectively plugs it. This means that each patient gets their own new cannula and there is little chance of cross contamination from one set of ears to the next.

If you find yourself looking at the more affordable hand operated impression gun, also check out the trigger insert. The trigger insert used with the hand operated impression gun allows a much shorter stroke on the hand grip. This is most useful for practitioners that may have small hands, arthritis, or any kind of trouble extending and closing their hand over impression syringes.

Summary: Impress Ear Impression Gun

- Easy to use, but you have to practice.
- Promotes higher level of office cleanliness.
- Professional appearance.
- $449 USD.
- The impression material is roughly $4/ear compared to $2/ear for the old style material.
- Easy on the hands.

The manual impression gun has the advantages of the Impress Ear impression gun for much less cost but does need more practice so that the practitioner becomes smooth with its operation and doesn't push and pull the tip as they pull and release the trigger.

Please remember to continue bracing yourself against the patient. There is a temptation to forget this with both impression guns as your hands are now 6–8 inches from their ear. If, while "shooting the rubber" a patient was to slip off the chair arm, or suddenly turn towards you to tell you about their favourite cat, (both have happened) the tip of the cannula could easily go too deep into the ear canal if you aren't holding the device correctly. Ensure that if they moved suddenly you would have direct control over the tip of the impression gun, not just the body. You have to maintain control of the tip to ensure safety.

www.westone.com

Direct Mail: A Primer

By Adam Perrie

Direct mail can be a really useful advertising format to reach out to potential patients that might not respond to radio, television, flyer or newspaper. If you ask friends and family over a pint or two you will probably find that they are largely immune to all of the listed formats and they ignore them as a result of overexposure through the years.

A great example is television ads. While the volume of the commercial may be louder, a quick flick of the mute button is the cure. You'll also notice that television is largely a blur of flashes and loud talkers. Watch a foreign language channel and you'll notice just how homogenous television ads are. They are all a blur, and you easily ignore them.

Note how many flyer ads and local community papers go in the blue box, unopened. I'm not advocating going through all of the neighbour's rubbish, just have a little peak before the recycling truck comes by to collect it all.

Direct mail differs in that it is delivered to the home with the normal Canada Post mail. It is harder to ignore because it is there with letters and bills and you have to at least glance at it front and back to ensure that it isn't something important before discarding it. That 30 seconds that it takes to examine your advertising piece is much more exposure than the other formats will typically get.

How To

Go to www.canadapost.ca click "English," "Business" and type "Householder counts and maps" into the search bar. Click on your valid dates and then points of call. Now, for example, click Ontario, then R, scroll down to N0G 1H0 (It's the village where I lived when I was little and cute). You will see that there are 1,089 homes. Armed with your research from StatsCan (Article in last month's *Signal*) you can now estimate the population base over the age of 55. (I'm not advertising there anymore, I've been banned from the area since that incident with the canoe in the bank).

You can expand from there. If you want to include Blyth, Walton, Londesborough and other communities you add their postal codes to the list of the areas that you would like to cover with your direct mail piece.

FSA

"FSA" has been quipped at me for 15 years and it just dawned on me that I don't really know what it means. I looked it up. FSA = Forward Sortation Area. This is the area that the mail is brought to for distribution. The area covered is shown in the FSA map. While we are throwing around the "A, B, Cs" please note that LCW = Letter Carrier Walk, that is the area that each letter carrier covers each day. You can focus your direct mail drop by FSA and even down to LCW. With help from your favourite marketing rep you can find out which FSAs and LCWs have the best possible demographic that fits your branding.

The Content

Some of the best research you can do with no budget is watch what the big competitors do. They have big budgets to pay big bucks to big mucky-mucks to do research and tell them what to do, and can afford big mistakes. If you see them cycling an ad with the same content frequently it is a good indication that it works. (Whether you like the content is another issue.) If you see an ad that is run briefly, or for just one campaign and is never repeated, it didn't work. At the big competitors bad ads get people fired. For independent clinics bad ads mean that they drive an '84 Ford and eat more macaroni and cheese.

