

Ear Care and Audiology bulletin

Spring 2014

[New study brings scientists a step closer to silencing tinnitus](#)

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Tinnitus sufferers given hope for a cure following new research,

New research funded by charity Action on Hearing Loss suggests that tinnitus can be eliminated by blocking signals between the ear and brain, offering hope to sufferers that a cure is within reach, with prolonged exposure to loud music or working in a noisy environment often the main reasons why people are affected by the distressing condition.

One in ten people in the UK are affected by tinnitus everyday - ranging from a light buzzing to a constant roar in the ears and head - which can have a detrimental effect on quality of life from problems sleeping to being able to concentrate at work, and it can lead to depression and disruption to everyday family life.

Researchers at the University of Western Australia treated guinea pigs with a drug called furosemide one week after tinnitus had been triggered by exposure to loud noise. The drug treatment lowered the activity of the auditory nerve, reduced neural hyperactivity in a specific part of the brain that processes sound and crucially the animals treated with the drug no longer displayed signs of tinnitus.



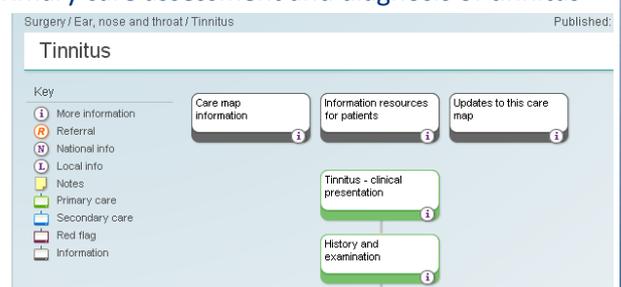
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- a comprehensive overview of primary care assessment and diagnosis of tinnitus
- secondary care specialist investigations
- initial management of tinnitus in adults

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New tinnitus drug reaches final phase of testing

Encouraging results have emerged from the first large scale clinical trial for a medicine specifically designed to treat tinnitus. The trial, carried out last year in Europe, assessed the effectiveness and safety of a drug called AM-101 in nearly 250 people with tinnitus. To be included in the trial, the participants had to have suffered from tinnitus for less than 3 months and their tinnitus must have been caused by either exposure to sudden loud noise, onset of sudden sensorineural hearing loss with an unknown cause, or otitis media (glue ear).

To make sure the right amount of drug reached the inner ear, it was delivered by injection through the ear drum. The effects of AM-101 on a range of tinnitus symptoms were measured using a variety of tests including questionnaires and acoustic tests. Those participants whose tinnitus was caused by noise or otitis media reported a significant improvement in their symptoms with AM-101 compared to placebo (dummy drug), including tinnitus loudness, tinnitus annoyance and difficulty in sleeping.

Participants whose tinnitus was caused by sudden sensorineural hearing loss saw no clear benefit and their acoustic tests were inconclusive. Injection of AM-101 through the ear-drum was shown to be safe and well tolerated by the majority of participants. The clinical researchers now want to confirm the positive results of this trial in a much larger group of tinnitus sufferers and investigate if the drug will benefit people who have had tinnitus for longer. This larger study is currently underway in the UK.

This research was published this month in the journal 'Otology & Neurotology'.

Read the paper in full [here](#)

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Tinnitus Study

Have you recently been suffering from persistent ringing in the ears (tinnitus)?

If so, you should seek specialist medical advice without delay. While your tinnitus may be temporary, the condition can also become permanent.

A clinical trial with the new study drug AM-101 for the treatment of acute inner ear tinnitus is currently under way in hospitals and ENT clinics in the UK and other European countries.

If you are interested in taking part in this study, you can obtain further information here:



The study
 Further information about the tinnitus study.



Study centres
 Where is the tinnitus study taking place in the UK?



Frequently Asked Questions
 All you need to know about the tinnitus study.

Other news**BTA Research Strategy**

The British Tinnitus Association (BTA) has announced a research strategy for the period 2014-2020, highlighting the commitment to supporting tinnitus research in the United Kingdom.

Says David Stockdale, Chief Executive of the BTA: "The BTA has supported and commissioned research since our inception. This is enshrined in our mission statement and several of our strategic priorities. The BTA aims to ultimately find a cure for tinnitus but also seek to prove the efficacy or otherwise of current treatments and seek a better understanding of the impact and burden of tinnitus on the UK."

He adds, "There is little spent on tinnitus research when compared to similar conditions and it is clear from surveys of BTA members they view the BTA's support of research as the most vital area of its work. Our research strategy outlines our ongoing commitment to supporting and directing tinnitus research."

**Employers are a 'major barrier' to work**

Three out of four people with hearing loss feel their employment opportunities are more limited than their hearing peers, with almost 80 per cent naming employers as the major barrier, according to new research by charity Action on Hearing Loss.

The charity's findings, which were released during Deaf Awareness Week, highlight the difficulties deaf people face at work, show that hearing loss prevented 70 per cent of people surveyed from fulfilling their potential at work and, of those that retired early, two-fifths said hearing loss contributed to their decision to retire.

