

CICADA BUZZ

MARCH BBQ Day

Percussion Workshop

Cochlear Ltd representatives attended our first CICADA event for the year to bring us the news on their latest innovation, the wireless devices for the new Nucleus 6 processor. Amanda Lampe, Senior Vice-president of Global Marketing introduced her colleagues from global marketing, corporate affairs, product management and clinical support and spoke about ways that the company is always trying to improve the customer experience for implant recipients.

They are interested in hearing how different recipients access information from Cochlear and about implants generally, whether it is from websites or social media or newsletters like our BUZZ and others. Roger Smith from Cochlear who has a cochlear implant himself, presented on the wireless Mini Mic, Phone Clip and TV streamer that are helping recipients get

the sound into their ears even more clearly and greatly improving their life experience with a CI. There were a lot of questions from clients and many of them tried the new wireless devices with the Cochlear staff at the High Tea afterwards.

The percussion workshop is something I have been wanting to try as a CICADA event for some time. Chrissy Boyce, our industrious and innovative catering manager (and Treasurer) suggested we could hold a High Tea as a Seniors Week event. Department of Family and Community Services were offering grants to help run events for Seniors Week, so we applied and were fortunate to receive a contribution from them towards the cost of our event.

A big Thank You to Chris Fields and his friend Tom for facilitating our workshop, providing the instruments and inspiration (See Chris's website <http://www.chrisfieldsdrums.com>) I suggested to all that "they release any uncertainty about their musical ability and just

open up to the experience" as it was meant to be fun! Participation is really what it was about and we have lots of lovely photos showing people doing just that. We had attendance of almost 100 people, which was a great crowd and we certainly made a lot of noise!!

The High Tea served in the courtyard was just magnificent. A sincere thanks to Chrissy Boyce and the CICADA ladies who made so many beautiful savoury items and cakes and decorated the tables so nicely. We received so many nice comments on the High Tea.

Sue Walters



Open Captions Australia Inc.

Captioned Movies in Australia

Two founders, Anthony Sammons and Bryn Davies in Melbourne established Deaf Cinema Club February 2012.

After some successful negotiations with distributors and cinemas, Open Captions became available to Australia from November 2012 through major distributors. Deaf Cinema Club expanded to Perth, and Sydney, while a couple of cinemas across Australia began showing OC sessions.

To attract a wider audience and broad appeal, the Deaf Cinema Club has changed its name

to Open Captions Australia. Open Captions Australia was incorporated on 24th February 2015.

A new website has also been launched. www.opencaptions.com.au, which shows the current captioned movies being shown in Melbourne, Perth and Sydney.

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Darwin friends now have their own Facebook page Cicada Northern Territory

If you would prefer to receive this newsletter by email, please send your details to suewalters@cidaca.org.au

Donations over \$2 to CICADA are tax-deductible.

CICADA Australia Inc. thanks Cochlear Ltd. for supporting the design, printing and distribution of this newsletter.

Presidents Report



Music and cochlear implants is a big research topic across many countries. If you have previously enjoyed music with "normal" hearing, certainly it is going to sound different with an implant. Music is such a complex medium it is hard for a sound processor to reproduce the subtle and intricate harmonics. However, listening practice and thoughtful selection of pieces can give you a good start and help you re-train your brain to enjoy music. Rhythm and movement is also a good way to get in the groove again. Hey take up a dance class or something new; maybe even try playing a musical instrument. See this 5-minute Ted Ed video on how playing an instrument helps brain development.

<http://ed.ted.com/lessons/how-playing-an-instrument-benefits-your-brain-anita-collins>

I recently signed up for a TAIKOZ Japanese drumming workshop and very much enjoyed participating as well as the physical workout! Then I tried a singing workshop, which to me is one of the scariest things I can imagine. I do love to sing, but mainly in the car or other places where no one can hear me, so it was a great challenge to go along and take part in folk/African/spiritual songs with a group of supportive and enthusiastic singing fellows.

