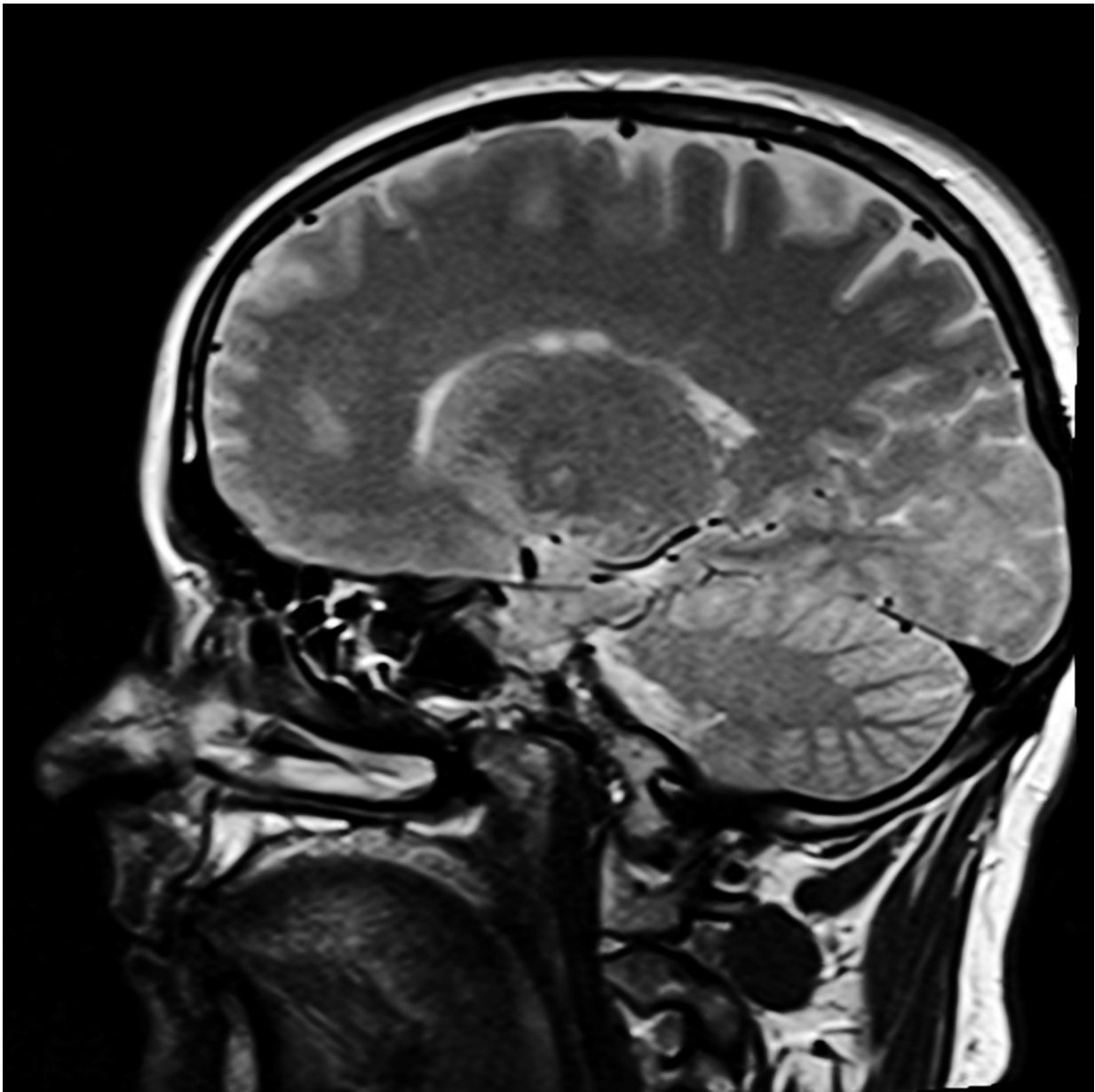


Scientists successfully tune the brain to alleviate pain

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Scientists at The University of Manchester have shown for the first time that if the brain is 'tuned-in' to a particular frequency, pain can be alleviated. Credit: The University of Manchester

Scientists at The University of Manchester have shown for the first time that if the brain is 'tuned-in' to a particular frequency, pain can be alleviated.

Chronic [pain](#)- pain which lasts for more than six months - is a real problem for many people, with 20-50 % of the general population estimated to suffer from it (comprising 20% of consultations in general practice).

It is a much greater problem in the elderly with 62% of the UK population over 75 year's old suffering from it. Chronic pain is often a mixture of recurrent acute pains and chronic persistent pain. Unfortunately there are very few treatments available that are completely safe, particularly in the elderly.

Nerve cells on the surface of the [brain](#) are co-ordinated with each other at a particular frequency depending on the state of the brain. Alpha waves which are tuned at 9-12 cycles per second have been recently associated with enabling parts of the brain concerned with higher control to influence other parts of the brain.

For instance researchers at the Human Pain Research Group at The University of Manchester found that alpha waves from the front of the brain, the forebrain, are associated with placebo analgesia and may be influencing how other parts of the brain process pain.

This led to the idea that if we can 'tune' the brain to express more alpha

waves, perhaps we can reduce pain experienced by people with certain conditions.

Dr Kathy Ecsy and her colleagues in The University of Manchester's Human Pain Research Group have shown that this can be done by providing volunteers with goggles that flash light in the alpha range or by sound stimulation in both ears phased to provide the same stimulus frequency. They found that both visual and auditory stimulation significantly reduced the intensity of pain induced by laser-heat repeatedly shone on the back of the arm.

Professor Anthony Jones is the director of the Manchester Pain Consortium which is focussed on improving the understanding and treatment of chronic pain. He said: "This is very exciting because it provides a potentially new, simple and safe therapy that can now be trialled in patients. At recent public engagements events we have had a lot of enthusiasm from patients for this kind of neuro-therapeutic approach."

Further studies are required to test the effectiveness in patients with different pain conditions but the simplicity and low cost of the technology should facilitate such clinical studies.

Dr Chris Brown, who is a Lecturer in Psychology at The University of Liverpool, who was involved in the research while working in Manchester, said: "It is interesting that similar results were obtained with visual and auditory stimulation, which will provide some flexibility when taking this technology into patient studies. For instance this might be particularly useful for patients having difficulty sleeping because of recurrent pain at night."

More information: The paper, 'Alpha-Range Visual and Auditory Stimulation reduces the Perception of Pain', was published in the

European Journal of Pain.

Provided by University of Manchester

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