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Latest research

[New research shows smokers and passive smokers more likely to lose their hearing](#)

Giving up or reducing smoking and avoiding passive exposure to tobacco smoke may reduce the risk of hearing loss, according to a [University of Manchester study](#). The study found that current smokers have a 15% higher chance of hearing loss than non-smokers.

Exposure to other people's tobacco smoke also increased the likelihood of hearing loss by 28 per cent, yet ex-smokers have a slightly reduced risk of going deaf - which may be due to leading a more healthy lifestyle once they quit.

Dr Piers Dawes, from the Centre for Human Communication and Deafness at The University of Manchester, who led the research involving almost 165,000 UK adults, added, "Given around 20 per cent of the UK population smoke and up to 60 per cent in some countries, smoking may represent a significant cause of hearing loss worldwide. We found the more packets you smoke per week and the longer you smoke, the greater the risk you will damage your hearing.

The research, also funded by the Medical Research Council (MRC) and the National Institute for Health Research (NIHR), is published in the Journal of the Association for Research in Otolaryngology.

Link to the research: [Cigarette smoking, passive smoking, alcohol consumption and hearing loss](#), Piers Dawes et al., Journal of the Association for Research in Otolaryngology, 29 May 2014.

[New funding boosts tinnitus research](#)

Autifony Therapeutics, a UK-based biotechnology company, has announced that it has been awarded funding of £2.2 million by the UK government's innovation agency, the Technology Strategy Board (TSB), to support a Phase 2 clinical trial in tinnitus patients of its new lead compound AUT00063. The clinical trial which is planned to start later in the year, will be carried out in the UK in collaboration with The University of Nottingham and National Institute for Health Research (NIHR) Nottingham Hearing Biomedical Research Unit (BRU).

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Latest research

[An evaluation of audiology service improvement documentation in England using the chronic care model and content analysis](#)

Objective: Implementation of the chronic care model (CCM) is associated with improved outcomes for patients. It follows that any proposed policy or implementation plan that maps highly onto the CCM is more likely to lead to improved outcomes. The aim of this study was to compare long-term condition (LTC) policy documents and audiology quality standard documents with the CCM and to highlight the need for further research in service implementation and clinical outcome. Design: We carried out a keyword-in-context content analysis of relevant documents. Study sample: Documents relating to health department policy on LTCs, audiology service improvement initiatives in England and the CCM. Results: This analysis shows that current audiology implementation documents in England map poorly onto the CCM compared to health policy documents relating to the management of LTCs. The biggest discrepancies occur in self-management support, delivery system design, and decision support. These elements are supported by the best evidence of potential improvements in clinical outcome. Conclusions: Our content analysis of audiology service quality improvement documents in England suggests they compare poorly to some elements of the CCM. We discuss the implications this might have for future research.

[International Journal of Audiology 2014; 53: 377–382](#)

[Why Cardiovascular Health Should be Added to the Hearing Case History](#)

The relationship between cardiovascular health and hearing is strong, and has been confirmed by a sizeable number of investigators. Therefore, if the case history of the audiologist's patient is to be complete, it should include cardiovascular health.

[Hearing Journal: May 2014 - Volume 67 - Issue 5 - pp 22,24,26](#)



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Latest research

Comorbidity in adults with hearing difficulties: Which chronic medical conditions are related to hearing impairment?

Objectives: To investigate the occurrence of 27 chronic medical conditions in a cohort of adults with and without hearing impairment, and to examine the association between these conditions and hearing ability. Design: The National Longitudinal Study on Hearing (NL-SH study) is a large prospective study among adults aged 18 to 70 years, conducted via the internet in the Netherlands. Hearing ability was measured with a digits-in-noise test and comorbidity was assessed through self-report. Study sample: Cross-sectional data of 890 hearing-impaired and 975 normally-hearing adults were analyzed. Both descriptive statistics and multinomial logistic regression analyses were conducted. Results: Of the NL-SH participants with insufficient or poor hearing ability, 78.5% reported to suffer from at least one additional chronic condition. This proportion was larger than in the normally-hearing group (68.6% with one or more chronic conditions and 37.7% with two or more). After adjustment for age and gender, 'dizziness causing falling', 'diabetes' and 'arthritis types other than osteoarthritis and rheumatic arthritis' were significantly associated with poor hearing ability. Conclusions: Our results show that some previously reported associations do not only occur in older age groups, but also in younger cohorts. Comorbidity is relevant in the rehabilitation (multi-disciplinary care) and the clinical encounter.

[International Journal of Audiology 2014; 53: 392–401](#)

Relationship of Hearing Loss and Dementia: A Prospective, Population-Based Study

Objective: To determine whether baseline hearing loss increases cognitive decline and risk for all-cause dementia in a population of elderly individuals.

All subjects completed the Modified Mini-Mental Status Exam (3MS-R) at baseline and over 3 triennial follow-up visits. Hearing loss (HL) at baseline was based on observation of hearing difficulties during testing or interview. Incident dementia was determined by clinical assessment and expert consensus.

