

MAKING HEARING A PRIORITY

CILcare Quarterly Newsletter



Headsets and Earbuds : A Danger For Younger Generations?

The number of smartphones has grown continuously over the past 14 years alongside music streaming services, in parallel with the use of personal listening systems : spending extended periods of time listening to music at excessive volumes on a daily basis has become standard among youngsters.

The Centers for Disease Control and Prevention (CDC) estimates that 17% of adults aged 20-69 have permanently damaged their hearing as a result of excessive noise exposure. Permanent damage to hearing can cause irreversible hearing loss and tinnitus. For children and adolescents aged 6-19 , the percentage is about 12.5%, which is concerning as hearing words and sounds is crucial for children to learn and develop their social skills. Children suffering from hearing loss are also more likely to see their school success decline because of their condition.

However, permanent noise-induced hearing loss can be avoided by limiting the exposure to excessively loud sounds and by turning down the volume when listening to music : a person may receive the same "noise dose" by listening to music at 80 dB for 8 hours as they would by listening to music at 100 dB for about 4 minutes. Such simple preventive measures can help limit the damage caused by headsets and earbuds. In general, it is recommended to stay away from loud sounds, but when this is not possible, to wear hearing protection devices.

If any symptom appears, including slight hearing loss or temporary tinnitus, it is essential that patients seek help from audiologist or any other qualified professional to identify potential causes of hearing damage and to limit them. Prevention and screening are key in saving younger generations from hearing impairment.



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ADVANCES IN HEARING RESEARCH

Is migraine linked to hearing loss and tinnitus?

Aug 17th 2021 - Migraine is a common cerebral dysfunction illness that is estimated to affect 14,4% of the global adult population. Migraine has been linked to hearing disorders for years now as most patients experience cochlear symptoms : the relationship between migraine and vertigo was described in 1984.

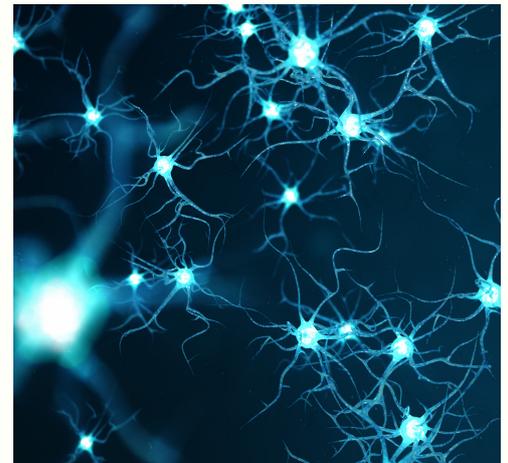
It has been established over 9 years, patients suffering from migraine saw their cochlear symptoms rise from 15% to 49%, their hearing loss increase from 12% to 26%, and 18% of the patients developed hearing loss. As for tinnitus, the symptoms rose from 15% to 49%. More generally, migraine was found to be a risk factor for tinnitus, but also repeats the process of acute tinnitus, thus causing a chronicity of tinnitus.

While the relationship between migraine and hearing impairments has long been observed, many exact mechanisms remain to be explained, which could prove to be a beacon of hope for patients.

Genetic program shows promise in protecting neurons from degeneration and sensory disorders

Aug 13th 2021 - Researchers at the University of Bonn have found that the WNK gene holds a dual role towards neurons in fruit flies. This gene was found to be necessary during the development of the nervous system to connect the neurons: without WNK there are no functional axonal branches.

WNK also appeared to protect existing axons and neurons in adult animals through the regulation of the NMNAT factor, and it also regulates two crucial proteins for the active neurodegeneration of axons. WNK also exists in mammals such as mice and humans, and some mutations of this gene are linked to peripheral neuropathy, accompanied with progressive sensory disorders.



Could osteoporosis and low bone density increase the risk of hearing loss in women?

May 24th 2021 - Researchers from the Brigham and Women's Hospital have conducted a study to assess the possible links between bone disorders, namely osteoporosis and low bone density (LBD), and hearing loss, with data from 144 000 women. Through this data, it was found that women affected by bone diseases had a 40% increased risk of suffering from moderate to severe hearing loss.

