

Mental Improvement Through Magnetic Stimulation

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Technology description

The adaptive changes effected by the current invention are accomplished via combinatorial recording and stimulation with real-time, bi-directional feedback. A headset captures the user's bioelectric signals, provides direct feedback and includes controls, which can be used to adjust the stimulation via embedded magnetic field coils.

This system allows an individual to fine-tune the stimulation over time to produce a persistent change in his or her cognitive-emotive profile.

Many areas of the brain are involved in "higher cognitive functions" and the extensive connections of cortical circuits with limbic circuits add emotional complexity to our behaviors. Characterization of this "cognitive-emotive" profile may have new applications in light of two separate findings: 1)

Neurofeedback has been used to temporarily induce "state-of-mind" changes for treating attention deficit disorders and epilepsy, 2) Modification of specific brain circuits via Transcranial Magnetic Stimulation (TMS) has been shown to induce an improvement in memory functions or a reduction/elimination of symptoms of an illness. The invention describes a means to combine characterization of bioelectric activity with magnetic field-brain stimulation techniques to produce adaptive and prolonged improvements in mental state.

Advantages

The current invention consists of the following.

State-of-the-art biological sensor technology, signal processing, pattern recognition, and computational algorithms.

Real-time characterization of mental state combined with bi-directional feedback.

Treatments that are iteratively "tuned" to the psychological response to an intervention.

Utility as an alternative or adjunct therapy.

In sum, this may significantly improve treatments for many neurological conditions by improving individual wellness as opposed to simply reducing or eliminating symptoms.

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