

# Neuromyth Busters: Eight Myths About the Brain

False facts repeated often are tough to correct. Some misconceptions about the brain persist in the classroom and the home. Read on to find out the truth behind common brain myths.

## 1 **Myth: You only use 10 percent of your brain.**

**Truth:** You use all of your brain. Though the 10-percent myth is widespread, recent neuroimaging technology has conclusively destroyed this falsehood. While not all of the brain is active all at once, functional magnetic resonance images (fMRI) show several brain areas are at work for any given activity, depending on what function is needed.

## 2 **Myth: Listening to classical music makes you smarter.**

**Truth:** In 1993, a small study showed that college students who listened to a Mozart sonata and then took an IQ test got higher scores than those who didn't. But this so-called "Mozart effect" wore off in less than 15 minutes and hasn't been repeated. Blasting classical music hasn't been shown to improve intelligence in children or adults. In fact, researchers have found that young children who watch classical music-based television learn fewer words, just as children who watch regular television do. However, learning how to play a musical instrument has been shown to enhance cognitive skills in the long term.

## 3 **Myth: Vaccines cause autism.**

**Truth:** There has been no conclusive, scientific evidence that any part of a vaccine causes autism. A link was initially suspected by some because the first symptoms of autism emerge around the time children receive vaccinations. This link has been thoroughly reviewed, studied, and rejected by scientific consensus, and some of the original research purporting this link has been repudiated. Recent studies have shown that autism is tied to genes that influence brain cell connections. Although the identity of all the genes responsible for autism spectrum disorders is not yet known, scientists continue to seek genetic factors that may cause autism.

(CONTINUED)

## 4 **Myth: Brain damage is always permanent.**

**Truth:** In some instances, the brain can repair itself. Whether a person recovers from a brain injury depends on the location and severity of the damage. A concussion, a typically mild and common type of brain injury, usually results in only temporary disruption of brain functions as long as there is adequate recovery time and no repeated injury. Even after more serious brain injury, such as stroke, research indicates that — especially with the help of therapy — the brain may be capable of developing new connections and “reroute” function through healthy areas.

## 5 **Myth: Your brain can’t make new cells.**

**Truth:** Your brain constantly generates new cells and remains adaptable — or “plastic” — as you age. Most brain cells, or neurons, are created before you’re born. However, throughout adulthood new neurons are born in a few regions of the brain, including the hippocampus, where new memories are formed, and the olfactory bulb, where smells are processed. After the cells are created they integrate into existing brain regions.

## 6 **Myth: Drinking alcoholic drinks always kills brain cells.**

**Truth:** Moderate amounts of alcohol do not kill brain cells. Alcohol threatens your brain because of its addictive qualities and its ability to alter brain function, as well as its ability to shrink cells. Some studies find moderate amounts of alcohol appear to be healthful. For adults, a glass or two of wine a day might protect the brain by reducing the risk of stroke. However, years of chronic alcohol abuse or periods of binge drinking will kill neurons.

## 7 **Myth: Drug use makes holes in your brain.**

**Truth:** Only physical trauma can create a hole in your brain. Key brain regions in drug-addicted people are reduced in size, but no actual holes are formed as a result of drug use. Drugs hijack the brain’s chemical communication system by interfering with the way cells send and receive messages. They target brain regions that produce pleasant feelings, overwhelming them and flooding the body with euphoric feelings. With chronic use, progressively more drugs are needed to achieve the same effects over time and pleasure becomes more difficult to achieve naturally.

## 8 **Myth: Playing games keeps your brain young.**

**Truth:** Crossword puzzles and similar games can help you learn words and improve specific skills, but they won’t enhance overall brain function. If you want to preserve your mental abilities, exercise your body. A healthy diet and regular exercise can help maintain memory and general cognition, particularly later in life. Starting habits that promote healthy cognitive aging early in life can preserve brain function during aging. Studies show that foods rich in nutrients and antioxidants appear to reduce the risks of age-related impairment. Aerobic exercise increases blood flow to the brain, and even lessens the rate of tissue loss during aging.