The study also took a look at the potential of bisphosphonates, the primary medication used for people with reduced bone density to prevent fractures, in potentially preventing hearing loss, but such treatment was not found to alter the risk of hearing loss.

Rottweiler hearing loss findings may aid research into hereditary deafness in humans

May 13th 2021 - Researchers at the University of Helsinki have started a new study on Rottweilers, a breed in which the cause of hereditary hearing has already been determined as the consequence of a defective LOXHD1 gene. Variants of the same gene also cause hereditary hearing loss in humans and mice. This study provides a new animal model for nonsyndromic hearing loss.



Genetic variant linked to hearing loss in children treated with common chemotherapy drug

July 14th 2021 - In a 2015 international study, a genetic variant in the TCERG1L gene was found to cause an increased risk of cisplatin-induced hearing loss in children with solid tumours in the brain, liver and bone, treated with cisplatin.

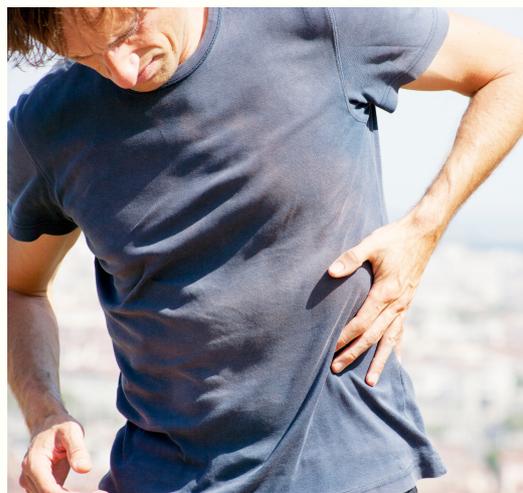
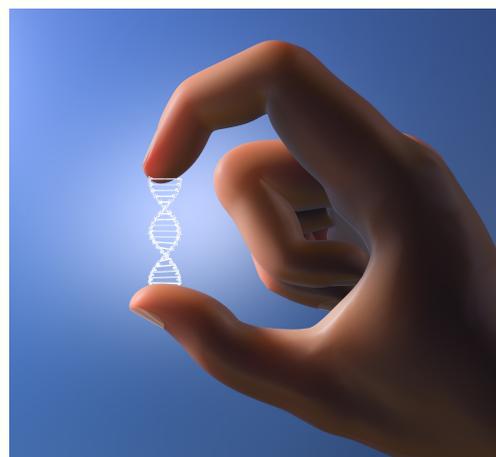
A research team from the University of Alberta joined the project in 2019 and recently concluded that children with the TCERG1L variant were three times more likely to develop cisplatin-induced hearing loss than those without the variant.

Other genes regulated by the TCERG1L gene could potentially be linked to cisplatin-induced hearing loss, as TCERG1L is a transcription regulator.

KCNQ4 activators as a potential treatment for hearing loss

June 04th 2021 - Studies at the Yonsei University College of Medicine and the University of Auckland, published in the International Journal of Molecular Sciences, explored the mechanisms and role of the voltage-gated potassium channel KCNQ4. The study stated that KCNQ4 played an important role in regulating auditory functions in the inner ear as well as maintaining the cochlear homeostasis.

It was suggested that the simultaneous application of two activators with distinct modes of action may result in synergistic effects. As such, therapeutics based on KCNQ4 activators could be promising for hearing loss.

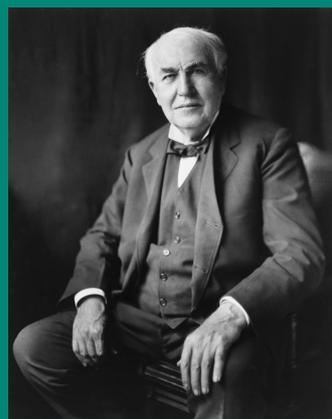


Does a poorer physical function lead to hearing impairment?

June 25th 2021 - Researchers from the Johns Hopkins Bloomberg School of Public Health in Baltimore conducted a study in 2956 elderly adults with a mean age of 79 years old. Among the participants, those with hearing impairments experienced a faster decline in physical performance compared to the participants with normal hearing. The research team believes that treating these hearing impairments could help slowing the age-related decline of physical function.

