

## What is TMS Therapy?

Transcranial magnetic stimulation (TMS) involves the use of a very short pulsed magnetic field to stimulate nerve cells in the brain. Since the 1980s, TMS has been used to study the nerve fibers that carry information about movements from the brain to the spinal cord and onto the muscles. In the late 1990's physicians began to explore the therapeutic potential of transcranial magnetic stimulation for the treatment of a variety of diseases, with depression being the most thoroughly studied to date. Since then, numerous trials have been conducted to investigate the safety and efficacy of TMS as a treatment for depression, with the two largest randomized trials being conducted with the NeuroStar TMS Therapy<sup>®</sup> System.<sup>1,2</sup>

NeuroStar TMS Therapy, a treatment for depression,<sup>\*</sup> is a non-invasive, outpatient procedure which uses a pulsed magnetic field to stimulate function in brain regions known to affect mood. TMS Therapy is performed in a physician's office under their supervision while the patient remains awake and alert. The NeuroStar<sup>®</sup> System is the first TMS device cleared by the FDA for the treatment of depression. NeuroStar TMS Therapy is available by prescription only. It is not for everyone with depression, so patients should consult a NeuroStar TMS Therapy provider when considering the treatment. For complete prescribing and safety information, please visit: [www.NeuroStar.com](http://www.NeuroStar.com).



NeuroStar delivers TMS Therapy as an outpatient procedure, while patients remain awake and alert throughout treatment.

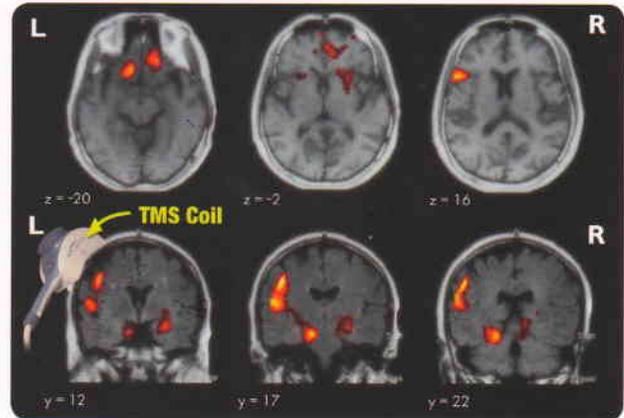
## How Does TMS Therapy Work?

During NeuroStar TMS Therapy, the treating clinician positions the treatment coil over the left prefrontal cortex, an area of the brain known to affect mood. Through the treatment coil, the NeuroStar System generates a highly focused, pulsed magnetic field, similar in type and strength to those produced by a magnetic resonance imaging (MRI) machine, to stimulate cortical neurons.

### The TMS Process:

1. Pulsed magnetic fields induce small electric currents in the prefrontal cortex of the brain
2. Local neurons depolarize and release neurotransmitters
3. Distant areas of the limbic system are activated via neuronal pathways
4. Blood flow and glucose metabolism rise in the stimulated regions, which is thought to result in improved mood.

Repeated activation of the left prefrontal cortex is shown to produce antidepressant effects in patients suffering from major depression.<sup>3</sup> NeuroStar provides targeted stimulation of the brain regions involved in mood regulation without the burden of systemic side effects.



Neuroimaging studies have documented changes in cortical metabolic activity in tissue directly stimulated by TMS and in distal networks known to be involved in mood regulation<sup>4</sup>

1. O'Reardon, J. P., H. B. Solvason, et al. (2007). "Efficacy and Safety of Transcranial Magnetic Stimulation in the Acute Treatment of Major Depression: A Multisite Randomized Controlled Trial." *Biol Psychiatry* 62(11): 1208-1216.
2. George, M. S., S. H. Lisanby, et al. (2010). "Daily Left Prefrontal Transcranial Magnetic Stimulation Therapy for Major Depressive Disorder A Sham-Controlled Randomized Trial." *Arch Gen Psychiatry*. 67(5): 507 - 516.
3. Demitrack MA, Thase ME. Clinical significance of transcranial magnetic stimulation (TMS) in the treatment of pharmacoresistant depression: synthesis of recent data. *Psychopharm Bull.* 2009, 42(2): 5-38.
4. Adapted from: Kito, et al, *Journal of Neuropsychiatry and Clinical Neuroscience*, 2008

*\*NeuroStar TMS Therapy is indicated for the treatment of Major Depressive Disorder in adult patients who have failed to achieve satisfactory improvement from one prior antidepressant medication at or above the minimal effective dose and duration in the current episode.*

**For more information visit [www.NeuroStar.com](http://www.NeuroStar.com) or call 1-877-600-7555**