You should actively collect all of your competitors hearing aid ads that you can find to monitor what is going on and gather ideas. Your ad has to be plain

and simple with one clear main message. Remember, potential patients glance at your ad piece front and back and in 30 seconds decide whether or not they will look at it closer or file it in the blue box. A 30 second glance allows for one very brief and concise message, not some great long blether about how digitally, programmably, small, pretty, awesome, award-winning performance-in-noise, no feedback, wireless, Bluetooth, directional, and phenomenal all the products you have are , never mind all the possible descriptions you can cook up to describe your services. Award-winning ads don't necessarily produce results. The award is because the ad is pretty.

The Price

I just signed off on an estimate for a November direct mail run going to 25,612 homes and it comes to $5,391+tax ($0.21 per piece). This is my fourth run this year and I am planning on four next year. Direct mail is one medium of advertising that I use regularly.

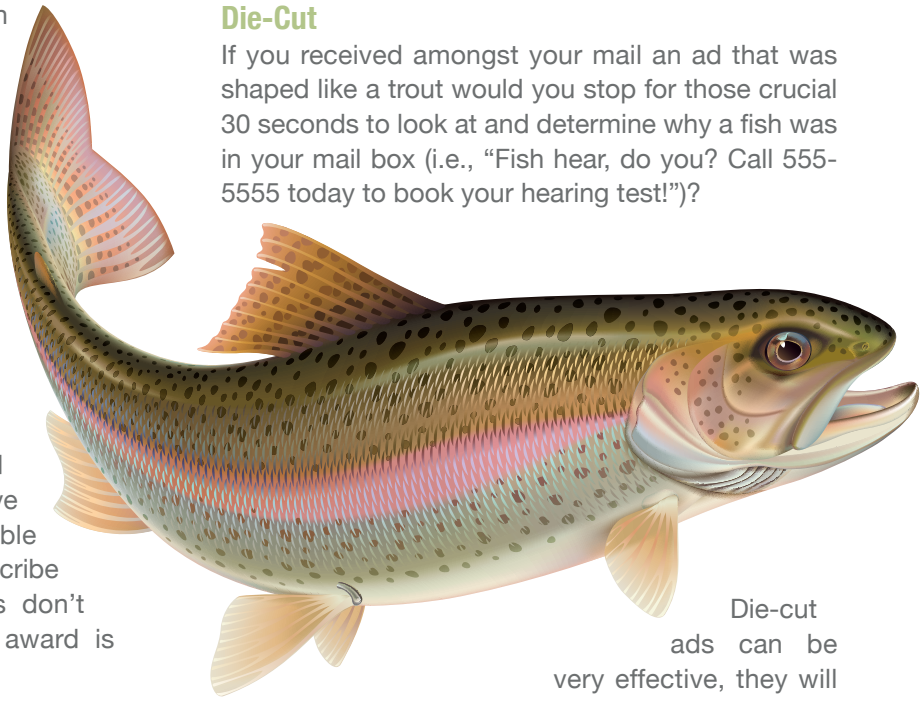
Production

Contact your favourite manufacturer and ask if they provide marketing services that can produce the piece you would like. They may have examples already on file. Keep in mind that the manufacturers specialize in making hearing aids. You and I specialize in fitting them and counselling their use. We don't know manufacturing, and frequently they don't know what we do. You do need to do your homework and determine how you want to present your products and services.

Be cautious. Your ideas are yours (including the ones that you nick) and should be respected. Are you confident that your ideas won't be lifted and given to competing clinics to use? It has happened twice to me, once a manufacturer did it and once a newspaper sales department did it. Fortunately the idea that the manufacturer lifted from me was a very poor one, I got to eat macaroni and cheese that month, and I like driving my '84 Ford.

