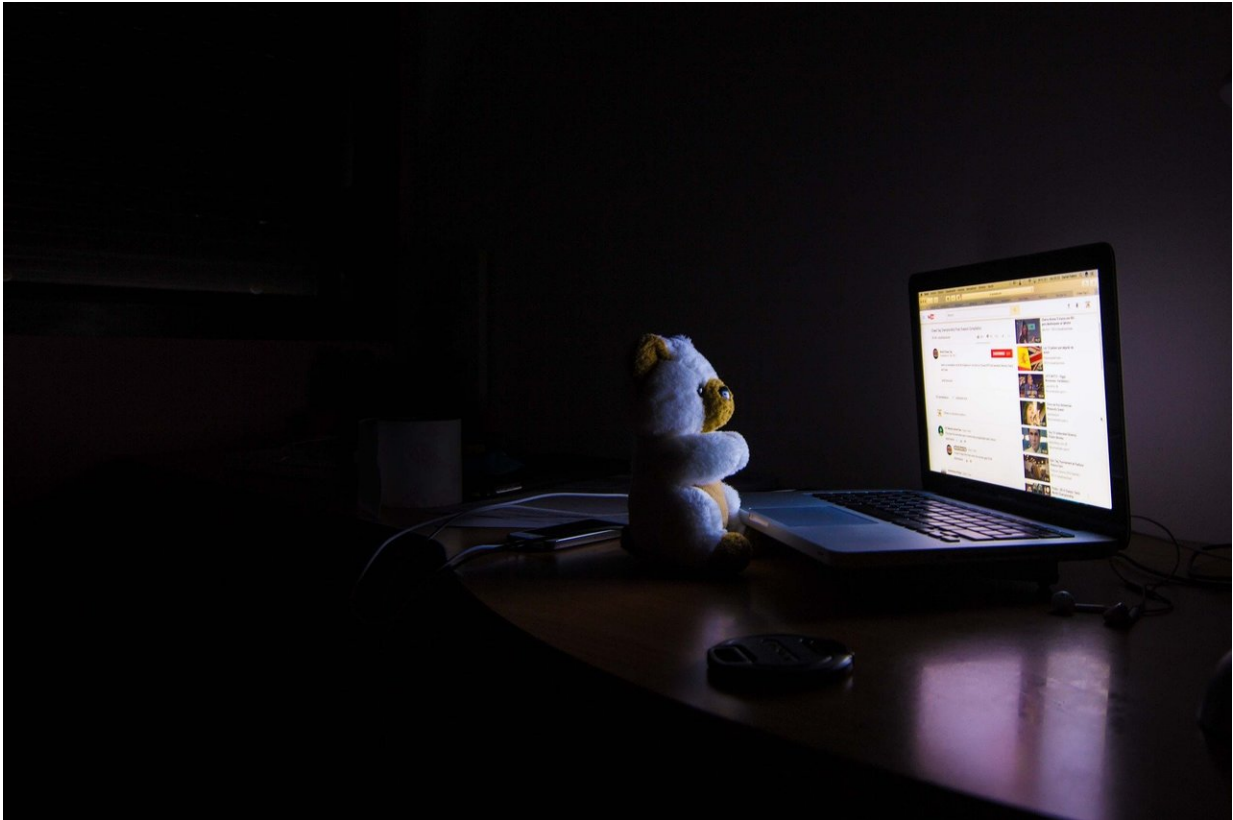


Brain training for insomnia

July 8 2021, by David Bradley



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Might external stimuli—audiovisual and haptic—be used to train the brain to improved sleep patterns to treat insomnia? That's the question a research team from India hopes to answer in work published in the *International Journal of Medical Engineering and Informatics*.

E. Karuppathal and R. Kalpana of the Department of Biomedical Engineering at Rajalakshmi Engineering College and A.V. Srinivasan of The Tamil Nadu Dr. M.G.R. Medical University explain how [audio signals](#) of differing frequencies are given to both ears, [visual input](#) to the eyes otherwise covered with an eye-mask to block external light, and periodic touch pressure to the wrist via a pressure cuff can be applied. The aim is to entrain brainwaves to match with a normal sleep pattern.

Tests with volunteers who suffer from frequent and prolonged insomnia and non-insomniacal control subjects showed that those given the audiovisual and haptic stimuli recorded prolonged REM state sleep than they did without the stimuli. The approach offers a physical, non-pharmaceutical, approach to treating insomnia that might suit patients reluctant to turn to medication with all its putative side effects, dependencies, and costs, for their sleep deprivation.

It is envisaged that, soon after diagnosing [insomnia](#) if intervened with AVHS therapy, there could be a chance of resuming normal sleep without oral drugs, the team writes. Moreover, participants in the trials uniformly welcomed the drug-free therapy, the team adds.

The mode of action of this therapy is unknown and it may well be that the [stimuli](#) simply provide a soothing distraction that allows the person to fall asleep. Additional work will most investigate the long-term efficacy and identify any problems that might arise. It could also focus on measuring brain waves during the therapy in greater detail to determine what kind of electrical changes occur in the brain during the stimulation. Parallel studies might also look at whether a single stimulus or a combination of any two might be efficacious so that the treatment might be simplified.

More information: E. Karuppathal et al, Brainwave entrainment through external sensory stimulus: a therapy for insomnia, *International*

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