

# The Washington Post

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## Can reading a novel change your brain? A study of brain scans suggests yes.

By Emory University, Published: January 6

Researchers say that reading a novel can change the biology of your brain

*Study Hall presents recent studies as described by researchers and their institutions. This report is from Emory University.*

After reading a novel, actual changes linger in the brain, at least for a few days, [report researchers at Emory University](#).

“Stories shape our lives and in some cases help define a person,” says neuroscientist Gregory Berns, lead author of the study and the director of Emory University’s Center for Neuropolicy. “We want to understand how stories get into your brain, and what they do to it.”

Neurobiological research using functional magnetic resonance imaging (fMRI) has begun to identify brain networks associated with reading stories.

The study focused on the lingering neural effects of reading a narrative. Over the course of 19 days, 21 Emory undergraduates read the same novel, “[Pompeii](#),” a 2003 thriller based on the real-life eruption of Mount Vesuvius in ancient Italy.

The researchers chose the book due to its page-turning plot.

For the first five days, the participants came in each morning for a base-line fMRI scan of their brains in a resting state. Then they were given nine sections of the novel, about 30 pages each, over a nine-day period. They were asked to read the assigned section in the evening and come in the following morning. After taking a quiz to ensure they had finished the assigned reading, the participants underwent an fMRI scan of their brain in a non-reading, resting state. After completing all nine sections of the novel, the participants returned for five more mornings to undergo additional scans in a resting state.




The results showed heightened connectivity in the left temporal cortex, an area of the brain associated with receptivity for language, on the mornings following the reading assignments.

“Even though the participants were not actually reading the novel while they were in the scanner, they retained this heightened connectivity,” Berns says. “We call that a ‘shadow activity,’ almost like a muscle memory.”

Heightened connectivity was also seen in the central sulcus of the brain, the primary sensory motor region of the brain. Neurons of this region have been associated with making representations of sensation for the body, a phenomenon known as grounded cognition. Just thinking about running, for instance, can activate the neurons associated with the physical act of running.

“The neural changes that we found associated with physical sensation and movement systems suggest that reading a novel can transport you into the body of the protagonist,” Berns says. “We already knew that good stories can put you in someone else’s shoes in a figurative sense. Now we’re seeing that something may also be happening biologically.”

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