Our CICADA percussion workshop in March was experimental really. It was great that everyone participated so willingly and I was pleasantly surprised at how much fun they had with the different instruments, trying to keep the beat going.

Teamwork is important and speaking of teamwork, the Hear For You organisation, represented by Lucy Eels at our May BBQ day, is doing a great job mentoring young people with hearing loss. Think back over your life and you will certainly remember people who supported and encouraged you to be your best, challenged you, or just made you feel comfortable being yourself! People from whom you learned some of life's best lessons. I don't think it ever stops, but certainly it is important to have good mentors to show you different sides of life, to shake you up...and by their own example, lead you to become a more mature, independent and compassionate human being. So congratulations to Lucy and the Hear For You team for actively taking on their roles as volunteer mentors. The work itself is its own reward.



Roger Smith from Cochlear and Bob Ross



Shirley Hanke and Sonny Bennett

Lions Hearing Dogs

Faye Yarroll, a Bilateral Cochlear Implant recipient, Cicada member and well known advocate for the Cochlear Awareness Network, visited our recent Cicada day on 24th May to share with us her heart-warming story of receiving a wonderful Lions Hearing Dog named Sydney; and to explain who can receive a Hearing Dog and what it can do.

Faye enlightened everyone with an update on her hearing journey so far; from being born with a hereditary hearing loss to the two separate incidents that resulted in total deafness in both ears. She says she received "the greatest gift of all" when in 2005 and 2007 she received Cochlear Implants via surgeon Professor Bill Gibson.



Faye and her hearing dog Sydney

Although these implants have been life changing for Faye; there is another side to her amazing story. Faye went on to explain that she can hear pretty well when her Cochlear Processors are turned ON. But then there is the world of total silence when her Processors are turned OFF and the whole world reverts back to complete silence. This is where Sydney becomes her helper.

What is a Lions Hearing Dog? Faye explained to us that they can provide "ears" for the deaf and hearing impaired people of Australia; and are made possible through the good work of the Lions Clubs of Australia and Papua New Guinea.

Exactly what can a Lions Hearing Dog do for you or someone you love?

- Have you ever missed visitors because you didn't hear them at the door?
- Have you ever slept through your clock's alarm and missed an important appointment?
- Or do you know someone who has a hearing loss?

Lions Hearing Dogs can restore independence and confidence to their owners.

Hearing Dogs are trained to alert their owners to a range of sounds by running to them and touching with their paws; and then taking them to the source of the sound. They are trained to alert their owners to sounds like...

- A telephone or mobile phone ringing
- A clock's alarm sounding
- A knock at the door or a door bell ringing
- A baby's cry
- An oven timer
- When a smoke alarm is triggered
- The GO GET command to go and get another person in the residence.

Faye told us how Sydney has already assisted during medical emergencies at home by alerting her when a family member needed assistance during the night. So Sydney is much more than just a hearing dog; she is a genuine little life saver too!

Don't worry about not qualifying for a Lions Hearing Dog if you have hearing aids or a cochlear implant. Most hearing dog recipients have one or the other; or both. This doesn't disqualify you from being approved for a hearing dog. The training centre understands that when people remove their hearing aids or Cochlear Processors that they often have little or no hearing and can need further help.

Faye's presentation was very informative. She explained everything from how a hearing dog is matched-up to an applicant, the specialised training required, and how the application process works. Everyone in attendance thoroughly enjoyed Faye's presentation and many questions were asked and answered.

If you would like more information about Lions Hearing Dogs then contact the Training Centre.

Telephone
(08) 8388 7836

Email
hearingdogs@picknowl.com.au

Website
www.hearingdogs.asn.au

Introducing – the Fitbit Charge!

Worn like a Watch

The fitness devices are taking the world by storm, with many brands on the market including Fitbit, Garmin, Samsung and Jawbone to name a few. I decided to jump on the health and fitness bandwagon six months ago and researched the various devices available and read reviews on them to see which would be the best for me.

