

Tulane study seeks new insights into panic disorder and post-traumatic stress disorder

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Panic disorder is one of the most common mental disorders in the United States, and Tulane researchers hope a new study will provide a better understanding of its cause.

Panic disorder is one of the most common mental disorders in the United States, with nearly 5 percent of the population suffering attacks that cause extreme disruption in their daily lives.

The cause of panic disorder is not fully understood, but it is likely attributable to altered neuronal processes, said [Jonathan Fadok](#), an assistant professor of psychology at Tulane University.

“Over the last several decades we have gained tremendous knowledge of the neurobiology underlying fear-related learning,” Fadok said. “But the mechanisms that regulate high-intensity fear reactions such as panic remain poorly understood.”

“The results obtained during the grant could provide new insights into post-traumatic stress disorder and panic disorder. Fear-related behavior is dysregulated in these disorders and we hope that we can identify potential therapeutic targets.”

Jonathan Fadok, assistant professor of psychology at Tulane

Fadok, who serves on the faculty of the [Tulane Brain Institute](#), recently received a \$2.24 million grant from the National Institutes of Health to conduct research that will lead to the identification of neurobiological mechanisms through which the brain reacts to fearful stimuli.

The grant allows Fadok and his team at the Tulane Brain Institute to complete earlier research in which they developed a method that allows for the monitoring of behavioral transitions between defensive responses.

“The goal of our grant is to understand how the brain controls fear reactions,” Fadok said. “We will explore how different behavioral strategies, such as freezing (rigid immobility), flight (escape behavior) and uncontrollable panic are generated by specific types of neurons in brain areas important for emotion.”

The research will involve using cutting-edge techniques to record brain activity and using a process known as optogenetics to control brain activity. Fadok said controlling brain activity using optogenetics, which involves the use of light to control neurons, allows researchers to determine how brain areas and different collections of brain cells contribute to fear.

“The results obtained during the grant could provide new insights into post-traumatic stress disorder and panic disorder,” Fadok said. “Fear-related behavior is dysregulated in these disorders and we hope that we can identify potential therapeutic targets.”

Kimberly Foster, dean of the [Tulane School of Science and Engineering](#), said she is impressed with Fadok's early experimental results funded by the Brain Institute's Marko Spark Award, and she looks forward to the results of his new research.

"It is known that PTSD will affect 7% to 8% of people at least once over their lifetimes, making it a significant societal issue," she said. "This research may lend new insight into therapeutic approaches for treatment of this condition."