



Providing AR support for older adults with hearing loss

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TALKABOUT



Introduction

The Hearing Rehabilitation Foundation (HRF) was founded in 1996 to “provide and promote speech communication training for people with hearing loss.” This remains our mission, but, over the past, the focus has shifted more and more to providing services for older adults.

This comes at a time when there is an awareness of the potential problems HL can create for older people, highlighted in the review by Livingston et al (2017)


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Risk factors for dementia
The Lewontin Commission presents a new life course model showing genetic, metabolic, and neuro-inflammation, risk factors for dementia.

Midlife: Hearing loss (7%), Hypertension (12%), Obesity (12%)

Late life: Smoking, Depression, Physical inactivity, Social isolation, Diabetes

Potential dementia risk: 25% (Midlife), 15% (Late life)




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HAVE YOU HEARD?

HEARING LOSS CAN INCREASE YOUR RISK OF DEVELOPING DEMENTIA BY 200-500%


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



Introduction

Recent study found that older adults with CIs have significantly lower cognitive function than normal-hearing counterparts. “Findings suggest CIs cannot fully compensate for this deterioration in brain function.”

“Additional rehabilitation in the long-term after implantation, tailored to the cognitive profile of individuals, may be appropriate for cochlear implant patients.”

Annes J. Claes, Paul Van de Heyning, Annick Gilles, Anouk Hofkens-Van den Brandt, Vincent Van Rompaey, Griet Mertens. *Impaired Cognitive Functioning in Cochlear Implant Recipients Over the Age of 55 Years: A Cross-Sectional Study Using the Repeatable Battery for the Assessment of Neuropsychological Status for Hearing-Impaired Individuals (RBANS-H)*. *Frontiers in Neuroscience*, 2018; 12



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Introduction

Technology is too often touted as providing the “solution” for all of the problems created by HL. Reality is that even with the best technology many older people with HL continue to have difficulties understanding speech (especially in adverse situations) and feel isolated and unheard. Many feel that their communication “diet” is insufficient, and they are cut off from family, friends, etc.

Feel that, in some ways, the situation for many with HL was better 40 years ago.



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Introduction 

Technology is much better (CIs, HAs, etc.) but the support provided is much worse – in many cases completely lacking. Should be possible to combine better technology with better services.

Present a brief overview of services provided by the HRF

- 1:1 training
- Intensive Training Courses
- FIKA





1:1 Training 


Clients attend for 1:1 sessions lasting 2 hours.

Provides the chance to replicate the real-life concerns of many clients.

IT'S A MARATHON, NOT A SPRINT

Many clients report they are able to follow speech for a while, but eventually "lose thread" and falter.





1:1 Training 

Materials used vary according to abilities and needs of the individual client.

Provide both *analytic* & *synthetic* training.

Session duration also allows time to talk to client about any areas of concern and interest. Share experiences in everyday life in a relaxed and supportive environment. Allows a greater opportunity to learn about client's situation.




1:1 Training 


Although the major emphasis is on *auditory training*, many exercises are also presented *auditory-visually*.

Provide verification of importance of lipreading in everyday life.

Opportunity to experience greater fluency in communication.


A chance to relax a little and not have to expend as much effort.



1:1 Training 

B	Bravo	N	November
CH	Charlie	P	Papa
D	Delta	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	SH	Shadow
H	Hotel	T	Tango
J	Juliet	V	Victor
K	Kangaroo	W	Whiskey
L	Lima	Y	Yankee
M	Mike	Z	Zulu

Analytic materials include:
Consonants in [aCa]
Set of 20 consonants presented in a random order for two minutes. Clients respond using a phonetic alphabet. If client makes an error, the syllable is repeated twice before shown the correct answer. The syllable rate is automatically calculated at the end of each block.



1:1 Training


Number strings are often used as a “warm-up” exercise.

Sets of 3-, 4-, 5-number strings.

Client asked to repeat what they heard *forwards* or *backwards*.

