

Brain myth #1: you  
only use 10 percent  
of your brain.



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Brain Myth #1: You only use 10 percent of your brain. Fact: You use your entire brain. The 10% myth has been around for a long time. It is not certain how this falsehood began, but it has been strengthened over the past century by misinterpretations of neuroscience discoveries and unsubstantiated quotes by both scientists and laypeople alike. The truth is that we use virtually all of our brain every day. Let's say, for example, that as you are reading this article, you are eating a sandwich. As you are reading, the frontal lobes in your cerebral cortex are engaged in thinking and reasoning. You are enjoying your delicious sandwich thanks to your parietal lobes, which are responsible for taste, texture and smell of food. The occipital lobes help to process how you see the words on this page, and the temporal lobes help you process what you hear-like the crunch of your sandwich and the rustle of the page.

Brain Myth #2: A person's personality displays a right-brain or left-brain dominance. Fact: The two sides are intricately co-dependent. This myth holds that a right-brain person is generally creative, intuitive, artsy, while a left-brain person is more of a problem-solver, more linear, logical. The myth arose from genuine science, but new imaging technology has shown that the brain is more interdependent than once thought. But more recently, brain scan technology has revealed that the hemispheres' roles are not quite so cut-and-dried as once thought. The two hemispheres are in fact highly complementary. For example, language processing, once believed to be left- hemisphere-only, is now understood to take place in both hemispheres: the left side processes grammar and pronunciation while the right processes intonation. Similarly, experiments have shown that the right hemisphere does not work in isolation with regard to spatial ability: the right hemisphere seems to deal with a

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general sense of space, while the left hemisphere deals with objects in specific locations. What remains true is that the right side of the brain controls the left side of the body and vice versa. What this means is that an injury to the left side of the brain (such as a left-hemisphere stroke) can cause damage to the other side of the body (such as right-leg paralysis).

Brain Myth #3: Brain damage is always permanent. Fact: The brain can repair or compensate for certain losses, and even generate new cells. It used to be believed that each person was born with a finite number of brain cells, so if you damaged any of them you operated on a deficit for the rest of your life. Less than 20 years ago, even major players in the neuroscience community believed that the brain could not generate new cells. Similarly, many scientists believed that the brain was unalterable; once it was "broken," it could not be fixed. But recent discoveries have convinced most scientists to think differently. Evidence now shows that the brain remains "plastic" throughout life: it can rewire or change itself in response to new learning. Under certain circumstances, the brain can even create new cells through a process called neurogenesis. To show brain cell regeneration, in 1998 scientists placed a substance that identifies dividing cells in a group of terminal cancer patients. Postmortem examinations found that the substance was attached to new cells in the hippocampus. This discovery not only refutes the "we are born with a finite number of brain cells" myth, but it also raises hope for victims with brain injury caused from either diseases or trauma.