



BrainStim Centers offers Magnetic e-Resonance Therapy (MeRT/TMS) to Valencia, Calabasas & Lancaster patients.

Neurosurgeon Mark Liker, MD, FAANS, FACS, is the founder and CEO of BrainStim Centers, a TMS Treatment center, located in Valencia, Calabasas & Lancaster, California and Cancun, Mexico.

Magnetic e-Resonance (MeRT) and Transcranial Magnetic Stimulation (TMS) are approved, noninvasive procedures that use magnetic fields to stimulate nerve cells in the brain to improve symptoms of a variety of neurological and psychiatric conditions including depression, anxiety, OCD, ADHD, PTSD, ASD, TBI, tinnitus and cognitive decline.

Our sophisticated diagnostic tools include an qEEG brain scan that reveals your brain wave function, activity, and performance. We also administer a comprehensive cognitive brain assessment.

"As a neurosurgeon, I recognize that the accuracy of my equipment means the difference between an effective and an ineffective treatment. Our patients rely on this as well. MeRT, or Magnetic e-Resonance Therapy, and Magventure TMS offer innovative, non-invasive options to target critical brain pathways associated with a variety of neurological issues."

No two brains are the same, so at BrainStim Centers, we approach each patient's condition with a personalized treatment plan for optimal brain health.

Targeting Traumatic Brain Injury with Magnetic e-Resonance Therapy (MeRT/TMS)

Traumatic Brain Injury (TBI) is a significant public health concern, with lasting cognitive and neurological consequences for affected individuals. In recent years, Magnetic e-Resonance Therapy (MeRT) has shown promise as an intervention for TBI patients. MeRT/TMS is a non-invasive neuromodulation technique that utilizes magnetic fields to induce electrical currents in specific regions of the brain. This painless and well-tolerated procedure involves placing a coil near the scalp, generating magnetic pulses that penetrate the skull and modulate neuronal activity in the targeted brain area.

Mechanisms of MeRT/TMS in TBI:

1. Neuroplasticity Promotion: TBI often results in disruption of neural circuits and connectivity within the brain. MeRT can induce neuroplastic changes, which can facilitate the reorganization and repair of damaged neural networks. By modulating synaptic strength and connectivity, MeRT can help restore functional connectivity and improve neural communication in regions affected by TBI.

2. Excitatory and Inhibitory Effects: MeRT can be applied using different stimulation parameters to either increase or decrease cortical excitability. In the context of TBI, where there may be disruptions in the balance of excitatory and inhibitory neural activity, MeRT can be tailored to normalize cortical excitability patterns. This modulation may help mitigate hyperexcitability in regions affected by TBI, while also enhancing activity in areas with decreased excitability.

3. Neurotransmitter Modulation: MeRT has been shown to influence the release and metabolism of various neurotransmitters, including gamma-aminobutyric acid (GABA), glutamate, serotonin, and dopamine. Dysregulation of neurotransmitter systems is implicated in TBI pathology, and MeRT can help restore the balance of neurotransmitter levels, thereby promoting neurochemical stability and improving neuronal function.

4. Anti-inflammatory Effects: TBI triggers neuroinflammatory responses characterized by the release of pro-inflammatory cytokines and oxidative stress. MeRT has been suggested to possess anti-inflammatory properties, with studies demonstrating reductions in inflammatory markers following MeRT treatment. By attenuating neuroinflammation, MeRT can contribute to neuroprotection and tissue repair in the injured brain.

5. Modulation of Brain Network Dynamics: MeRT can modulate the functional connectivity of brain networks, both locally and across distributed brain regions. TBI disrupts network dynamics, leading to altered information processing and cognitive dysfunction. MeRT targeted at specific brain regions or network hubs may normalize network connectivity, improve information flow, and enhance cognitive function following TBI.



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Many benefits we have seen in addressing TBI with TMS include:

- ✓ Improved sleep
- ✓ Longer sleep duration
- ✓ Less anxiety, more relaxed
- ✓ More independence
- ✓ Improved concentration and focus
- ✓ Better interaction with others
- ✓ Improved mood
- ✓ Increased ability to cope with stress
- ✓ Greater attention span
- ✓ More sociability
- ✓ More motivation to learn
- ✓ Better emotional stability
- ✓ Increased ability to adapt to change
- ✓ Greater self-confidence and self-esteem


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Magnetic e-Resonance Therapy (MeRT) holds several benefits for traumatic brain injury, aimed at enhancing cognitive function, mood regulation, and overall mental well-being. Here are some key benefits of MeRT treatment for TBI:

1. Non-Invasive Nature: MeRT is a non-invasive procedure, making it well-suited for individuals with TBI who may already be undergoing various medical treatments and therapies. Its non-invasive nature reduces the risk of complications compared to invasive procedures, which is particularly important for individuals with compromised neurological function.

2. Targeted Stimulation: MeRT allows for precise targeting of specific brain regions implicated in TBI-related deficits. By modulating neuronal activity in these regions, MeRT has the potential to address cognitive, motor, and emotional impairments associated with TBI.

3. Neuroplasticity Promotion: MeRT has been used to promote neuroplasticity, the brain's ability to reorganize and form new neural connections. Following TBI, neuroplasticity may play a crucial role in recovery and rehabilitation. By inducing changes in neural circuits, MeRT can facilitate the rewiring of damaged brain networks and support functional recovery.

4. Cognitive Enhancement: Studies have shown that MeRT can enhance cognitive functions such as memory, attention, and executive functions in individuals with TBI. By modulating cortical excitability and promoting neural plasticity, MeRT interventions targeted at cognitive regions of the brain hold promise for improving cognitive outcomes post-TBI.

5. Motor Recovery: TBI often results in motor impairments, including weakness, spasticity, and coordination difficulties. MeRT interventions targeting motor areas of the brain have been shown to improve motor function and facilitate motor recovery in individuals with TBI. By modulating cortical excitability and enhancing motor cortex activity, MeRT can restore motor function and promote rehabilitation.

6. Mood Regulation: TBI frequently leads to mood disorders such as depression and anxiety, which can significantly impact quality of life. MeRT interventions targeted at mood-regulating brain regions have shown promise in alleviating symptoms of depression and anxiety in individuals with TBI. By modulating neural circuits involved in mood regulation, MeRT may offer relief from mood-related symptoms and improve overall emotional well-being.

7. Complementary Therapy: MeRT can be used as a complementary therapy alongside other TBI rehabilitation interventions, including neurofeedback, pharmacological treatments, physical therapy, occupational therapy, and cognitive-behavioral therapy. Integrating TMS into comprehensive rehabilitation programs will enhance overall treatment outcomes and improve functional recovery in individuals with TBI.