Based on my research, I bought the Fitbit Charge. It is an amazing device because not only is it a pedometer that also tells the time – it also has Caller ID so it lets me know when people are ringing my mobile telephone. By pairing my Fitbit to my mobile telephone, my Fitbit will vibrate when there is an incoming call and – if the contact is stored in my phone, their name will come up on my Fitbit. If the telephone number is not recognised, then the number is displayed on my Fitbit. If the telephone number is private, then no number comes up on the Fitbit.

This has totally changed my world. I usually have my mobile telephone on silent because if I can't hear my telephone ringing, then I don't want others to hear it and turn to stare at me. Pre-Fitbit, I missed approximately 99% of calls. Post-Fitbit, I miss approximately 1% of calls.

Rania Ajaka (Rania is a CI recipient who studied law and is working with Legal Aid at Bankstown)

Cochlear implant accessory allows Mona Vale man to socialise and swim

Manly Daily Jan 2015



Gordon and Marilyn Love at their favourite spot at Mona Vale rockpool.

Mona Vale man Gordon Love can now swim and swap stories. He has been swimming with his wife Marilyn and a group of friends every day for the last eight years. But he was completely deaf in the water. "It's a very chatty lot that we swim with, so I was missing out. Marilyn would tell me later on what they said, but it wasn't the same," Mr Love said. The Cochlear™ Nucleus® Aqua+ is a silicone sleeve that slides over the processor to protect it from water damage. "It's made a big difference to my lifestyle. Now I feel like I'm connected with my friends. It's also helpful to be able to hear someone yell 'Shark!' if I'm swimming out in the surf!"

Lucy Eels

Hear For You

Lucy Eels our guest speakers at the May BBQ is a volunteer mentor for **Hear For You** working with hearing impaired teenagers. She was born profoundly deaf in both ears and wore hearing aids from the age of two until she received her first cochlear implant at the age of 16, with her second one a couple of years ago. Lucy was born in England and came to Australia four years ago. In England, Lucy went through mainstream school, and despite the difficulties she encountered as a result of her hearing loss, she achieved good grades and went on to become a registered nurse.

Hear For You is a mentor program for deaf and hard of hearing teenagers of high school ages, set up in 2007 by **Olivia Anderson** and is now running across Victoria, NSW, QLD, Western Australia and New Zealand.

As a result of their hearing loss many teenagers can feel lonely, depressed, isolated and lost, as others do not fully understand the difficulties they encounter. Even with cochlear implants

and hearing aids their hearing is still not perfect. Schooling can be difficult and employment opportunities may be limited. The aim of the program is to give the participants more confidence enabling them to speak up for themselves, rather than relying on a parent. The mentoring sessions involve group work and encourage each individual to become involved, share their experiences and ideas as well as to communicate with others. To achieve this lots of activities are involved. Participants are encouraged to set realistic goals and have a positive attitude.

The program has four different workshops. Workshop 1 is about teamwork, identity, friendship and leadership. Workshop 2 involves finding out what they enjoy, talking about part-time jobs or any challenges they may be faced with. Workshop 3 is about technology and the different apps they can access and Workshop 4 looks at confidence and well being, involving drama workshops.

The mentors involved in the programs all share a history of hearing loss and as a result are able to fully understand the difficulties that the participating teenagers are encountering.

Thanks to Lucy for her interesting and informative presentation.



Travelling Overseas

A few tips from fellow travellers with cochlear implants:

Check your travel insurance covers replacement of your sound processor (or 2 sound processors) in case you happen to lose it (or them) falling out of a boat or something. Sometimes there is a cap on replacement costs for a single item and you may be left out of pocket. If you have your processor insured under your home contents policy or other private insurance, check to see if it will be covered outside Australia while you are travelling.

From the Qantas website;

Electronic Devices Powered by Batteries

Devices and battery numbers are limited to personal use amounts.

Lithium Ion Batteries (rechargeable) - under 101Wh in Equipment

AIRLINE APPROVAL REQUIRED NO	CARRY-ON BAGGAGE ✓	CHECKED BAGGAGE ✓
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These batteries are usually used in small electronic equipment/devices eg, mobile phones, laptops, tablets, game consoles, power tools, model aircraft, CPAP, Oxygen Concentrators etc.

