

# TMS TRENDS

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Terrence A. Boyadjis, MD, Director

## The Role of Stress in Major Depressive Disorder

Major Depressive Disorder (MDD) is one of the leading causes of disability in the world. It is also incredibly common (with an overall lifetime risk of acquiring a diagnosis estimated at approximately 15% of the general population), and thought to be influenced by many factors, both genetic and environmental. One area being studied is the effect of stress on MDD. Numerous twin and family studies suggest that MDD is highly heritable, and that people with the genetic predisposition to developing MDD are especially prone to it when exposed to highly stressful environments.

In his article *Genes, Stress and Depression*, Richard Wurtman explains that the genes associated with depression are not defective in the sense that one abnormal gene is responsible for the onset of MDD. Instead, research suggests that certain genetic traits might be risk factors for the disease, especially when coupled with stress.

There are numerous studies to support this idea. Research done by A. Caspi, et al. suggests that there is an interaction between genes and environment that may be responsible for why stressful life events may contribute to depression for some individuals and not for others. The study found that individuals who had one or two copies of the short allele of the 5-HTT gene (as opposed to the long allele) showed more symptoms of depression, including suicidality.

This evidence has profound implications for future diagnosis and treatment of depression. Genetic testing may be a future avenue for establishing the risk of depression across an individual's lifetime.

Many studies have been done on inheritance and the maternal effects to offspring, but a recent study by D. M. Dietz, et al. found that male mice exposed to chronic stress passed on similar behaviors to their offspring.

There was a larger observable effect in male offspring, but both male and female offspring demonstrated significant effects. However, it should be noted that the offspring who were fertilized in vitro from the mice in the stress condition did not present with the same behavioral symptoms. This suggests that the results of the study may be related more to learning and behavior than an epigenetic cause.

## Novitas Reverses TMS Coverage Decision

Novitas Solutions has reversed their prior decision and has created a Local Coverage Determination (LCD) providing coverage for TMS. They will cover TMS as of April 4, 2013.

Now patients in the states of PA, NJ, MD, DE and Washington DC will be able to benefit from TMS therapy.



Ultimately, more research is needed to determine how genetics and environment interact and how they each contribute to depression. Future studies may find more robust correlations between epigenetics and depression.

-Erin Hipple,  
Clinical Coordinator