Dear Reader!

At Advanced Bionics (AB) Europe, we feel that it is our duty to keep thousands of Professionals within the cochlear implant industry, as well as the many thousands of AB users informed. At the same time, this Newsletter will serve to assure Candidates that AB is at the forefront of cochlear implant technology, and to assure users that AB is committed to helping them reach their maximum hearing potential, whatever the situation.

In our PERFORMANCE & OUTCOMES section, we introduce ClearVoice™, a revolutionary new technology designed to help you hear speech clearly. ClearVoice can help you hear speech clearly in many different environments and can be used with assistive learning devices from Phonak to further improve performance.

In SURGICAL MATTERS, we take the opportunity to reiterate our promise to our users to continuously develop and provide highly reliable systems to you.

Two exciting, interactive tools are showcased in our (RE)HAB ZONE section — we talk about how Musical Atmospheres and Musical Journey can enhance hearing performance through the use of music.

Did you know that we also publish this Newsletter electronically, delivering it directly to your email box? If you would prefer to receive the online edition of this Newsletter, you can manage your subscription on http://abinsight.bionicear.eu

If you have any suggestions for future editions of the Newsletter, please forward your ideas to us on newsletter@advancedbionics.com.

Enjoy this first edition!

European Advanced Bionics Team
Advanced Bionics is pleased to announce the addition of the new Harmony™ Listening Check to our Kinder Series™, a range of accessories designed to help little ears hear big!

With the Listening Check, parents and teachers can easily check a child’s Auria™ or Harmony sound processor microphone or T-Mic™ microphone to be sure that young cochlear implant users are hearing their world.

Parents and teachers can easily use the Harmony Listening Check to verify that a child’s equipment is working, including whether it is receiving proper input from an FM receiver (with the iConnect™ Adapter). The Harmony Listening Check can also be used to verify that the processor receives input from consumer electronic devices such as an MP3 player (with the Direct Connect™ Earhook and Cable).

Portable and easy to use, the battery-operated Harmony Listening Check may be beneficial wherever a child goes — to daycare, to school, or even on holidays. The new device will be included as part of the Pediatric Harmony Processor Kit. It may also be purchased separately by existing pediatric Harmony users.

If you are interested in the Harmony Listening Check, please contact your cochlear implant centre.
The real world is full of sounds from a variety of sources that compete for your attention. Advanced Bionics is proud to announce the latest addition to the Harmony™ HiResolution™ Bionic Ear System—ClearVoice. Designed for use with HiRes Fidelity 120™, ClearVoice is a revolutionary technology designed to help recipients hear speech clearly. Users who have been implanted with a HiRes 90K™ or a CII Bionic Ear™ implant, and who use a Harmony BTE sound processor with HiRes Fidelity 120, can opt for ClearVoice.

ClearVoice works by automatically analysing and adapting to each acoustic environment throughout the day, separating the distracting sounds from what you want to hear most, which is speech. ClearVoice suppresses what is known as ‘steady-state’ noise such as that emanating from cars, aeroplanes and even air conditioning units—what remains is an accentuation of speech. Users can expect to enjoy an improvement in speech clarity, greater ease of listening and diminished stress and fatigue.

Be assured, however, that ClearVoice is working in the background and is not a ‘map’ in itself—it merely supplements your current HiRes Fidelity 120 sound processing strategy and is designed to improve listening in complex environments without compromising performance in quiet environments.

Over the years, Advanced Bionics has been a technological leader in terms of sound processing strategies. ClearVoice is the latest advancement helping Users to hearing clearly all day, every day.

“I first heard about ClearVoice on HearingJourney.com. With ClearVoice, I am not limited to where I can sit in a room anymore, and using ClearVoice on my daily three hour commute is bliss. It’s such a pleasure to sit back and hear well.” – Michèle, UK Mentor.

Advanced Bionics recently launched ClearVoice, a new software algorithm that is used with HiRes Fidelity 120 processing on the Harmony processor. ClearVoice identifies frequency bands in which noise is present, and reduces the noise in those bands, thereby enhancing the “real” signal—speech. Initial results in adults showed improvements in the ability to hear speech in noise.1 The Cochlear Implant Program at the Children’s Hospital of Eastern Ontario in Ottawa (CHEO), Canada, wanted to see if the same benefit could be seen in children.

Twenty four children already using Harmony processors with HiRes Fidelity 120 were tested with and without ClearVoice enabled. Figure 1 shows their baseline scores without ClearVoice (the “control strategy”) and how these results improved for the same children when ClearVoice was enabled.

The results show a significant improvement, with more children achieving higher scores in noise.2

Contact your local Cochlear Implant team for more information on ClearVoice, and to see if it is available in your area.
As expected, ClearVoice was shown to have no effect on performance in quiet (Figure 2). However, in noise the children’s mean scores increased from 48% without ClearVoice to 67% with ClearVoice.