Requirements

- equipment containing batteries must have the ON/OFF switch protected to prevent accidental activation when packed in checked baggage
- all spare batteries must travel as carry-on baggage only

Medical implants and hearing aids fall under a special category and are usually exempt from restrictions onboard aircraft. Lithium batteries such as your rechargeables for a sound processor are under 101Wh

Eating Certain Foods May Help Prevent Hearing Loss

eatdrinkbetter.com March 2015

We've all heard how certain foods can affect the way we think, feel and look. But what about the way we hear? In a study published in the American Journal of Clinical Nutrition,

women who regularly ate fish were found to have a lower risk of developing age-related hearing loss than women who didn't. More specifically, women who ate two or more servings of fish a week lowered their risk of hearing loss by 20 percent! Omega-3 fatty acids are among the most beneficial nutrients we can eat, and fish are full of them. In fact, omega-3s have been known to cut your risk for depression, heart disease and now hearing loss. Interestingly, the study showed no bias towards a particular type of fish; everything from tuna, salmon and catfish were shown to have the same effect. Grilled, blackened, fried, charred—any way you cook it, the

benefits are the same. Note that this study was only conducted among a nurses' health study, with over 65,000 women participants, but the effects should be the same with men.



NSW Support Groups

Cicada Illawarra

Hi! As the new co-ordinator for the Cicada Illawarra Group I would like to take this opportunity to share with you a little about myself. My name is David Romanowski and I'm 27 years old. I was born profoundly deaf and have had the cochlear implant in my left ear since the age of 3.

I went to a regular school and I now have an IT degree from University of Wollongong where I did one year of full time study before doing 4 years part-time study whilst working full time as a cadet at Wollongong City Council in Business Systems. I am now currently working full-time as an Analyst for University of Wollongong. I enjoy work as it is challenging and rewarding in great team environment.

Although my job is one where I am seated most of the day, I love being physically active. You will see me running, working out in the gym, golfing, doing laps in the pool, bushwalking & skiing on the slopes.

Whilst having the cochlear implant has its challenges, I enjoy interacting with small groups and taking the opportunities to converse with individuals one on one.

Looking back, I appreciate the vital role support groups and mentors have had in my life. This had provided the necessary support and encouragement for me to go that one step further. The Illawarra Cicada Group has been one such group.

This group is a well organised & well run one, in large thanks to Bob Ross and fellow members of the group, characterised by a relaxed, friendly & enjoyable social environment. This culture needs to continue, whilst expanding opportunities for new members to join in.

You are welcome to join us on one of the future BBQ days, as listed in the schedule...we would all love to meet you!



A recent photo of David



David as a toddler at the Shepherd Centre

Current dates set for Picnics in the Park for 2015

Sunday 30th August
Shellharbour Pool
Sunday 25th October
Illawarra Live Steamers
Sunday 6th December
Shellharbour Pool Xmas Party

From 10:30am till 3.00pm

Please contact **David Romanowski** for further information

Mobile: 0432 715 691
Email: dr930@uowmail.edu.au

Lismore Support Group

At the recent morning tea held by the Lismore Support Group, those attending introduced themselves and each shared something about their cochlear experience. **Sheliya Van Buggenum**, the group's coordinator, presented a segment on Angel Sound (an auditory training program) and demonstrated how to use it. They also looked at an auditory training android app called FBReader, a book reader application with voice. **Cassandra Schubert** from Lismore SCIC shared her expertise regarding Angel Sound and how the progress graphs, report and test matrix print outs benefit the audiologist when re-mapping.

Sheliya is an avid user of Angel Sound and likes to see how she is improving by following the graphs and reports. This encourages her to keep pressing on.

