

## **MEDICAL BREAKTHROUGHS** **RESEARCH SUMMARY**

TOPIC: DEEP TMS BATTLES DEPRESSION  
REPORT: MB #4687

**BACKGROUND:** Depression affects more than 264 million people worldwide. It is different from usual mood fluctuations and short emotional responses in every day life. It causes work, school and family life to suffer greatly. At its worst, depression can lead to suicide. Although there are effective treatments for mental disorders, between 76% and 85% of people in low and middle-income countries receive no treatment for their disorder. Some barriers to effective care include a lack of resources, lack of trained health-care providers and social stigma associated with mental disorders. Another barrier is inaccurate assessment. In countries of all income levels, people who are depressed are often not correctly diagnosed, and others who do not have the disorder are too often misdiagnosed and prescribed antidepressants.

(Source: <https://www.who.int/news-room/fact-sheets/detail/depression>)

**FACTORS CONTRIBUTING TO DEPRESSION:** Faulty mood regulation by the brain, genetic vulnerability, stressful life events, medications, and medical problems can be many possible causes of depression. It's believed that several of these forces interact to bring on depression. Chemicals are involved in this process, but it is not a simple matter of one chemical being too low and another too high. Many chemicals are involved, working both inside and outside nerve cells. Researchers have learned much about the biology of depression and have identified genes that make individuals more vulnerable to low moods and influence how an individual responds to drug therapy. These discoveries should lead to better, more individualized treatment in the future.

(Source: <https://www.health.harvard.edu/mind-and-mood/what-causes-depression>)

**ADDITIONAL BREAKTHROUGH TREATMENT:** Ketamine does not target neurotransmitters like serotonin, norepinephrine or dopamine like traditional antidepressants. Researchers believe that ketamine stimulates a broad set of receptors in the brain, which in turn facilitates a process called synaptic neuroplasticity. Neuroplasticity allows the brain to grow and change and is directly linked to the improvement of depressive symptoms. Cristina Cusin, MD, Massachusetts General Hospital found that between 60 to 70% of patients with treatment-resistant depression responded positively to treatment. Carlos Zarate, MD, Chief of Experimental Therapeutics at the National Institute of Mental Health, calls IV-ketamine treatment a "paradigm shift" for the field of psychiatry. Its fast effect has the potential to help those with the most severe forms of treatment-resistant depression and is also known to help eliminate suicidal thoughts.

(Source: <https://neurowellnessspa.com/ketamine-breakthrough/>)

**FOR MORE INFORMATION ON THIS REPORT, PLEASE CONTACT:**

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**If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at [mthomas@ivanhoe.com](mailto:mthomas@ivanhoe.com)**