Die-Cut

If you received amongst your mail an ad that was shaped like a trout would you stop for those crucial 30 seconds to look at and determine why a fish was in your mail box (i.e., "Fish hear, do you? Call 555-5555 today to book your hearing test!")?



Die-cut ads can be very effective, they will cost a bit more, but if you buy the die then that particular shape is yours and whenever patients see it they will associate it with your clinic (Branding). Is a fish the right symbol for your clinic? It could arguably be better than using an obscure image of a cochlea.

When

There are busy times of the year and slow times for new sales and repairs. Older more established clinics don't notice this irregularity nearly as much as new clinics. I have observed that in the traditional slow times of the year there is no point in running ads. There is no response no matter what you advertise.

When are the slow times? Well, you have to do some homework! If you are running a time-sensitive promotion start two months ahead of time with the goal of having your direct mail ad delivered two weeks before the promotion.

Branding

When you drive down the highway and see the golden arches, you know what restaurant lies beneath. When you see the stylized script "Ford" you know what the product is. When a soda can design was reintroduced this summer with a white body and a red over blue swirl in a circle pattern came on the shelf after over 10 years absence we all knew what kind of soft drink it was.

Branding is that consistent format that people identify a company with, it greatly increases your advertising effectiveness. A big wordy description isn't needed; you know in a moment what product you are looking at.

I mentioned that I did four runs of direct mail in 2011. Important to mention is that I am not promoting the same thing each time. The main theme that does stay constant is the clinic, what I offer, colour and size. I want possible patients to see the colour and size and automatically think of the clinic, that is my brand. If they pass the office and see the sign by the road, the wrapped test truck on the highway, or see a new ad they should after glancing at it know what it is because they have seen the associated brand advertised before. I have to make the most of that 30 second glance! If I completely change the look with each ad there is no consistency and my branding power is nil.

For homework, determine today on a piece of paper what the branding of your clinic is or possibly what you would like it to be. Are you value or performance oriented? Are you scientific or personal? Is your clinic warm and homey, or clean, cool and professional? Do you want to promote on price or technology? Do you have 20 years of experience or are you fresh and full of new ideas and innovations? Are you comfortable in the latest and greatest or do you prefer the tried and the true?

Before you start or continue advertising you need to determine what your brand is and what it will be for the next 3 years.

Results

My goal in advertising is that sales after costs within 8 weeks should cover the cost of the ad run, exceeding this is wonderful, and achieving it is my gauge of success. Not a very impressive ROI, but it is one that has always worked for me.

The results that are very hard to measure are the sales made months and even years after the campaign and sales that result from successful branding of your products and services. If you are consistent in your market presence you will have patients coming to you for years after the campaign that they first noticed. (Again with the branding).

The direct mail ad run that I ran in June had no response, not one patient called; it was a colossal flop (the ad was completely supplied by a manufacturer). My direct mail ad run in September (over 40,000 homes) booked 23 new hearing assessments. This ad was produced by my favourite manufacturer's advertising department using my ideas which are the results of many years of mistakes, some successes and a little piracy.

Regular market presence is also crucial as you build your clinic image. People are only interested in a product when they decide they need it. Few of us know anything about the new Ford 3.5 twin turbo engine or the latest in vibra-shank cultivator technology unless you are looking for a truck or cultivator. You must advertise regularly and consistently for years. Your message has to be in front of the patient the day they decide they need your services. Your branding must be strong and steady.

Co-op

If you are a good customer, pay your bills within 30 days and order decent and consistent amounts of product it is worth asking for co-op advertising. Many suppliers will consider helping.

Summary

Direct Mail can work and delivers your message to your patients. It is up to you (not your ad rep) to make sure that the message is appropriate and works. It is also up to you to pick a medium or 2 that you like, stick with it and be consistent.