If you live in the area and wish to know more about the group and their activities contact

Sheliya Van Buggenum
meerschamvale@yahoo.com

Newcastle

For information about this group contact
MaryAnn ama03220@bigpond.net.au
OR Mobile 0438 461 659
Karen kaz_dempsey@hotmail.com
OR Mobile 0402 072 074

Western Sydney

Hi, I am **Geoff Letford** from the Western Sydney Cicada group. Our planning group consists of Sean and Margaret Sewell, Tanya Sewell, Judy and Kevin Tutty and myself. We help out with the morning teas – the first Tuesday of the month, 10.30 to 12 noon at SCIC Penrith. We are a friendly gang and have a good chat to implantees and people who are thinking of getting a bionic ear. Come along and join us for some cake, biscuits, tea or coffee

We also have a BBQ picnic in the park every few months. Our next one is on Sunday 16th August 10.30 am until 3.00 pm at Nurragingy Reserve (Kookaburra area) Knox Road, Doonside. For more information please contact Judy Tutty our coordinator.

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Mobile: 0437049452
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Geoff Letford and Judy Tutty

Read my lips — gadget translates silent words

The Sunday Times May 2015

Scientists in Scotland are to create the world's first hearing aid that tells the wearer what is being said to them by reading lips. The gadget, which uses a tiny camera to "see" what people are saying, promises to improve the quality of life for millions of people with impaired hearing. It is estimated that about one in six — about 10m people— in the UK have some degree of hearing loss or deafness. "Deafness touches a huge number of people in the UK and abroad either because people have a hearing loss themselves or live or work with someone who does," said Professor Amir Hussain, from Stirling University, who is leading the project.

Cicada Functions at Gladesville

BBQ's will be held on

6th September, 1st November – AGM.

These days continue to be very popular with our members, and the committee works hard to find a selection of interesting and relevant speakers for each occasion. If you have any suggestions of a suitable guest speaker, please let one of the committee members know.



All set up for Lunch

Morning Teas

The following are the dates for morning teas for the balance of 2015.

2nd July 6th August
3rd September 1st October



Scones by Chrissy

Information can also be checked on the Cicada Website www.cicada.org.au or by contacting the secretary, Judy Cassell judycassell@cicada.org.au

Films That Relate to Hearing Loss

Out of the Silence

A film by Justin Loncar April 2015



COCHLEAR'S NEW WIRELESS DEVICES

Mini Mic, Bluetooth phone clip and TV streamer

Those trying the new devices with their Nucleus 6 model processor are amazed at how much the wireless devices are adding to their hearing experience. Cochlear Ltd developed the wireless devices on a 2.4GHz bandwidth- this is different to telecoil and FM transmission frequencies. They are also compatible with GNResound hearing aids of certain technology types.

These are some of the comments received from users of the devices.

" I now feel more at ease doing emergency call out work on the weekend, knowing that I won't miss a phone call. I have Nucleus 6 processors on both ears and when I wear the phone clip attached to my shirt, I can stream the phone calls to both ears. It rings right in my ears and I answer by pressing the button on the phone clip. I speak into the phone clip too, so even if my phone is about 8 metres away, I can answer the call easily. I took a call while I was hanging out washing in my back yard. It's also easy to answer a call in the car and still be able to concentrate on driving."

" I love my new gadgets because they bring clear sound right to my ears. I especially love walking along talking out loud with no iPhone to be seen (it's in my handbag), having a hand's free conversation. I use it for listening to podcasts on my drive to and from work (no road noise to worry about). I listen to music streamed from Spotify. I do my daily 10 minutes of mindfulness with it too. The Mini Mic is great for my weekly yoga classthe teacher is more than happy to clip it on. She can roam around the room, turn her back etc and I can still hear her crystal clear. I also give it to seminar speakers or place it on their lectern if there is more than one. I don't miss a word. I reckon I have something better than normal ears".

" I find the Mini Mic great in noisy situations such as the local café when used one on one. Instead of straining to follow the conversation, I can sit back and relax while chatting and catching up on the gossip. I have also found it very useful when travelling by asking the guide to clip it onto his/her lapel. I no longer have to get up close and can wander while listening to the information being given by the guide. I also use it with great success in the car if I am driving, as my right ear is implanted and my deaf ear towards the passenger. It is particularly good on long road trips".