Parents of the children were also asked to complete a short questionnaire to report how their child benefited from ClearVoice in everyday listening situations. At least two-thirds of the parents reported that their children found ClearVoice useful in the following situations:
- Having a conversation in a car – 85%
- Listening to the teacher in the class room – 80%
- Having a conversation in a group of people – 75%
- Using a telephone (including a cell phone) – 66%

These results were presented at the recent international conference on cochlear implantation, “CI2010”, in Stockholm, Sweden, attended by approximately 1,500 professionals from the field.

The CHEO group concluded that “we are confident that ClearVoice is of benefit to most children with HiRes 120. Our CI program will now be routinely fitting ClearVoice.”

Many thanks to Liz ShawPickard and Joanne Whittingham from CHEO for providing us with this exciting new data.
use of FM systems when used in combination with ClearVoice.\(^3\)

Referring to the ANSI S3.5 1997 Standard, tests showed a significant improvement in the Speech Intelligibility Index (SII) when ClearVoice™ was in use in sound situations reflecting real life school environments (Fig. 1).\(^3\) These findings demonstrated the importance of using Dynamic FM devices whilst enabling ClearVoice functionality since it improved the SII by at least 8%.

The Patient trial conducted within a small sample of users (N=4) at the EarGroup in Antwerp did verify this objective analysis by showing the evidence of the Dynamic FM performances (Fig. 2).\(^3\) Indeed, even in situations where the SNR is quite challenging (where there is an SNR of -15 dB, for example), patients could still achieve at least a 71% correct score in sentence tests. ClearVoice could still improve the speech score by an additional 10%.

Although these tests clearly demonstrate the efficiency of using Dynamic FM for making sure that the user can achieve an optimal hearing in difficult situations, it is evident that outcomes can be further improved when used in combination with ClearVoice.\(^2\)

The Advanced Bionics Promise to Users

by Michael Laurac

When we asked you, an AB user, what was the most important aspect for you every day whilst using your cochlear implant system the answer was unanimous: performance! In other words, hearing clearer, hearing better, whenever possible and without having to adjust your processor controls.

At AB, we made the solemn commitment to deliver continuous improvement to the clarity of the sound you perceive.

As you probably know, the HiRes 90K™ cochlear implant continues to be the most uncontested technologically advanced platform in the industry with up to 120 stimulation sites, a refresh rate of 90 thousand times per seconds and a processor capable of up to 10 million operations per second. Indeed, the HiRes 90K can be compared to a computer inside a really tiny case, with many capabilities yet to be explored.

The electronic platform of the HiRes 90K is based on CII Bionic Ear™ electronics, which were implanted for the first time a decade ago. Today, during the 10th year anniversary of the CII electronic platform, we once again keep our promise to deliver performance, with the launch of the new ClearVoice sound coding strategy.

Every single evolution of the sound coding strategy since Continuous Interleaved Sampling (CIS) such as HiRes™, HiRes Fidelity 120™ and, today, ClearVoice™, have been offered for free.

Every CII and HiRes 90K user, including the first person implanted with a CII implant in 2000, who would find the new strategy beneficial after a quick visit to their cochlear implant centre, could bring it home without requiring any change in accessory or sound processor, nor any surgery to replace the implant. Needless to say, many seized the opportunity to obtain their upgrades from their audiologist.

Being able to upgrade your CII or HiRes 90K cochlear implant is an important feature which makes even more sense.
My leap of faith for son, James

by Sarah Gabe and Stuart McNaughton

My son, James, is eight years old and was born deaf. He was finally diagnosed as severe to profoundly deaf when he was nearly three years old, which meant he had lost valuable time in terms of his personal development.

After he was officially diagnosed, he was fitted with hearing aids—just before he turned three. His hearing loss affected his high frequency perception and so the hearing aids were of limited use. Since he was unable to hear speech clearly, he wasn’t able to produce speech clearly himself. He wore the hearing aids for a while, and we were very fortunate to be supported by an excellent Educational Audiologist, who saw James on a regular basis, and it was he who suggested a cochlear implant to us.

By now, James was around three and a half years old. We had to go through a number of different tests at a local hospital, to determine suitability for an implant, and eventually James was referred to the Nottingham Cochlear Implant Programme.

We decided to proceed with surgery for a cochlear implant, but then funding issues emerged, which meant that I had to contact my local Member of Parliament and the Primary Care Trust to help secure the funding needed for the operation. I felt it was extremely important for James to have his cochlear implant before he started school, so that he had time to adjust to it. I guess you could say it was a race against time! By the time he was four, he was implanted.

It was a very worrying period for the whole family around the time of surgery. Would he be OK? How would the surgery go? Would he be able to hear any better with his cochlear implant? Had we made the right decision? I guess this is where the "leap of faith" bit comes in! I didn’t have a mentor myself at that time, but would have loved to have had contact with someone who had gone through a similar experience and could share my worries and tell me everything was going to be okay.
We chose Advanced Bionics for James because we were impressed with the technology that they had to offer, and it was extremely important to us that the company we chose was forward-thinking and had the latest technology to offer patients. It was also important that James received a very high-standard of sound quality, especially in noisy environments and that he would be able to experience increased musical perception.