[Another study](#) published in the European Journal of Public Health stated that physically inactive men with hearing loss were 1.78 times more likely to be obese compared to those with no hearing loss.

WE HAVE ALL HEARD ABOUT THEM !



Thomas Edison, Inventor

Born in 1847 in Ohio, Thomas Edison is well known for inventing electric light, an invention that improved the lives of many throughout the world. Edison was known to be completely deaf in one ear and hard of hearing in the other, which he used to his advantage to keep conversations short.

Celine Dion, Singer

The famous French-Canadian singer has suffered from Patulous Eustachian tube in 2018, a physical disorder in which the Eustachian tube remains intermittently opened, causing autophony. Hearing her own breathing, voice, and heartbeat, she had to cancel several shows in order to undergo surgery.



NEWS OF HEARING ACTORS

Fennec Pharma is announcing FDA acceptance of PEDMARK's New Drug Application resubmission

June 22nd 2021 - Pedmark is a formulation of sodium thiosulfate developed to prevent the ototoxic side effects of cisplatin in children, developed by Fennec Pharmaceuticals. Two Phase III clinical trials have previously been completed, in which positive results were demonstrated.

Fennec Pharmaceuticals has recently announced that the FDA has accepted to review the second submission of a New Drug Application for Pedmark to the FDA, the first submission having been unsuccessful in 2020 due to deficiencies with the facility of the drug product manufacturer.



Amplifon to Acquire Bay Audio, an Australian Hearing Care Retailer

July 13th 2021 - Amplifon, an Italian hearing care retailer operating worldwide, has announced the acquisition of Bay Audio, an Australian hearing care retailer that operates in Australia within a network of over 100 clinics. With this move, Amplifon intends to strengthen its position on the Australian market.

Bay Audio has been acquired for AUD 550 million, with the transaction expected to be completed by the end of 2021.

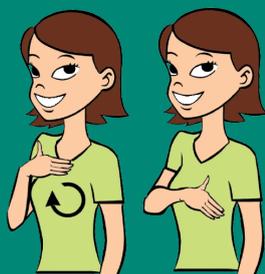
Oticon Announces FDA Premarket Approval for Neuro Cochlear Implant System

June 24th 2021 - Oticon, a global implantable hearing solutions company, has announced that its Neuro Cochlear Implant System designed to treat severe sensorineural hearing loss has been granted premarket approval by the FDA. Designated as a Class III device by the FDA, the Neuro System has allegedly already benefited patients in 51 countries, and could benefit many more in the future.

Akouos' AK-OTOF Receives Orphan Drug Designation from the European Medicines Agency

Aug 13th 2021 - AK-OTOF is a gene therapy developed by Akouos intended for the treatment of otoferlin gene-mediated hearing loss. Mutations of the OTOF gene have caused hearing loss from birth in approximately 20,000 people in the US and in Europe. The European Medicines Agency (EMA) recently granted AK-OTOF an Orphan Drug designation, which will help accelerate the development of this gene therapy through numerous benefits, including the possibility of applying to a centralized European Union marketing authorization that could lead to a ten-year period of market exclusivity.

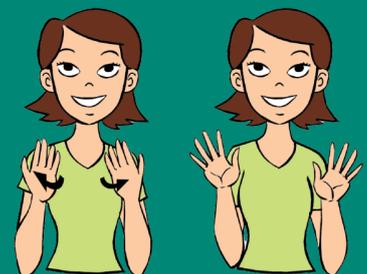
LET'S LEARN SOME SIGN LANGUAGE BASICS



Please



Great



All done

CLINICAL ADVANCES

Phase III study on Atorvastatin to reduce cisplatin-induced hearing loss among individuals with head and neck cancer

Aug 13th 2021 - Atorvastatin, a statin medication used to prevent cardiovascular diseases, will have its efficacy in reducing cisplatin-induced hearing loss evaluated in a Phase III trial by the National Institute on Deafness and Other Communication Disorders.

This treatment could be promising : a study published in the [Journal of Clinical Investigation](#) in January 2021 observed a reduced incidence and severity of cisplatin-induced hearing loss in 277 patients.

Starting in September 2021, this Phase III trial is expected to be completed in 2025.