Bluetooth Phone Clip



Mini Mic



TV Streamer

" I love the new Wireless accessories and use all of them. The Phone clip is amazing. Just love it!. And like all gadgets, now I can't live without it. I can now hear my mobile phone with direct signal to both processors at once with great sound quality and clarity at the press of one button. I can also listen to music on my mobile phone through the phone clip. I thought that I used to hear the TV pretty well until I got my TV streamer. Now I use it all the time. It's great and you can control your own volume without affecting others in the room. There are endless uses for the Min Mic. I have used it in noisy restaurants, coffee shops, at a meeting or lecture, when having friends over for dinner, even walking down the street next to someone".

A documentary recently released was produced and directed by Justin Loncar, who is deaf himself, but has been helped greatly by his cochlear implants. Justin's desire is to create an inspirational documentary on screen for people to understand and get the facts about Cochlear Implants. For example, "Does it work, how does it work, why are some in the deaf community against it, can it cause people to be sick", and other questions. Justin will share stories of successful people, who, with the help of cochlear implants, have gone on to excel in all areas of their lives. Whether you are deaf,

hearing, a student who is studying cochlear implants, an audiologist, speech therapist or doctor, and especially if you are parents trying to make the right decision whether to get a cochlear implant for your deaf child, this documentary is for you.

There are many people around the world who are against cochlear implants and they often try to dissuade a deaf person that may be interested in an implant. Justin will be sharing part of his story with us. Also being interviewed will be a doctor, an audiologist, speech therapist, neurologist, a celebrity and

some other incredible individuals. They want to encourage other deaf people and let them know that if they can do this, so can others. They want to help people understand more about how it works and how it changed their lives. Wouldn't you like to be able to hear things? Beautiful music? Birds singing? Your child's voice? Then this documentary can help you decide whether or not it is something for you!

Cochlear Supports Brett Lee's Film 'unindian' to Raise Awareness About Hearing Loss

PR Newswire Jan 2015



Cochlear is pleased to be supporting the new Australian feature film 'unindian', starring international actress **Tannishtha Chatterjee** and Australian cricketer **Brett Lee** in his first lead role. Some scenes of unindian have been filmed at Cochlear's new headquarters at Macquarie University, featuring Cochlear implant recipients.

Cochlear CEO Chris Roberts said, "unindian was a unique opportunity to increase public awareness about hearing issues. Our involvement with the film helps draw attention to the impact of hearing loss and the technologies that can help restore hearing for millions of people around the world. 360 million people worldwide have a disabling hearing loss, the problem is enormous but the reality is that many people are not aware of a cochlear implant. We have to do more to increase the awareness of severe to profound hearing loss and the solution". As the global leader in implantable hearing solutions, Cochlear has helped over 350,000 people of all ages live full and active lives.

The Premier of NSW, Australia, **Mike Baird** launched the unindian teaser at a function hosted by the NSW Government's major events agency - Destination NSW - in Mumbai. The film will premiere around the world later in 2015.

Technology talk

Cochlear implant users can hear, feel the beat in music

Scientists at Georgetown University Medical Center say exposure to the beat in music, such as drums, can improve the emotional and social quality-of-life of cochlear implant users and may even help improve their understanding and use of spoken language. The cochlear implant is designed for language perception but not for music perception. By using music that emphasizes a beat, we may be able to improve both says the study's lead investigator, Jessica Phillips-Silver.

They tested nine users of cochlear implants and nine hearing participants, asking them to react to three different renditions of a popular style of Latin dance music that has a heavy beat. Participants wore a Nintendo Wii to measure body movement. Both groups were able to move in time to the beat when drum music was used, although synchronization was greater in hearing participants. "The advantage of drum music to implant users is likely reduction of the complexity of the music as well as absence of pitch variation, which cannot be processed by the implants," Phillips-Silver says.

