

Researchers identify link between decreased depressive symptoms, yoga and the neurotransmitter GABA

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The benefits of yoga have been widely documented by scientific research, but previously it was not clear as to how yoga exerts its

physiologic effect.

Now a new study from Boston University School of Medicine (BUSM) proposes that [yoga](#) can increase levels of Gamma-amino butyric acid (GABA) in the short-term and completing one [yoga class](#) per week may maintain elevated GABA that could mitigate depressive symptoms.

Depression is a highly prevalent and disabling disease. According to the World Health Organization, [depression](#) affects approximately 16 million people in the U.S. every year and is the leading cause of disability worldwide. Given its high morbidity, extensive research has been done on effective treatment modalities for depression. GABA is an amino acid that acts as a neurotransmitter in the central nervous system and has been associated with decreased depressive symptoms.

A group of 30 clinically depressed patients were randomly divided into two groups. Both groups engaged in Iyengar yoga and coherent breathing with the only difference being the number of 90 minute yoga sessions and home sessions in which each group participated. Over three months, the high-dose group (HDG) was assigned three sessions per week while the low-intensity group (LIG) was assigned two sessions per week. Participants underwent [magnetic resonance](#) imaging (MRI) scans of their brain before the first yoga session and after the last yoga session. They also completed a clinical depression scale to monitor their symptoms.

Results showed that both groups had improvement in depressive symptoms after three months. MRI analysis found that GABA levels after three months of yoga were elevated (as compared to prior to starting yoga) for approximately four days after the last yoga session but the increase was no longer observed after approximately eight days. "The study suggests that the associated increase in GABA levels after a yoga session are 'time-limited' similar to that of pharmacologic treatments such that completing one session of yoga per week may maintain

elevated levels of GABA," explained corresponding author Chris Streeter, MD, associate professor of psychiatry at BUSM.

According to the researchers, providing evidence-based data will be helpful in getting more individuals to try yoga as a strategy for improving their health and well-being. "A unique strength of this study is that pairing the yoga intervention with brain imaging provides important neurobiological insight as to the 'how' yoga may help to alleviate depression and anxiety. In this study, we found that an important neurochemical, GABA, which is related to mood, anxiety and sleep, is significantly increased in association with a yoga intervention," said collaborator and co-author Marisa Silveri, Ph.D., neuroscientist at McLean Hospital and associate professor of psychiatry at Harvard Medical School.

More information: Chris C. Streeter et al. Thalamic Gamma Aminobutyric Acid Level Changes in Major Depressive Disorder After a 12-Week Iyengar Yoga and Coherent Breathing Intervention, *The Journal of Alternative and Complementary Medicine* (2020). [DOI: 10.1089/acm.2019.0234](https://doi.org/10.1089/acm.2019.0234)

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