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unitron™ Hearing matters

Effects of Hearing Aids on Cognitive Functions and Depressive Signs in Elderly People

By Baran Acar, Muge Fethiye Yurekli, Mehmet Ali Babademez, Hayriye Karabulut, Rýza Murat Karasen

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ABSTRACT

With the physical, emotional and cognitive effects of senility, elderly people, especially those with impaired hearing, need rehabilitation for improving their life conditions. Hearing aids are frequently used to improve their daily life communications and activities. The aim of this study was to report the cognitive and psychological benefits of using hearing aids by the elderly people, over the age of 65. This was a prospective, single-arm interventional study in 34 elderly subjects with hearing impairment who answered the geriatric depression scale-short form (GDS) questionnaire and the mini mental state examination (MMSE) test, prior to, and 3 months following the use of hearing aid, after obtaining the patients' consent to participate in study. Patients with evidence of focal neurological loss with clinical examination, a confusional state, sudden hear loss and severe tinnitus were not included in the study. Scores of the effects of hearing aids on mood and cognitive functions were compared for each subject, before and after, and between males and females. After 3 months of using a hearing aid, all patients showed a significant improvement of the psychosocial and cognitive conditions, and all of them showed betterment of their problems, i.e., the social communication and exchanging information. In conclusion, for the elderly people with the effects of hearing aids in presbycusis and due to the significant improvement in psychological state and mental functions, using and being adaptable to hearing aids is a good solution.

Introduction

Worldwide, with the improvement of quality of life (QoL) and health care, the population of elderly people and therefore presbycusis is increasing. The WHO has estimated that in the number of elderly people will be increased in the world. In Poland the elderly people population constituted 15.32% of the whole in 2005 and it expected to become 16% in 2020 (Betlejewski, 2006). While elderly population increase in numbers, as a result of presbycusis, the communication may become compromised. Beside of this, many old people may suffer from conductive hearing loss or a combination of conductive and sensorineural hearing loss which is called the "mixed hearing loss".

The presbycusis is very common between elderly people and the prevalence is changing in different parts of the world. The prevalence of sensorineural hearing loss in the Egyptian elderly (>65 years) is reported to be 44.3% while in Taiwan, its prevalence is reported to be 1.7% between 65 and 69 years of age; 3.2% between 70 and 74 years; 7.5% between 75 and 79 years and 14.9% in those who are older than 80 years (Chang and Chou, 2007). In a study Chang et al. (2009), declare that nonaudiological factors like marital status and bad or normal general health, besides hearing level are significantly associated with self-perception of hearing handicap.

The presbycusis is a sensorineural type of hearing loss which cannot be medically or surgically treated and so hearing aids commonly used for amplifying sounds. Cox et al. (2005) concluded that 23% of hearing impaired elderly people actually seek and use hearing aids. Elderly people using hearing aids have been investigated and it was shown that programmable hearing aids have beneficial effects on hearing and the QoL (Yueh et al., 2001).

One should consider presbycusis as a social problem, and it has been shown (Joore et al., 2003) that improving life conditions of old people by using a hearing aid helps returning them to an ordinary lifestyle, and at the same time this is cost-effective. It has also been reported that for the hearing-impaired elderly people, the use of hearing aids was a cost-effective strategy (Chao and Chen, 2008).

Hearing impairment is a very common disorder in senile population. Many people with hearing impairment restrict deliberately their own physical activities and social contacts. Among elderly people there are wide differences. Through the use of a hearing aid, they aim to get protection of the social embarrassment that the presbycusis may cause. Hearing impairment, especially at elderly people, is a kind of chronic disorder (Bogardus et al., 2003) which make worsening of depressive symptoms, the self-assessed health conditions, and the performance of in social activities.

As in the normal population, also in elderly people, mood disorders causing worsening of preexisting pathological conditions, represent one of the common psychiatric abnormalities (Katona et al., 1997). With the prevalence rates ranging from 1 to 16%, epidemiological studies showed that depression is the most common clinical condition among the community-living elderly people (Kay et al., 1985).

The aim of the present study was to investigate the sociodemographic and psychocognitive factors related to depressive symptoms in elderly individuals with hearing impairment.