Results: At baseline, 4,463 subjects were without dementia, 836 of whom had HL. Of those with HL, 16.3% developed dementia, compared with 12.1% of those without HL ($p < 0.001$). Mean time to dementia was 10.3 years in the HL group versus 11.9 years for non-HL (log rank test $p < 0.001$). In Cox regression analyses controlling for sex, presence of APOE- $\epsilon 4$ allele, education, and baseline age, and cardiovascular risk factors, HL was an independent predictor of developing dementia (hazard ratio = 1.27, $p = 0.026$ [95% CI, 1.03–1.56]). Linear mixed models controlling for similar covariates showed HL was associated with faster decline on the 3MS-R, at a rate of 0.26 points/year worse than those without HL.

Conclusion: Elderly individuals with HL have an increased rate of developing dementia and more rapid decline on 3MS-R scores than their nonhearing impaired counterparts. These findings suggest that hearing impairment may be a marker for cognitive dysfunction in adults age 65 years and older.

[Otolaryngology & Neurotology: June 2014 - Volume 35 - Issue 5 - p 775-781](#)

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Latest research

[Hearing in Middle Age: A Population Snapshot of 40- to 69-Year Olds in the United Kingdom](#)

Aim: To report population-based prevalence of hearing impairment based on speech recognition in noise testing in a large and inclusive sample of U.K. adults aged 40 to 69 years. The present study is the first to report such data. Prevalence of tinnitus and use of hearing aids is also reported.

Design: The research was conducted using the UK Biobank resource. The better-ear unaided speech reception threshold was measured adaptively using the Digit Triplet Test (n = 164,770). Self-report data on tinnitus, hearing aid use, noise exposure, as well as demographic variables were collected.

Results: Overall, 10.7% of adults (95% confidence interval [CI] 10.5–10.9%) had significant hearing impairment. Prevalence of tinnitus was 16.9% (95%CI 16.6–17.1%) and hearing aid use was 2.0% (95%CI 1.9–2.1%). Odds of hearing impairment increased with age, with a history of work- and music-related noise exposure, for lower socioeconomic background and for ethnic minority backgrounds. Males were at no higher risk of hearing impairment than females.

Conclusions: Around 1 in 10 adults aged 40 to 69 years have substantial hearing impairment. The reasons for excess risk of hearing impairment particularly for those from low socioeconomic and ethnic minority backgrounds require identification, as this represents a serious health inequality. The underuse of hearing aids has altered little since the 1980s, and is a major cause for concern..

[Ear & Hearing: May/June 2014 - Volume 35 - Issue 3](#)

[Epidemiology and Pathogenesis of Otitis Media: Construction of a Phenotype Landscape](#)

Otitis media (OM) represents a complex set of clinically defined disease phenotypes. Epidemiological and pathological data suggest that inflammation of the middle ear occurs on a continuum of disease. Here I review epidemiological data and apply mathematical modelling to better define the interrelation of OM phenotypes, including the relationship of upper respiratory tract infection to acute OM (AOM), of AOM to OM with effusion, and of recurrent OM to chronicity of effusion. I use these mathematical models to represent OM graphically as a 'landscape of disease'. This novel nosology may enable clinicians and researchers to better conceptualise middle ear inflammation in its various forms, although the limits of its application are also discussed.

[Audiol Neurotol 2014;19:210-223](#)

[Clubbers' Attitude Toward Earplugs: Better with Use](#)

While earplugs have been identified as an effective way for patrons of loud music venues to mitigate the risks from noise exposure, such hearing protectors are rarely worn. Time and experience may change that, though, we showed in this study. We gave regular music patrons (clubbers) earplugs and explored their experience of wearing them. By the end of the 16-week study, most participants had developed a positive view of the hearing protectors. The results are encouraging because they suggest that experience with earplugs can lead to sustained positive attitudes toward the devices, which has the potential to reduce the chance of future hearing loss and tinnitus in this at-risk group of music venue patrons.

[Hearing Journal: April 2014 - Volume 67 - Issue 4 - pp 6,8,10,11](#)

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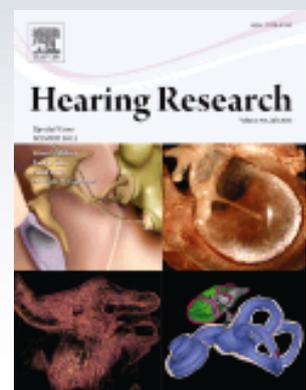
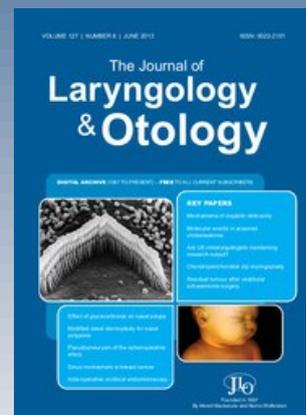
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