Phase I/IIa trials completed for Pipeline Therapeutics' PIPE-505

Jun 24th 2021 - Pipeline Therapeutics has completed their Phase I/IIa trial for PIPE-505, a gamma secretase inhibitor that targets two pathways associated with sensorineural hearing loss, an effect on synapses and outer hair cell regeneration. Starting in October 2020, this trial enrolled 28 patients who received either a placebo or an intratympanic dose of PIPE-505 to assess the safety and the efficacy of the compound. The results of this trial haven't been released publicly so far.



Otonomy announces the expansion of Phase I/II trials for OTO-413

Jun 16th 2021 - OTO-413 is a sustained-exposure formulation of brain-derived neurotrophic factor (BDNF) developed by Otonomy to treat hearing loss. With positive Phase I/II results announced by Otonomy in December 2020, the Phase I/II trials will be expanded in 30 patients with speech-in-noise hearing difficulty. Conducted in the US, the study is expected to be completed in June 2022.



Phase II trials for a TNF- α based treatment of noise-induced tinnitus

Jul 16th 2021 - A Phase II clinical study from the Wayne State University started in July 2021 with the objective of evaluating the efficacy of Etanercept, an anti TNF- α , on noise-induced tinnitus. The ability of Etanercept to reduce tinnitus will be studied through resting-state fMRIs to assess if abnormal functional connectivity between auditory and limbic brain structures to physiological levels can be restored, especially over time. Conducted on 310 participants, the study is estimated to be completed around September 2024.

Long-term effects of Depakine on Wolfram syndrome

June 25th 2021 - In September, the French Study Center of Stem Cells, in collaboration with Genethon, started a Phase II trial on 23 patients suffering from Wolfram syndrome to assess the efficacy of Depakine, a valproate drug used to treat epilepsy and bipolar disorder, in preserving auditory functions. With patients receiving the treatment for over 3 years, the study is expected to be completed at the end of 2025.

Wolfram syndrome is a rare autosomal-recessive genetic disorder that causes childhood-onset diabetes mellitus, optic atrophy, and deafness because of mutations in the WFS1 gene.

CILCARE'S NEWS

EUROPEAN VETERINARY DERMATOLOGY CONGRESS 2021

September 16-18 2021

The European Veterinary Dermatology Congress is an international event that gathers veterinarians and scientists to present and discuss the latest advances in the field.

At the event, Aurore Marie will be presenting an abstract co-written with Virbac.

PRESENTATION: Sept 07th, 10am CET
"Ear inflammation and hearing measurements: taking advantage of preclinical tools to assess the Tolerance of otic products"

- What are the main challenges in measuring hearing in large species?
- How can state-of-the art equipment be adapted to the anatomy of the animal?
- What are the methods used to measure auditory changes and assess tympanic membrane integrity with high precision?

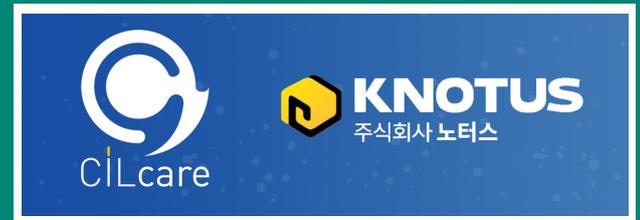


Aurore Marie
Senior Operations Manager

CILCARE AND KNOTUS ANNOUNCE A STRATEGIC PARTNERSHIP

June 08 2021

CILcare recently announced the signing of a strategic partnership with Knotus, a leading Korean non-clinical CRO. CILcare and Knotus will be working together to propose to pharmaceutical, veterinary, nutraceutical and medical devices industries CILcare's cutting-edge R&D services to support safety and efficacy evidence of their products on auditory functions.



CILcare's Next Events

- Sep 28 – 29, 2021 : AFSSI Connexions
- Sep 30, 2021 : Boston Paris Biotechnology Virtual Summit
- Oct 01 – 03, 2021 : SFORL
- Oct 05 – 07, 2021 : Vitafoods
- Oct 13 – 15, 2021 : BIO Japan
- Oct 15 – 16, 2021 : SFA Congress
- Oct 25 – 28, 2021 : BIO EU
- Nov 14 – 17, 2021 : ACT

Check out our workshop presentation from BIO Korea 2021!



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