Subjects and Methods

Patient Characteristics and Follow-up

The sample was made up of hearing-impaired patients over 65 years of age coming to the clinic of otorhinolaryngology, from May 2009 to November 2009.

All patients were examined by an audiologist, and pure tone audiometry tests were carried out for all of them. After hearing impairment was determined by audiometric tests, the purpose of the study was explained to the patients, and they gave their written informed consent for the participation.

None of the subjects had used a hearing aid before. The patients with average hearing loss were more than 40 dB. Frequencies of 0.5, 1, 2 and 4 kHz in the better ear were included in the study, and on the basis of the results, a hearing aid was recommended.

All of the participants were over the age of 65 years, with a moderate to severe sensorineural hearing loss and mixed hearing loss, with sensorineural

dominance. All of them were otherwise healthy and were examined by the same audiologist, and to all similar hearing aids were recommended.

Patients underwent geriatric assessments including the GDS for depression, and the MMSE for cognitive performance, by a separate observer. Patients with focal neurological loss, a confusional state, sudden hearing loss and severe tinnitus were not included in the study. These tests were applied at start and 3 months after using the hearing aid.

The GDS-short form which consists of 15 short questions, with required responses of yes/no type, is a way for detecting the depressive symptoms, frequently used in elderly populations. It takes nearly 10 min to apply. Sheikh and Yesavage (1986) suggested that a cut-off score of 7 should be used. Scores of >7 indicate the presence of depression and <7 were considered as subjects without depression. A good correlation was observed between the hearing impairment and presence of depression, manifesting itself frequently only as the feeling of loneliness, or undefendedness.

The MMSE consists of standardized questions, divided in 6 parts, developed to assess orientation, memory, attention and calculation, language, motor function and perception. According to the answers, the total score ranges from 0 to 30. The questionnaire was completed before a hearing aid was prescribed and also 3 months after using the hearing aid, and the scores were compared.

Statistical Analysis

Quantitative data are expressed as the mean ± S.D. whereas qualitative data are expressed as percentual differences. The parametric data were compared by using the Student's t-test, whereas nonparametric ones were compared using the χ^2-test. A $p < 0.05$ level was considered statistically significant. The SPSS 15.0 program (SPSS Inc., Chicago, IL, USA) was used for statistical analysis.

Results

Demographic Results

A total number of 34 patients, 4 females (11.8%) and 30 males (88.2%) were included in the study. Their age ranged from 65 to 82 years, with a mean of 70.08 ± 4.8 years (±S.D.). General characteristics and demographic results of the groups are given in Table 1.

Table 1
Demographic properties of the patients.

Parameters	*n* (%)
Number	34
Female	4 (11.8)
Male	30 (88.2)
Age, year (mean ±S.D.)	70.08 ±4.8
Living conditions	
Alone	4 (11.8)
With relatives	8 (23.5)
Wth partner	22 (64.7)
Nursing home	0 (0.0)
Marital status	
Married	26 (76.5)
Widow	8 (23.5)

All patients complained about their hearing impairment, and with regard to pure tone audiometric tests, the right and left ear mean hearing loss was 57.2 and 56.3 dB, respectively.

Follow-up

As regards the MMSE scores, before using hearing aids the mean score was 20.3 _ 7.7 (range 7–30), and it increased to 23.0 ± 7.5 (range 9–30) after 3 months ($p < 0.005$). The GDS analysis revealed a mean score of 6.8 ± 3.9 (range 1–13) before using hearing aids, and it decrease to 4.9 ± 3.4 (range 0–10) after using the hearing aids ($p < 0.005$). As shown in Figs. 1 and 2, the changes in both the MMSE and GDS are statistically significant. When we compared two groups of married and widowed patients, neither the MMSE nor the GDS scores have shown any statistically significant difference ($p > 0.05$).

