

Audiology Newsletter

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Easter 2010

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Moisture Resistance

Moisture is the number one enemy of hearing aids—moisture directly accounts for the majority of faults experienced with hearing aids. The ear canal is 100% humidity. In addition to this, Queensland weather has very humid weather throughout its very long summer—needless to say, hearing aids do break down and are more likely to break down in summer. Moisture will ‘short-out’ a battery and this in turn releases corrosive material that interacts with the metal parts of a hearing aid and ultimately causes corrosion. It is the corrosion which does the most damage.

Hearing aid manufacturers are now using the *Singleton Corrosion Test Chamber (SCC)* to ultimately change the design of hearing aids to reduce repair needs. The SCC is a standard that was initially set up for the automotive industry and has recently been adopted by the hearing aid manufacturing industry. The SCC uses humidity, temperature, salt content and pressure to determine how best to design a component that can be potentially submerged regularly in a corrosive fog.

The most common failure reason for hearing aids in a test chamber is corrosion. The corrosion most often occurs in the battery compartment, and this corrosion then infiltrates the electronics which in turn causes various internal components (such as the amplifier) to fail. Therefore, in order to minimise repair needs, new manufacturer designs are now considering the following:

- Battery size (*biggest is best*)
- Battery type (*stainless steel is best*)
- Location and design of the battery door
- Hydro-phobic materials to repel moisture
- Channels to direct moisture
- Ports to provide air to battery

The biggest obstacle to re-designing the battery door is that the door *must* have a vent in it because batteries need oxygen to work. It is this essential vent that is ultimately allowing moisture in. So, what can the hearing aid wearer do to minimise moisture entering the battery door vent? The following are simple but not necessarily fail-proof solutions:

- Do not open the battery door until *after* you have wiped any moisture / sweat off
- Blow air through the hearing aid
- Dry the hearing aid in the sun every now and again for one hour
- Use a Dri-Aid-Kit (*never use hair dryers or other heat elements*).

Electronic Dri-Aid Kits

A hearing aid manufacturer—*Phonak*—has recently launched an electronic Dri-Aid Kit. Now, instead of either re-activating silicon gel in an oven or replacing disposable silicon gel with a new capsule, the silicon gel can be electronically re-activated. Simply every night leave the hearing aids in the container powered by a standard power socket and the hearing aids will be super-dry by morning. This is currently the best way to minimize repair needs and costs.

The electronic Dri-Aid Kits can be purchased through Bronwen at a cost of \$198.

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Passion Wins Design Award

The international 'Red Dot Design Award' is one of the largest and most renowned design competitions in the world, and in 2009 more than 11,000 submissions were received from 61 countries. The Swiss hearing aid manufacturer *Widex* was awarded a red dot design in 2009 in the product category 'Life Science and Medicine' for its *Passion* hearing aid series. The award is given for the 'intelligent combination of modern technology and ergonomic design'.

Auditory Versus Visual Preferences

(*Journal of Communication Disorders* 42 (2009) 381-396)

When faced with a stimulus consisting of both auditory and visual cues (e.g. *photographs and sounds of ten familiar and ten unfamiliar animals*), one modality often influences our overall perception of the stimulus more than the other. The modality that is preferred is perceived as the more important cue in a compound stimulus. Research is consistently showing that *adults'* learning preference is for *visual cues*, whereas *young childrens'* (*pre-school and below*) learning preference is for *auditory cues*. Therefore, visual hand-outs should be used with adults, whereas vocal instructions should be used with young children.

Hearing Loss Analogy

Unfortunately there is a misconception that wearing a hearing aid 'cures' hearing loss, and that the person wearing a hearing aid should have no problems listening in any environment. In order to better help family and friends understand what it is like to have a hearing loss and be dependent on hearing aids, the following analogy may be useful. *Hearing loss is NOT comparable to loss of vision that can be corrected by glasses. Hearing loss can be compared to severe damage of the retina close to the macula in the eye. Just as glasses cannot 'fix' macular degeneration, hearing aids cannot 'fix' severe hearing loss. Hearing loss cannot be fully corrected, at least as of today; there is only the possibility of partial compensation.*

MP3 Players (Pediatrics 2009; 123:e953-e958(Vogel I, et al))

Children with MP3 players are likely to be risking hearing damage. A survey of 1687 children aged 12-19 years showed many put their hearing at risk when they used their MP3 players: 48 percent listened at high volume settings, and only 7 percent regularly used a noise-limiter. Use of MP3 players is an important risk factor for music-induced hearing loss in young people. Other studies have found increasing numbers of adolescents have symptoms indicative of poor hearing, such as tinnitus. Protective listening behaviours include reducing the volume, taking breaks from listening, and using a noise-limiter.

Cochlear Out-Of-Sight (The Australian, September 10, 2009)

Hearing device maker Cochlear has signed an exclusive licence deal to buy the patent rights and intellectual know-how of US company Otologics for \$US25 million, as it moves to develop an implantable microphone. The purchase was important in relation to complex implantable microphones, which are vital in the development of a totally implantable cochlear implant. Cochlear implants now include an external device that sits behind the ear and contains the power circuit and controls. With Otologics technology Cochlear hope to produce a new Cochlear implant, which incorporates an implantable microphone.