7 2 1 6 7 2 1 6 6 1 2 7

May also be asked to answer a question before responding




1:1 Training

Use a variety of synthetic training exercises including Q & A, slide shows, story-telling, fill-in-gap exercises of varying degrees of complexity, etc.

Most important material is Speech Tracking using the KTH Tracking Procedure.

Have two stories both over 150,000 words in length to use with clients. First story, “*Kumanjayi*,” is less complex than the second, “*The Old Ones*.” Present the story AV and A at all times.





1:1 Training

Speech Tracking can also be presented in quiet or in presence of a competing noise. Use recorded books as the competing noise.

Number speakers used, male, female, differing dialects.


Presented at a level that creates difficulty, but not excessive.



Client WB

Man (70 years) with profound loss, wearing HAs since 1988. First seen in May, 2018 – considering CI.

Composite Word Lists A only 38%, but reported great effort and no confidence. Implanted in June, “switch-on” July 2. Attended for large number of sessions (2 – 3 times per week), very isolated and had few opportunities for conversation. First sessions focused on homeheARING materials, struggled at first, but made steady progress, attended 3 days of Intensive Training Course. Speech Tracking – CI only and CI + HA.




Speech Tracking CI only WB


Comments WB

My CI surgery was very difficult due to progressive otosclerosis. The surgeon explained that there was more damage than he thought and I should lower my expectations. The first mapping test was a heart breaker. I could barely hear any beeps let alone words. I went to visit and he immediately assured me that if I worked at it, I could attain a very favorable outcome. Bi-weekly meetings working with Geoff and my depression started to slowly lift. At my second mapping session, the audiologist was shocked that I scored 40% correct for words. More weeks working with Geoff and at my next mapping session my word recognition jumped to 65%. I was so relieved and the surgeon was taken aback by my progress. I know that by continuing to work with Geoff my hearing will only get better.

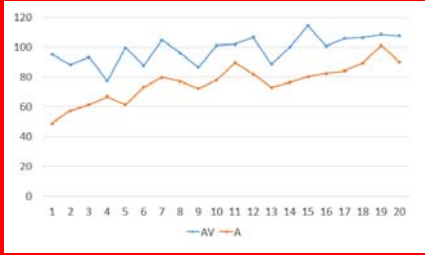


Client ME


Women (70 years), has been attending for 1:1 training for several years, wore binaural HAs and was able to understand speech well AV and A only.
 Composite Word Lists Scores of 42% (A) and 84% (AV)
 Required great effort, however, and decided to have CI in her worse ear. Has attended for training for 6 sessions since "switch-on." Good performance CI only from first day (73% & 76% for ENC > 99.5% & 100% on Day 3). Introduced Tracking CI only on Day 2.



Speech Tracking CI only ME




Session	AV Score	A Score
1	90	50
2	95	60
3	85	65
4	90	60
5	100	70
6	95	75
7	105	80
8	90	75
9	100	85
10	105	80
11	95	85
12	105	80
13	110	85
14	100	80
15	110	85
16	105	80
17	105	85
18	105	85
19	105	90
20	105	90



Comments ME

For a number of years, I have been using auditory training programs online and working in face-to-face sessions with Geoff. My experience of this has been that practice with intentional listening continues to bring me great benefit. It's not so much that auditory training results in improvement of my thresholds; it's that I attend & focus more mindfully when I'm in conversation. I have developed increased stamina for listening for long periods of time as well as insight and awareness about the role of attention, fatigue, & rest as I work to manage communication encounters. My hunch is that auditory training may well put the odds for cognitive health in my favor, especially because I continue this practice as a regular part of my life. It doesn't fix my hearing, but it keeps me on my toes for active listening.



Intensive Training Courses

Inspired by programs in Scandinavia in the 1970s, NAL in 1980s, and a four-day program conducted at UConn in 2016 and 2017.





