

Study to test new tinnitus 'treatment'

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A new clinical trial is to test whether a pocket-sized device that uses sound simulation to reboot faulty 'wiring' in the brain could cure people with the debilitating hearing disorder tinnitus.

The CR neuromodulation device delivers specific sequences of sounds to disrupt the pattern of neurons firing in the brain. It is believed that conditions such as hearing loss can cause neurons in the brain to fire simultaneously instead of in a [random pattern](#) which can cause an overload and lead to a ringing or buzzing in the ear, the classic symptom of tinnitus.

The study is being led by the National Biomedical Research Unit in Hearing (NBRUH) which is funded by the National Institute for Health Research (NIHR), a partnership bringing together expertise from researchers at The University of Nottingham and the Medical Research Council Institute of Hearing with leading clinicians from Nottingham University Hospitals NHS Trust.

Dr Derek Hoare, a research fellow at the NBRUH, said: "In the UK, around five million people suffer from tinnitus, a debilitating condition which can be exceptionally difficult to treat due to the huge variation in symptoms and severity between individual patients.

"We know there are very many people out there suffering with tinnitus who have tried a number of different treatments including [hearing aids](#), sound therapies, counselling and other alternative medicines such as acupuncture but to no avail.

"We want to scientifically establish whether this new method of sound simulation could offer patients a new hope for treating tinnitus, which can have such a distressing impact on people's day to day lives."

Tinnitus is a secondary symptom usually resulting from damage to the ears, including hearing loss following exposure to loud noises, congenital hearing loss, ear infections and ear [hair cell](#) death caused by exposure to a number of different drugs.

The revolutionary CR® neuromodulation device is already being marketed by the private healthcare sector both in the UK and in Germany, where it was originally manufactured and where an exploratory study has already produced promising results.

Funded with just over £345,000 from the the specialist private audiologists The Tinnitus Clinic in London, the study will also involve collaboration with experts at the Ear Institute at University College London (UCL).

The scientists will be looking to recruit patients who have suffered from bothersome tinnitus for at least three months but are not currently receiving any treatment for the condition. Those with associated [hearing loss](#) will need to forego the use of their normal hearing aid for the four to six hours per day when the device needs to be worn.

The study will involve two groups of participants, one of which will be fitted with the CR® neuromodulation device and the other of which will be fitted with a placebo device. Over a period of three months, the researchers will then monitor the effect of wearing the device on the patient's condition through a series of hearing tests, questionnaires and EEG recordings of the electrical activity of their brain.

After three months, all patients — even those who previously received a

placebo — will be fitted with a working device which they will be free to keep.

The researchers hope to be able to prove that by disrupting the abnormal firing of neurons in the brain the device can encourage them to return to a normal healthy pattern, eradicating the symptoms of [tinnitus](#). In some cases, patients may find the device has permanently improved their symptoms, with potentially no further treatment needed in the future.

Provided by University of Nottingham

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