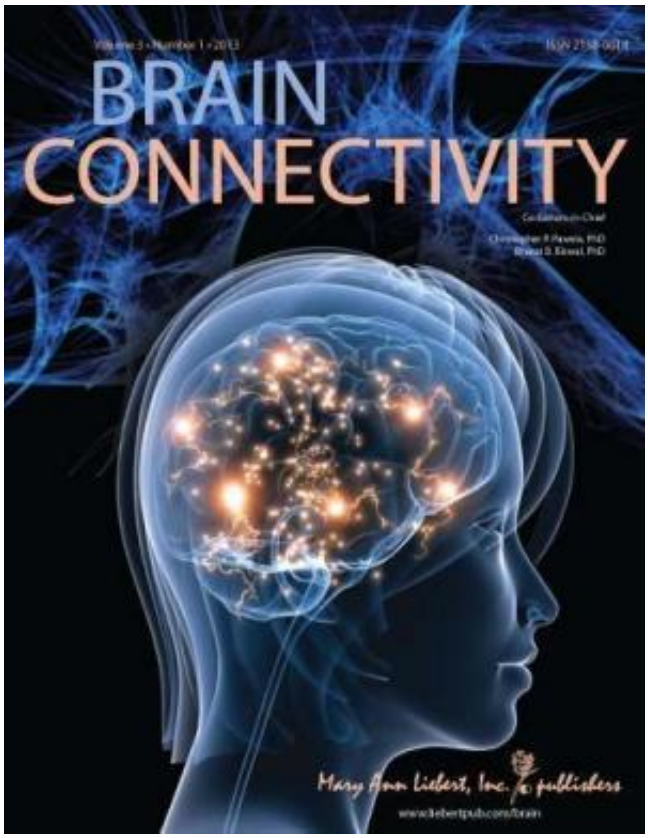
Epileptic seizures can propagate using functional brain networks

2 April 2013



The seizures that affect people with temporal-lobe epilepsy usually start in a region of the brain called the hippocampus. But they are often able to involve other areas outside the temporal lobe, propagating via anatomically and functionally connected networks in the brain. New research findings that link decreased brain cell concentration to altered functional connectivity in temporal-lobe epilepsy are reported in an article in *Brain Connectivity*, a bimonthly peer-reviewed publication from Mary Ann Liebert, Inc., publishers.
.

Martha Holmes and colleagues from Vanderbilt University, Nashville, TN, identified regions in the brains of patients with temporal-lobe epilepsy that had reduced gray-matter concentrations. Greater reductions in gray-matter concentration correlated with either decreased or increased signaling and communication between brain regions connected through known functional networks.

The authors present their findings in the article "Functional Networks in Temporal-Lobe Epilepsy: A Voxel-Wise Study of Resting-State Functional Connectivity and Gray-Matter Concentration."

"This is one of the first studies to actually correlate both functional and structural brain changes in epilepsy," says Christopher Pawela, PhD, Co-Editor-in-Chief and Assistant Professor, Medical College of Wisconsin. "This is an exciting finding and may have impact in other brain disorders in which both the structure and function of the brain are involved."

More information: The article is available free on the *Brain Connectivity* website at http://www.liebertpub.com/brain

Provided by Mary Ann Liebert, Inc