Intensive Training Course

Clients attend from 10:00 – 3:00 for four days. A variety of group activities – "lectures," sing-along, group discussions, work 1:1 with therapist for around one hour each morning and afternoon.

Part of AT Fellowship – two post-graduate students in Aud. or SLP work at HRF for two weeks.

Very intensive, but highly rated by participants.








Comments WB


Geoff invited me to a life changing event. A special 3 day (call it what you want) where I met two CI wearers and two new audiologist who were learning Geoff's techniques. The days were supposed to be hard work but to me it was the best medicine for curing my depression from my lack of hearing for the last 30 years. I stated to hear so much better but what was the most gratifying was, I could once again hear the nuances of sounds that I hadn't experienced for most of my adult life. I know that by continuing to work with Geoff my hearing will only get better. After all, we do hear with our brains and not our ears!





FIKA

Fostering Improved Kommunikation Abilities
 Small group meetings (3 – 5 people) held every month.
 A chance for older people with HL to meet and practice speech understanding in a supportive environment.
 Runs from 10:30 – 12:30


- Coffee, tea, informal chat
- Presentation on day's topic
- Questions discussion on topic
- General discussion





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FIKA 

Topics presented


- Australia: the land down under
- Stockholm: a city on water
- Almost, nearly perfect AR
- Three people you'll wish you had met
- The Shakers and their legacy




Comments BH 

"I find one of the hardest things about hearing loss is social isolation and I'm very grateful to Geoff Plant for the way he thinks "outside the box" and comes up with interesting new ideas for how to help people struggling with hearing loss. The FIKA provides a unique opportunity to learn, to be entertained, and to socialize with others with hearing loss. Geoff chooses intriguing topics which he illustrates with his vast collection of wonderful photographs from around the world. So not only are we practicing our hearing skills, we are also learning something new and being treated to beautiful images while enjoying coffee and pastries in the company of others with whom we share so much. Thanks Geoff!"



Comments BS 


For me the FIKA is a place where I hear perfectly and feel perfectly understood as well . It is a format that is inherently relaxing and where I learn something new. It makes listening a pleasure. Seeing friends both new and old is a large part of the pleasure as well.




Comments EG 

I enjoy the FIKA meets because they are a place where I can meet others with a hearing need like I have we can also chat about our needs there. I think the stories Geoff tells us are very interesting and he has a very nice knack of pushing us to listen and to train ourselves to listen. I am a late deafened adult with a cochlear implant and a strong hearing aid in my other ear. I am very actively involved in human rights issues in my town and need to hear and concentrate for long periods of time. The FIKA stories and meets help me with this concentration.



Comments PH 

*Empowers me to communicate with my peers in a friendly and safe environment. **The word listen is very important**, because of my hearing loss I forgo attending lectures as it is very hard to listen. Listening becomes an overwhelming task and I do not ask questions because I am unable to grasp what the answer is. Very frustrating.*
*FIKA has changed this for me, I sit, listen to an educational lecture and ask questions because I am not overwhelmed, The speaker I know will speak clearly, the other attendees have hearing loss, I am served tea and pastry, so it now becomes this friendly caring environment. I am relaxed!!
A miracle for those with hearing loss to now feel normal.*



Comments ME 


HRF's FIKA is a valuable activity for building quality of life with hearing loss! The FIKA ticks off many of the boxes for optimizing hearing / cognitive health:


Social connection: The sessions are held with a small conversation group of hearing loss peers.

Cognitive engagement: The talks are incredibly interesting, often about novel topics with gorgeous photos, providing a great lecture series.

Auditory training: We practice listening attentively to the content, a one hour presentation and conversation stimulated by attendees' questions.

Well planned acoustic environment: Our FIKA room is small, carpeted, well lit, and fill with book shelves and Geoff's art.




Conclusion 

HRF is able to provide such services, in part, because of limited financial needs – services provided by volunteer.

Some aspects, however, could be replicated in other settings

Provide support beyond technology and helps maximize the use of the technology.



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