A month after the operation, the “switchon” went well. It did take a while for James to get used to the new sound that an implant offers. But once we had managed to get him to wear his processor consistently, the next step was to develop his speech and his listening skills and for him to get used to the hundreds of new sounds he could now hear! When James started school, he had a one-to-one Communication Support Worker, and within months our use of British Sign Language had reduced significantly as his verbal skills steadily improved.

During the previous few years, my own personal love of music had taken a backseat, as I focused all my efforts on stimulating James, and helping him to develop and enrich his language. Now, however, I play music in the car and the house quite often, and I am so pleased that James has gained an interest in listening to music too. Last week we visited a record store together, and he chose to spend some of his own pocket money on music - something I would never have envisaged in those “early years”. I am really looking forward to going to a live concert with him. He recently got a T-Mic for his Harmony BTE speech processor, and he told me that he can’t wait for a mobile phone - I am dreading the phone bills already! Now, on a daily basis, I marvel at the things James is capable of doing. Watching him actively participate in sports such as cricket and football, brings me such joy, because he is able to engage with a team of hearing children. It makes me particularly proud when he talks about his favourite football players, and I listen to him and his friends as they enjoy playing computer games together.

I feel I have had a special role to play as his parent. I am so proud of James, and of his development, and all he has gone through to get to where he is now. Every parent’s journey is so unique, but when I think of what my son has had to go through - it has definitely bought us closer together.

Choosing Advanced Bionics for my son has proved to be the best decision. Since implantation, he has made tremendous progress, sometimes on a daily basis. I don’t think I’m ever going to stop pinching myself when I hear him discussing his favourite topic of footballers, some with almost impossible names like “Adebayor”, “Berbatov” and “Fernando Torres”. It’s an amazing achievement for me to see how their names roll off his tongue. It is then that I realize just how far we have come!

“Now, on a daily basis, I marvel at the things James is capable of doing.”


Advanced Bionics Launches the BEA in the UK.

by Stuart McNaughton

Earlier this year, Advanced Bionics launched the Bionic Ear Association (BEA) in the UK. The BEA is a support network dedicated to improving the quality of life of individuals with severe-to-profound hearing loss by providing valuable information, education, awareness and guidance on cochlear implants.

If you are interested in cochlear implants, and would like to contact an AB user, connect to one of our dedicated mentors today at www.BionicEar.com/UK.

If you wish to find out more about cochlear implants, please visit www.HearingJourney.com, the place to chat and share stories about cochlear implants and hearing loss.

The BEA has been in operation in the United States since 2001, and its expansion to the UK is part of the Advanced Bionics commitment to helping others to Hear and Be Heard.

Learn more @ www.BionicEar.com/UK

Enhancing Music Perception with AB (re)habilitation Tools

by Christine Rocca

Continued advancements in AB technology and new techniques in (re)habilitation are leading to an exciting new phase when we can have higher expectations for an individual’s musical experience following implantation. AB has designed two new motivating (re)habilitation tools, Musical Atmospheres and A Musical Journey, to support this achievement. These tools are already being used across Europe by adults, children and parents.

Musical Atmospheres is an exciting online resource currently available in English, French and German. Adult and teenage users have individually explored a variety of motivating areas of musical experience, discovering new music through sampled recordings. This is developed through increasing levels of difficulty in musical appreciation and establishing a new foundation for musical memory. Hundreds of users have participated in lively European music group sessions held in the Netherlands, Germany and the UK. This resource has been joined by ‘A Musical Journey: through the Rainforest’ which is a unique (re)habilitation package which aims to enhance listening, language, literacy and musical skills in children with cochlear implants. The interactive musical book exemplifies an approach to integrating reading with music; discovering musical sounds; developing musical skills; reading new words; and using rhyming phrases.

And with the oldest participant being 84, this proves it’s never too late to listen and enjoy music! Teenagers in the UK have reported using Musical Atmospheres in their mainstream music classes, and the enthusiastic response of their peers. This has resulted in numerous suggestions for future musical examples to be included! Musical Atmosphere groups have been enhanced in the UK, Denmark and Germany through the inclusion of practical music sessions with a significant number of users playing instruments. A memorable version of ‘Rocking All Over the World’ concluded an inspirational day in Frankfurt.

‘Music Time’ continues to grow in popularity, with increasing numbers of children participating in groups in the Netherlands, Germany and the UK. This resource has been joined by ‘A Musical Journey: through the Rainforest’ which is a unique (re)habilitation package which aims to enhance listening, language, literacy and musical skills in children with cochlear implants. The interactive musical book exemplifies an approach to integrating reading with music; discovering musical sounds; developing musical skills; reading new words; and using rhyming phrases.

You can be part of the Musical Atmospheres experience, an interactive program designed to help adults with cochlear implants explore the wonderful world of music. Register at www.BionicEar.eu today and click on the Musical Atmospheres link.