New study aims to train sufferers' auditory systems to 'ignore tinnitus'

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An innovative multi-modal treatment programme for tinnitus will be trialled by researchers from the Centre for Brain Research at The University of Auckland, in a study made possible by a donation from Link Research and Grants.

The treatment programme will use neuromodulators to "prime" people's brains to be more responsive to training that may reduce their perception of tinnitus – a sensation of noise in the ears that has no external cause.

"We're trying to provide the means for the auditory system to ignore tinnitus," explains lead researcher Dr Grant Searchfield, Head of Audiology. "When people experience tinnitus they become attuned to hearing it in preference to other auditory stimuli – it's a magnet for attention. To break the cycle they need to be trained to attend to other things."

The trial will use people's sense of vision and touch to achieve this. "In the past it was assumed that tinnitus was primarily an auditory phenomenon, but it has become clear that tinnitus is caused by a much more distributed network within the brain that can be influenced by a number of senses," says Dr Searchfield.

"We know that the senses can work for or against each other. For instance if a tactile (touch) stimulus is paired with an auditory stimulus it can make the perceived sound stronger, whereas if they don't match up then the perceived sound is weaker. Visual stimuli can also trick us into

hearing sounds that aren't there."

Participants will use computer-based training developed at the university that uses visual and touch feedback to train the brain to ignore tinnitus. A sound-only version of the training has already been shown to produce significant improvements in tinnitus within one month, a much shorter period than the 12 to 18 months required for standard treatments.

To further boost the effect, neuromodulatory drugs will be used to make people's brains more responsive to training. "It's analogous to using performance enhancing drugs in athletics," explains Dr Searchfield. "Doing the training can reduce tinnitus but if you use these medications then the training may be more effective or you could get to the end result faster."

"This research is very important not only for understanding tinnitus but understanding the brain itself," says Matteo de Nora on behalf of Link Research and Grants.

The study builds on previous work at the Centre for Brain Research on how to prime the brain to be more responsive to rehabilitation for stroke or lazy eye. It is a multidisciplinary project involving experts in audiology, medicine, behavioural medicine, pharmacology, vision science, and sport and exercise science.

"This is a very exciting development for the Centre for Brain Research which exemplifies the whole ethos of the Centre to promote and enhance multidisciplinary research from the lab to the clinic," says the Centre's Director Professor Richard Faull.

Link Research and Grants has a long-term interest in supporting tinnitus research worldwide and is a strong advocate for New Zealand research. Its gift will cover the cost of the project, including several research

positions as well as equipment and related expenses.

"We are extremely grateful for the generous philanthropy that supports our world-class researchers. I am confident that the tinnitus research project will eventually improve the lives of those who currently suffer this annoying hearing problem," says Professor John Fraser, Dean of the Faculty of Medical and Health Sciences at The University of Auckland.

Around 20 per cent of people experience tinnitus that annoys them and one to two per cent have clinically significant tinnitus. To learn more about tinnitus or find out whether you may be eligible to take part in the study, email tinnitus@auckland.ac.nz

Provided by University of Auckland