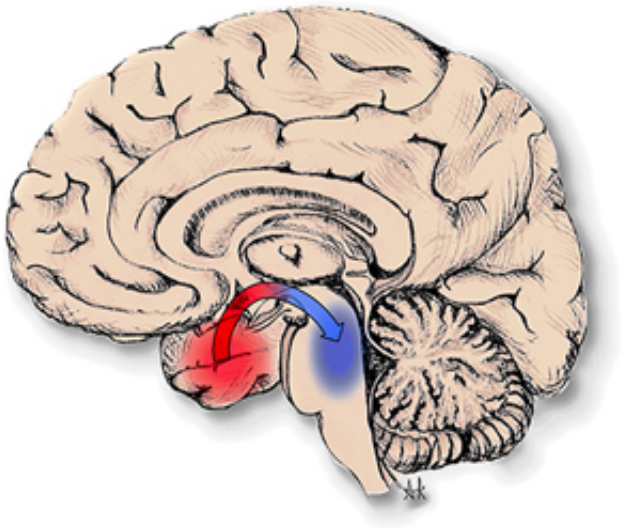
Seizures knock out brain arousal centers

February 5 2015, by Bill Hathaway



Focal seizures depress arousal centers in the brain stem, in blue. Credit: Abbie Kundishora

People with epilepsy who experience focal seizures sometimes remain mobile but are unable to hear or respond to their environment. Yale School of Medicine researchers have discovered a surprising explanation for this zoned-out state.

Although seizures involve greatly heightened activity in some areas of the brain such as the temporal lobes, they also depress activity in others, creating a state resembling deep sleep. Using sophisticated imaging technology and cellular recordings, researchers in the laboratory of

neurologist Hal Blumenfeld found that during seizures the arousal centers in the brain stem are actually suppressed, leading to a loss of consciousness.

"Loss of consciousness in temporal lobe seizures was a mystery up until now," said Blumenfeld. "This brings us closer to helping people with epilepsy function better at work and school."

The findings are reported in the Feb. 4 issue of the journal *Neuron*.

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