Elephant 'Secret Language' Cues (BBC World News, 22/02/2010)

Researchers at San Diego Zoo have been studying what has been described as the "secret language" of elephants. They have been monitoring communications between animals that cannot be heard by human ears. The elephant's trumpeting call will be familiar to most people, but the animals also emit growls. Their growls are only partly audible; two-thirds of the call is at frequencies that are too low to be picked up by our hearing. To learn more about the inaudible part of the growl, the team attached a microphone sensitive to these low frequencies and a GPS tracking system to eight of the zoo's female elephants. The researchers could then correlate the noises the animals were making with what they were doing. The team has already learned that pregnant females use this low frequency communication to announce to the rest of their herd that they are about to give birth. The researchers believe that this also warns the elephants to look out for predators. Data continues to be analysed to learn more about this secret elephant language.

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Music to Elderly Ears (The Courier Mail, Kathleen Noonan *Last Word*)

“Sure, we can play bridge, learn a language and eat superfoods until the cows come home, but there are no guarantees. We can run marathons, ingest fish oil, green tea, red wine and conquer Sudoku—still, there are no guarantees. That’s the thing about Alzheimer’s and other forms of dementia. It’s random. Exercise and diet can help but there is no guarantee you won’t end up in turmoil, lost and bewildered inside a brain that’s rapidly losing neurons and developing sinister plaque and tangles. Alzheimer’s is an incurable, degenerative and terminal disease that affects more than 35 million people worldwide. It can be extremely lonely, even with plenty of people around. You don’t have to have dementia to feel isolated. The elderly are the most neglected people in our community. Even those with a caring family and financial security can feel isolated. What if there was something simple, cheap and effective to help alleviate that isolation? We’d be throwing loads of money at it, surely? Let me tell you about Silver Memories. It all started with Gary Thorpe, general manager of Brisbane’s 4MBS ClassicFM. Gary was so appalled when he visited his neighbour in a nursing home to see the elderly left in front of a television blaring out sport. He thought, surely we can do better than this. Gary said the answer was in the airwaves. He researched reminiscence therapy, which shows people with dementia respond to the music of their youth. It gives them a sense of value, belonging, power and peace. Music is the last thing to go, brain specialists say. Neurologist Oliver Sacks says in his book *Musicophilia* “musical perception, musical sensibility, musical emotion and musical memory can serve us long after other forms of memory have disappeared”.

Gary Thorpe came up with the germ of an idea for a 24-hour seven-day-a-week nostalgia radio service—Silver Memories. One of 4MBS’s sub-carrier frequencies on the main FM signal became available, providing the means of delivering this service. They just needed special radios tuned to that frequency and a little money. With minimal council and federal grant money, Thorpe bought and distributed 800 radios but for it to really change lives, attention to detail was vital.

Little Thing Number 1: The radios. They are robust and have a simple dial and just one frequency. Turn it on, it plays Silver Memories. Brisbane residents can buy a radio and tune in. People outside Brisbane can access it online. About 10,000 people listen.

Little Thing Number 2: The music. The key Thorpe says is “playing music of their youth from happy times, when they were attending dances, courting, falling in love”.

Little Thing Number 3: Know your audience. Social isolation is a risk factor for depression and suicide in the elderly. Carers in nursing homes say the dangerous time for the elderly, especially with dementia, is 3am to 4am. When medication wears off, they tend to wander or get agitated or sad. It’s the time of the day when there are the most suicides. Silver Memories ensures the schedule includes uplifting music at 3am.

Thorpe started to hear stories of calmer, less depressed listeners, so he turned to University of Queensland researchers in the Australasian Centre on Ageing to evaluate the impact. They gave radios to 114 people, some in nursing homes, some in their own homes, for a three month trial. The average age was 80, a third were visually impaired and 14 were bed or wheelchair-bound. Research fellow Dr Catherine Travers says the results show a significant improvement in their quality of life and less depression. There’s been interest from a radio station manager keen to explore adopting it throughout the US. Thorpe wants to make it a national service and buy more radios, but is hamstrung by lack of funds. Lobbying local and federal members for funding continues”.

If you want to buy a radio, contact the 4MBS station on (07) 3847 1717. More details are available at www.4mbs.com.au.

Bronwen Hofmeister Audiologist is proudly sponsoring many 4MBS concerts throughout 2010 to contribute to their fund-raising efforts.

“A thought to finish on. At Brisbane’s Archbishop Duhig Nursing Home, there was an elderly resident who had been there for five years and never said a word. She had lost her spouse and slid into depression. She was given a Silver Memories radio and, within days, was talking. She spoke of the music she was hearing. About recognizing that lovely song from a dance long ago”.

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Previous Newsletters

All previous newsletter editions are available on the Bronwen Hofmeister Audiologist website: bhaudiologist.com.au

If you do not have access to the internet and would like copies of previous editions, please ask Bronwen.

I wish you and your families a very happy and safe Easter.

Warmest Regards,

Bronwen

PLEASE NOTE THE FOLLOWING CLOSURE DATES:

Easter

Thursday 1st April—Monday 5th April

Anzac Day

Monday 26th April

Labour Day

Monday 3rd May

ASA National Conference (Sydney)

Monday 17th May— Thursday 20th May

Workshop (Melbourne)

Tuesday 10th August—Friday 13th August

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