

Wake Forest Baptist conducts clinical study for insomnia using new technology

June 30 2011

Insomnia is the most prevalent sleep disorder, affecting up to 50 percent of the adult population in the United States on a weekly basis.

Wake Forest Baptist Medical Center is conducting the first ever, randomized, controlled clinical research study in the country using Brainwave Optimization to treat people with insomnia. Brainwave Optimization is a non-invasive technology that helps the brain balance itself for optimal performance.

The study is made possible by a research grant from Brain State Technologies, a company based in Scottsdale, Ariz., whose founder developed Brainwave Optimization or what is technically known as High-resolution, Relational, Resonance-based, Electroencephalic Mirroring (HIRREM).

"Energetic imbalance of the brain, with dominance of the right or left hemispheres, can be seen in conditions such as trauma or stress, for which insomnia is often an accompanying symptom," said Charles Tegeler IV, M.D., professor of neurology and the primary investigator for the study. "This new technology is intended to facilitate greater balance and harmony in brain functioning, which may result in improved symptoms."

The [human brain](#) is made up of the left and right hemispheres that work together as parallel processors with balanced progression from front to back as well. When a person undergoes trauma or a major [stressor](#), their

autonomic response for survival kicks in, and the brain can become unbalanced as a result. That occurs naturally. However, sometimes the brain doesn't balance itself back, Tegeler explains, and that can lead to adverse effects, such as trouble sleeping or anxiety.

"In effect, we are allowing the brain to look at itself in the mirror and see itself in an optimized, energetic state," Tegeler said. "Those areas that are out of balance then begin to work toward a more functional state."

Tegeler said the study is focusing only on insomniacs because it is such a common condition in the general population and because it is a condition for which improvement can be easily measured. Twenty people who tested for moderate to severe insomnia were enrolled and underwent baseline testing. The study participants were randomly placed into two separate groups. The first group underwent eight to 12 Brainwave Optimization sessions each while the second group continues as is, acting as the control group. Once the data has been collected, the second group will also undergo the sessions.

The Brainwave Optimization process begins with specifically placed electrodes affixed to the scalp and connected to a computer to detect the brainwaves of various brain lobes. A brainwave is electromagnetic energy that can be broken down into frequencies. Higher frequencies have more cycles per second and, relative to sound, would be a higher pitch on a musical scale. To reflect the brain's own optimal wave patterns back to it non-invasively, the frequencies are assigned a musical tone, and played back to the subject via stereo ear buds placed in the ears – this is done in almost real time. As the brain resonates with the transmitted sounds, changes occur in the neural network.

One study participant described his experience as having "a big reset button that's been hit."

While Brainwave Optimization has already been used by more than 32,000 people around the world, this clinical study at Wake Forest Baptist is the first attempt to look at a specific health problem – insomnia – in a controlled setting in order to be able to measure outcomes and results.

"Sleep problems and sleep deprivation can have far reaching implications on people's health and well being," Tegeler said. "Lack of sleep can affect people's lives with detrimental effects from irritability to sickness to weight gain and more."

Provided by Wake Forest Baptist Medical Center

Citation: Wake Forest Baptist conducts clinical study for insomnia using new technology (2011, June 30) retrieved 25 April 2024 from <https://medicalxpress.com/news/2011-06-forest-baptist-clinical-insomnia-technology.html>

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