



SCHOOL OF MEDICINE  
Psychiatry

## How Does TMS Work?

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At your initial TMS appointment, we will determine the ideal stimulation intensity (often referred to as the “motor threshold”) and anatomical target for placement of the magnetic coil. This electromagnetic coil creates a magnetic field that is specifically targeted over the left dorsolateral prefrontal cortex (DLPFC) which is the area of the brain responsible for mood regulation. Through a treatment coil, the TMS Therapy system generates highly concentrated magnetic fields which turn on and off very rapidly. These magnetic fields are similar to those produced by a magnetic resonance imaging (MRI) machine. These magnetic fields do not directly affect the whole brain; they only reach about 2-3 centimeters into the brain directly beneath the treatment coil. As these magnetic fields move into the brain, they produce very small electrical currents. These electrical currents activate cells within the brain which are thought to release neurotransmitters like serotonin, norepinephrine, and dopamine. Since depression is thought to be the result of an imbalance of these chemicals in the brain, TMS can restore that balance and, thus, relieve depression. Though one session may be enough to change the brain’s level of excitability, symptom relief isn’t usually noticeable until at least the third week of treatment.

Frequently Asked Questions:

**For more information, please call UNC Psychiatry TMS Clinic at (984) 974-3983.**

