

A single switch dictates severity of epileptic seizures, researchers find

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Credit: Michael S. Helfenbein

A switch in the brain of people with epilepsy dictates whether their seizures will be relatively mild or lead to a dangerous and debilitating loss of consciousness, Yale researchers have found.

The study published April 11 in the journal *Neurology* showed that there was no gradation of impairment during [seizures](#)—subjects were either alert or totally unaware of their surroundings.

The existence of an "all or none" switch for consciousness surprised

researchers, who expected to find different levels of awareness among those who experience focal seizures, or those localized to particular brain areas.

"During seizures patients may report a funny, fearful feeling, tingling in their arm or some quirk in their vision but are able to answer all our questions," said Dr. Hal Blumenfeld, professor of neurology, neurobiology, and neurosurgery, and senior author of the study. "At other times—boom—all of a sudden they are in a daze, unable to respond to their environment."

Blumenfeld said previous studies have shown that this switch rests in areas of the brain stem that play a role in waking and in paying attention to your surroundings. The findings suggest that existing drugs that treat narcolepsy or therapies like [deep brain stimulation](#) might help patients with [intractable epilepsy](#).

"Our goal is to prevent seizures, but in a fifth to a quarter of people have seizures no matter what we do," Blumenfeld said. "For them, therapies that would prevent [loss of consciousness](#) would greatly improve quality of life."

Provided by Yale University

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