Cochlear Implants May Also Boost Seniors' Mood, Thinking: Study

HealthDay News March 2015

A new study funded by the makers of cochlear implants included 94 people, aged 65 to 85, who were assessed before, and then six and 12 months after, receiving an implant. The research was led by Dr. Isabelle Mosnier of Assistance Publique-Hopitaux de Paris, in France. Her team found that, besides enhancing hearing, the cochlear implant seemed to boost the emotional health.

While the study couldn't prove cause-and-effect, the cochlear implants were associated with improved speech perception in quiet and noisy settings, better quality of life, lower rates of depression and improved thinking skills. The proportion of patients who were free of depression rose from 59 percent before receiving a cochlear implant, to 76 percent by one year after receiving the device.

Hearing experts break sound barrier for children born without hearing nerve

Medical Xpress Feb 2015

A multi-institutional team of hearing and communication experts led by the Keck School of Medicine of the University of Southern California is conducting a clinical trial backed by the National Institutes of Health. The Auditory Brainstem Implant (ABI) has shown limited effectiveness in adults and scientists believe that it would be more effective in younger children, when their brains are more adaptable. The clinical trial will attempt to prove that the surgery is safe in young children and allow researchers to study how the brain develops over time and how it learns to hear sound and develop speech.

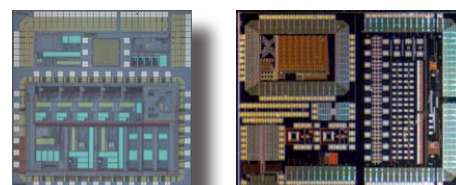
Launched in March 2014, the three-year study has enrolled five of 10 participants and successfully implanted an auditory brainstem implant (ABI) device in four children who previously could not hear. "Initial activation of the ABI is like a newborn entering the world and hearing for the first time, which means these children will need time to learn to interpret what they are sensing through the device as sound", said audiologist Laurie Eisenberg, otolaryngology professor and study co-leader.

He added: "All of our study participants whose ABIs have been activated are progressing at expected or better rates. We are optimistic that, with intensive training and family support, these children will eventually be able to talk on the phone. Several of the young children who had ABIs implanted outside the United States have sought help at this Center for Childhood Communication and we know that they now have the potential to understand speech. This really shows how powerful and flexible the brain is".

Life-changing implants reveal intricacy on a chip

New Scientist Health Feb 2015

This inner ear implant could one day help people with dizziness and balance disorders to regain stability. Developed by Timothy Constandinou



from Imperial College London and colleagues, it senses linear and radial acceleration in three dimensions and transforms the information into a signal that the brain can interpret, restoring balance in a similar way to how a cochlear implant fixes hearing. The chip, which measures 3 × 2 millimetres, is an example of how dramatically implants have shrunk. Early prototypes were bulky and hampered by poor battery life. To save costs, many different types of implants can be integrated on a single silicon wafer. In the wafer pictured above, the chip in the top left corner, for example, is a prototype designed to connect the severed nerves of people with spinal injuries. The chip in the bottom left is being developed to sense the chemical activity in nerves. The wafer will later be chopped up into separate implants. Both of these pictures are part of an Instagram series celebrating the beauty of life-changing chips designed by the Centre for Bio-Inspired Technology at Imperial College London.

Researchers discover how the brain balances hearing between our ears

Medical Xpress Neuroscience May 2015

UNSW researchers have answered the longstanding question of how the brain balances hearing between our ears, which is essential for localising sound, hearing in noisy conditions and for protection from noise damage. This landmark animal study also provides new insight into hearing loss and is likely to improve cochlear implants and hearing aids.



Professor Gary Housley said his team sought to understand the biological process behind the 'olivocochlear' hearing control reflex. "The balance of hearing between the ears and how we discriminate between sounds versus noise is dependent upon this neural reflex that links the cochlea of each ear via the brain's auditory control centre. When sound intensity increases, the olivocochlear reflex turns down the 'cochlear amplifier' to dynamically balance the input of each ear for optimal hearing, sound localisation and to protect hearing."

