Soundbite

deafness research uk

February 2010

Soundbite is a free bimonthly email newsletter keeping you up to date with everything going on at Deafness Research UK and the world of research into the prevention, diagnosis and treatment of deafness and other hearing impairments, such as tinnitus.

In this issue

Deafness Research UK is committed to securing radical improvements in the prevention, diagnosis and treatment of deafness and other hearing impairments such as tinnitus. We rely entirely on voluntary support to continue our work.

Please donate now

Our supporters have helped us achieve a real understanding of the genetics of deafness, better hearing aids, new and more accurate ways of testing babies for hearing loss and much more. Imagine what we could achieve if more funds were available.

›› top

Sir George Martin in conversation with Andrew Marr

On Wednesday 28th April 2010, Sir George Martin, legendary producer of the Beatles, will be in conversation with Andrew Marr, leading political journalist, at a unique event in aid of Deafness Research UK.

The event takes place at 7.30pm in King's Place, one of London's most prestigious new performance venues (located just a few minutes walk from King's Cross and St Pancras stations).

Tickets are £75 each. There are also VIP tickets available for £125 which include a pre-interview drinks reception with Andrew Marr from 6.30pm, a signed photo of Sir George Martin, which he will personally dedicate to you, and priority seating.

This special event promises many fascinating insights into the Beatles' recording sessions with George Martin at the famous Abbey Road studios. There will be an opportunity to bid for auction items donated by both Sir George and Andrew Marr, including one stunning piece of Beatles memorabilia.

With tickets for this intimate event strictly limited and selling rapidly, you will need to secure your place quickly to avoid disappointment.

Further information

For further information and to book tickets, please call Deafness Research UK on 020 7833 1733 or email

tickets@deafnessresearch.org.uk

›› top

Top tips for looking after your ears

Your hearing and your ears are precious and easily damaged. Take better care of them in 2010 by following these tips from Deafness Research UK:

1. Never poke anything into your ear - including cotton buds.
The lining of the ear is delicate and can be easily damaged. The ear is also self cleaning and earwax is needed to protect the ear from dirt and dust. If you use a cotton bud you may find some wax is on the cotton bud, but the majority will be pushed into the ear canal. This means it can become harder to remove. Trying to clean your ears in this way can also increase the production of earwax.

2. Keep ears clean.
Wash the visible part of the ear (the pinna) and behind the ear with slightly soapy fingers. Then wipe the soap away with rinsed fingers and dry with a thin towel.

3. If you have problem ears keep them dry because bacteria like a moist environment!
This is particularly important if you have a perforated eardrum or are prone to outer ear infections (otitis externa). When showering or hair washing, use a piece of cotton wool coated with vaseline and fill the outer part of the ear (the concha). Research comparing earplugs and cotton wool with Vaseline found cotton wool to be the most effective at keeping out water. This was also the preferred method.

4. Use one drop/spray of olive oil inserted into each ear once a week if you have dry, itchy ears.
This is to lubricate both the skin of the ear canal and the earwax, encouraging natural movement of the wax out of the ear. Olive oil is anti-bacterial and anti-fungal and contains vitamin E which helps to heal skin. One of Deafness Research UK's advisors has found that this is of benefit for people with dry skin, also helping earwax to become softer.

5. If you are using olive oil, an olive oil spray may be easier to use and be more effective.
Using a dropper can mean too much oil is used, this can block up the ear affecting hearing. In the same way it is only recommended to use olive oil or other wax softening drops for a few nights prior to removal.

6. Don't immerse your ears in bath water.
Body bacteria may enter your ear canal and could cause an infection through water getting trapped behind the earwax.

7. If your hearing is affected by catarrh try inhaling the steam from a cup of tea.
Research by an ENT consultant into the decongestant property of the tannin in tea leaves has shown that putting hot water on a tea bag and sniffing the steam from this morning and night (being careful not to burn your nose), then blowing your nose resolves mucus congestion and helps hearing recover. It is best to continue this for about 5 weeks.

8. Avoid the common problem of ear pain when flying by swallowing frequently or yawning as an aeroplane descends.
This will open the tube which goes from the back of your nose to your middle ear space and allow air in so that there is the same pressure in both the outer ear canal and the middle ear space. This procedure can be more effective if the nose is pinched prior to swallowing. A suggestion for parents with babies or toddlers is to cuddle one ear to the mother's chest and cover the other ear with a disposable beaker, or alternatively use two beakers.