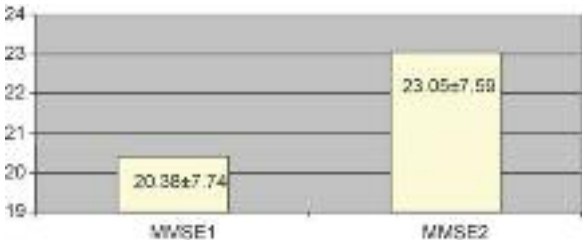

Fig.1. Comparison of the mean MMSE scores in patients before (1) and after (2) hearing improvement ($p < 0.005$).

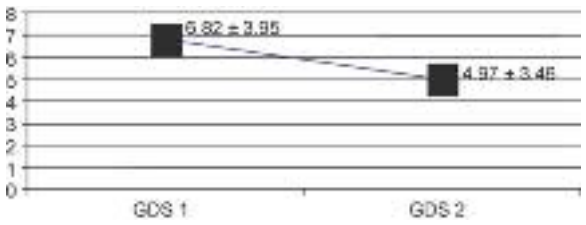

Fig. 2. The mean GDS scores in patients before (1) and after (2) the hearing improvement ($p < 0.005$).

Discussion

Summarizing the results of this study, we found a decrease of depressive signs and an increase of cognitive functions after using the hearing aids. Deceleration of cognitive functions of the elderly people indicates usually a progression of dementia, and it is accompanied by an increased morbidity, mortality and causes also care problems. Depression also is a risk factor for dementia (Cankurtaran et al., 2008). That's one of the reasons why we discuss both MMSE and GDS scores of the elderly patients.

For elderly people sensorial deficits, like hearing impairment, have negative implications at their socio-environmental interactions, and that may cause social isolation and dependence. That is why the sensory deprivation may cause anxiety, thus worsening their depression (Baptista et al., 2006). Schneider et al. (2008) found an association between hearing de.cit and lack of autonomy in a functional assessment on 148 elderly people. Gazzola et al. (2009) who observed an association between chronic dizziness and worsened depressive symptoms in elderly people concluded that elderly people with dizziness and hearing de.cit were twice as likely to present depressed mood.

In this study we considered both the general characteristics and the social status of the study population. Chang et al. (2009) in a study defends that among elderly people with hearing impairment, besides hearing level, marital status, general health perception and the social environment are significantly associated with the self-perceived hearing handicap. Andersson et al. (1995) indicate that senility and insecurity cause distress and signs of depression associated with self-perceived hearing impairment. According to those studies the social status is important in the self-perception of hearing loss, although in our present study the two groups of married and widowed subjects displayed no significant differences in either the MMSE or the GDS scores.

Metselaar et al. (2009), in their study with 254 hearing-impaired patients used GDS and found no significant relationship between hearing loss and depression scores. Their population made of both first time hearing aid users and experienced users differently from our population. Also they took 1-year follow-up period, although we used only 3 months, and this may be another reason for contrasting the depression scores. Effects of hearing aids may be

most distinctive at the early periods of use.

In our study, as we used the same cut-off rate of Metselaar et al. (2009) in the search for GDS, the patients did not have significant depression signs before fitting the hearing aids, but after 3 months of fitting them, improvements of GDS scores were gained. So, in long-term the benefits of the aids become equal to the normal population. Maybe it would be better to search for the long-term effects of hearing aids on the MMSE scale for a better understanding of the benefits achieved.

In conclusion, among elderly individuals with hearing impairment, greater numbers of depressive symptoms are associated with cognitive and concentration disorders and they can be improved by using hearing aids.

Conflict of Interest Statement

None.

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  - Hearing Instrument Specialist or Hearing Instrument Dispenser
- Able to travel within Ontario regularly (ground and air travel)
  - Travel will be a minimum of 60% of your overall work time/schedule/employment

Skills and Experience:

- 1-3 years experience working in a clinical location dispensing hearing aids
- Background knowledge and/or experience with the following audiological tasks:
  - Testing, fitting, programming software, reviewing and creating an audiogram, etc.
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