The study found that the cochlea's outer hair cells, which amplify sound vibrations, also provide the sensory signal to the brain for dynamic feedback control of this sound

amplification, via a small group of auditory nerve fibres of previously unknown function. The researchers speculate that some of the hearing loss that humans experience as they age may be related to the gradual breakdown of this sensory fibre connection to the outer hair cells. Prof. Housley said: "A major limitation of hearing aids and cochlear implants is their inability to work in tandem and support good hearing in noisy conditions. The ultimate goal is for cochlear implants in both ears to communicate with each other so that the brain can receive the most accurate soundscape possible. This research will move us closer to that goal."

Tastes like Sound

In the quest to find solutions for the hearing impaired, researchers at Colorado State University are turning to an unlikely organ for help: the tongue. They developed a Bluetooth-enabled microphone earpiece along with a smart retainer that fits on a person's tongue. These work in tandem to strengthen a partially deaf person's ability to recognize words, through reprogramming areas of the brain, helping them to interpret various sensations on the tongue as certain words. Sounds go from the microphone to a processor that converts into distinct, complex waveforms that represent individual words.



The waveforms go via Bluetooth to the retainer, where they are specially designed to stimulate the tongue. Utilizing an array of electrodes, the retainer excites a distinct pattern of somatic nerves (those related to touch) on the tongue, depending on which waveform it receives. The electrodes excite the nerves just enough to cause them to fire their own action potentials. Some people suggest it feels like the sensation of having champagne bubbles or Pop Rocks on their tongue! The team chose the tongue because of its hypersensitive ability to discern between tactile sensations. They were able to discriminate between fine points that are just a short distance on the tongue. With lots of time and practice, the retainer helps to strengthen the brain's ability to recognize certain words. The researchers compare their technique to the learning behind reading Braille. The device is best suited for individuals who are not completely deaf; that way the device can strengthen the faint sounds they are already capable of hearing. For now, the researchers are still perfecting their device, then they'll work on scaling it so that it can comfortably fit inside a person's mouth.

Breakthrough in tinnitus research

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Tinnitus is largely a mystery, a phantom sound heard in the absence of actual sound. Tinnitus patients "hear" ringing, buzzing or hissing in their ears much like an amputee might "feel" pain in a missing limb. It is a symptom, not a disease and though exposure to loud noise may cause it, some cases have no apparent trigger. Existing treatments are unreliable, either not working at all or varying greatly in effectiveness for those who report some relief.



But a global research effort involving investigators from Canada and China found new insights into how tinnitus, and the often co-occurring hyperacusis, a condition that causes sounds to be perceived as intolerably loud, might develop and be sustained. Functional connectivity MRI reveals how one part of the brain interacts with other regions, much like partners would interact on a dance floor. The researchers induced tinnitus in rats by administering the active ingredient in aspirin, which has long been known to produce tinnitus and hyperacusis symptoms in humans. Certain brain regions became very active once tinnitus is induced, much more so than it is for an animal with normal hearing.

Even though high-dose aspirin induces a hearing loss and less information is being sent from the ear to the brain as a result, the brain responds with greater activity. It's paradoxical, like a car getting better gas mileage with a less-efficient engine. Tracing the network's course, the investigators identified a major hub within the central auditory pathway, the amygdala which is the part of the brain that assigns emotion to our perceptions. Many patients report the onset of tinnitus after experiencing significant stress or anxiety. So it's not just the hearing loss that's essential, there are other emotional factors working together with the auditory factors.

The reticular formation, an arousal center involved in the "fight or flight" response is active, too, plus the hippocampus, the memory region of the brain that helps identify where things such as the phantom sound are located. The final puzzling piece to the network is activity in the cerebellum, normally activated during motor planning events like reaching for a cup or catching a ball; it might act like some kind of "gate" that's allowing the phantom sound to enter the consciousness. The researchers are hoping to test their model by deactivating specific segments of the neural network. By elimination, they would learn if shutting down one part of that network relieves tinnitus, hyperacusis or both conditions.