9. Don't ignore an ear problem.
It won't improve without proper treatment and the longer an ear problem is neglected, the longer it may take to treat.

10. If you suspect your hearing is not what it used to be consult your doctor.
A doctor can check your ears for wax build up or ear infections and refer you for a hearing test.

Further information
›› Looking after your ears

›› top

Study casts doubt on caffeine link to tinnitus

New research supported by Deafness Research UK has found that giving up caffeine does not relieve tinnitus and acute caffeine withdrawal might add to the problem. This is the first study of its kind to look at the effect of caffeine consumption on tinnitus.

Researchers at the Centre for Hearing and Balance Studies at Bristol University carried out the first pseudo-randomised, double-blinded, placebo controlled study of phased caffeine withdrawal and abstention to test for a connection between caffeine

consumption and tinnitus. The aim of the study was to provide evidence for therapeutic practice to the tinnitus community.

Sixty-six volunteers who experienced tinnitus and who usually consumed at least 150mg a day of caffeine in tea or coffee took part in a 30-day trial. Participants were assigned to one of two groups, either having their usual caffeine consumption followed by phased withdrawal; or going through phased withdrawal followed by reintroduction and then their usual caffeine consumption.

Participants knew they would only receive caffeine on some days, but did not know which days were which. They were required to complete a questionnaire to measure their tinnitus three times during the study – at the start, after they had been withdrawn from caffeine for ten days and after they had consumed their normal amount of caffeine for ten days. The participants also kept a very brief record of their tinnitus symptoms each day.

Dr Lindsay St. Claire, Senior Lecturer in the Centre for Hearing and Balance Studies at the University of Bristol, and the lead researcher on the study, said “With almost 85 per cent of adults in the world consuming caffeine daily, we wanted to challenge the claim that caffeine makes tinnitus worse. Many professionals support caffeine withdrawal as a tinnitus therapy, even though there is a lack of any relevant evidence, and, in fact, acute symptoms of caffeine withdrawal might even make tinnitus worse.

“Many other dietary restrictions are claimed to alleviate tinnitus without the support from controlled studies. Further work in this area would be of great benefit to people with tinnitus and their clinicians.”

Further information
›› Tinnitus research

›› top

Researchers identify protein needed to develop auditory brain cells

Loss of or damage to the sensory hair cells of the inner ear is the leading cause of both congenital and acquired deafness. Hair cells usually connect to nerve cells that form a pathway (called the 'spiral ganglion') into the brain, but if the hair cells degenerate, so does the spiral ganglion. Researchers at the University of California, San Diego, School of Medicine and the National Institutes of Health have found that Sox2, a protein that regulates stem cell formation, is involved in spiral ganglion neuron development.

"These findings may provide the first step toward regenerating spiral ganglion neurons, the nerve cells that send sound representations to the brain," said Alain Dabdoub, PhD, co-author of the study and Assistant Professor of Surgery with the Division of Otolaryngology at the UC San Diego School of Medicine. "This has significant implications for advances in cochlear implant technology and biological treatments for hearing loss."

Inside the cochlea, hair cells convert sound vibrations into electrical signals that are then sent on to the spiral ganglion cells. If these cells are lost or damaged, hearing loss occurs. Existing therapies for hearing loss are based either on increasing hair cell stimulation with hearing aids or introducing an electronic substitute for the hair cells with cochlear implants. In either case, the presence of working spiral ganglion neurons is required for a successful outcome.

Prior research shows that as few as 10 percent of the typical number of spiral ganglion neurons is sufficient for the success of cochlear implants. Finding out that Sox2 is involved in generating new working cells opens up the possibility of treating hearing loss with therapy that stimulates Sox2 into action.

Sox2 is part of the SoxB1 family of proteins, which plays a significant role in neural development in the spinal cord and elsewhere. The study demonstrates a new role for Sox2 in ear development, showing that the protein is critical for the production of auditory neurons and that generating new neurons is possible.

The study was published in the 13th January issue of the Journal of Neuroscience.

Further information
›› Hearing loss research

›› top

York man hopes to help tinnitus sufferers

Stephen Harrison, 35, who lives in York, developed tinnitus in his 20s after a bout of flu, but believes it was probably due to exposure to loud noise as it was diagnosed alongside a slight hearing loss. He suspects that working without hearing protection on construction sites as well as weekends spent clubbing are to blame for the varying frequencies of tinnitus he experiences in each ear.

When he sought help while living in Brighton he feels he was passed through the system with no care or real treatment offered. “I was pretty much told to learn to live with it, but I knew absolutely nothing about tinnitus when it was diagnosed. Tinnitus is more often

associated with older people but I think more awareness of it is needed amongst the young, particularly when a common cause is exposure to loud noise. ”

Stephen found that with tinnitus he could sleep fairly well, but no longer enjoy the luxury of snoozing. “As soon as I was awake, I could hear the noise so dropping back to sleep didn’t happen anymore.” He also found noise aggravated his tinnitus; particularly things like driving. In social situations he enjoyed the fact that his tinnitus was masked by sounds but like many found it much worse at quiet times. “The main aggravation to my tinnitus is actually exercise”, he says. “I find it gets louder especially after doing weights, but keeping fit is my priority so I am not going to stop.”

Although initially Stephen tried white noise generators, they didn’t seem to benefit him and the devices were uncomfortable to wear. Now, although his tinnitus has worsened slightly he says it is his increased habituation to it that is helping him to cope. He says that his tinnitus has actually made him more positive and drives him on to achieve things. “Early on I felt quite down at the thought of hearing this noise for the rest of my life but then I made a conscious decision to pull myself out of this negativity, to look forward, learn to live with tinnitus and not be plagued by it. This has made me push on with my career and achieve things.”

Stephen currently works as a Health and Safety Consultant in Bradford and previously spent five years as a Health and Safety Manager in construction and petroleum. He says his work now frequently crosses over with his tinnitus as he finds himself talking to people on site about ear protection. “It brings home the importance of wearing ear protection when you explain your own experience of tinnitus and the lack of a cure or even good medical support,” he says.

As a musician, Stephen has for some time been exploring the possibility of recording a tinnitus therapy CD to help fellow sufferers. I have spoken to other sufferers and have an idea of what noises soothe people in general so it's a new year’s resolution to produce a CD of sorts this year.”

Further information

›› Tinnitus advice and support

›› top

Could fully implantable hearing devices be on the horizon?

Millions of people today benefit from hearing aids and cochlear implants. Unfortunately, however, these devices can easily fall off during movement and are damaged by water. Problems often occur with the devices during sport, swimming and even showers. This inevitably causes certain lifestyle limitations.

One solution would be to have a fully implantable hearing device that can be placed under the skin, entirely out of harm’s way. Could such a solution soon be available?

Recent advances in technology have made it possible to implant a specially developed microphone under the skin. This can be programmed to enhance useful sounds around a person, and to reduce unwanted background body noises that sound much louder when a microphone is inside a person, eg chewing food.

It is also now possible to implant a battery under the skin, which offers typical usage times of up to 35 hours. The battery can be recharged in less than an hour, and this can be undertaken whilst working, driving, or enjoying music.

These two advances mean that a fully implantable hearing device could soon become a reality.

This technology has been developed by Otologics, www.otologics.com, an American middle ear implant company. Their fully implantable middle ear device has now successfully passed through European clinical trials, has been awarded a CE Mark and will be made available in the UK later this year for certain types of hearing loss.

Since September 2009, Cochlear, www.cochlear.com, has been partnering Otologics and is hoping to apply such technology to cochlear implants in an effort to also develop totally implantable versions.

Due to these exciting advances, in the future it may be possible to tailor-make fully implantable hearing devices for each individual depending upon their type and degree of deafness. These devices would neither be visible, nor impinge in any way on users’ lifestyle choices. The devices could be based on a user’s particular needs and could be reprogrammed and adapted from outside (without any further surgery) as their hearing needs change.

Only time will tell whether such devices will become a reality, but at this stage the good news is that such potential developments do look to be within our reach.

If you have any queries about fully implantable hearing devices, please contact Rory Kehoe, rorykehoe@hotmail.com, an independent consultant retained by Otologics LLC.

Further information

›› Hearing aids
›› Cochlear implants

›› top

registered charity no. 326915

Contact the Deafness Research UK Information Service via:

- e-mail: info@deafnessresearch.org.uk
- freephone: 0808 808 2222, Mon-Fri 9.00am-5.00pm
- freepost: FREEPOST WC4938, London, WC1X 8BR
- textphone: 020 7915 1412
- internet: www.deafnessresearch.org.uk