

Is There a Difference between the Brain of an Atheist and the Brain of a Religious Person?

Andrew Newberg, director of research at the Myrna Brind Center of Integrative Medicine at Thomas Jefferson University and Hospital in Philadelphia, responds

By [Andrew Newberg](#) | January 16, 2012

Is there a difference between the brain of an atheist and the brain of a religious person?

—Emma Schachner, Utah

Andrew Newberg, director of research at the Myrna Brind Center of Integrative Medicine at Thomas Jefferson University and Hospital in Philadelphia, responds:

Researchers have pinpointed differences between the brains of believers and nonbelievers, but the neural picture is not yet complete.

Several studies have revealed that people who practice meditation or have prayed for many years exhibit increased activity and have more brain tissue in their frontal lobes, regions associated with attention and reward, as compared with people who do not meditate or pray. A more recent study revealed that people who have had “born again” experiences have a smaller hippocampus, a part of the brain involved in emotions and memory, than atheists do. These findings, however, are difficult to interpret because they do not clarify whether having larger frontal lobes or a smaller hippocampus causes a person to become more religious or whether being pious triggers changes in these brain regions.

Various experiments have also tried to elucidate whether believing in God causes similar brain changes as believing in something else. The results, so far, show that thinking about God may activate the same parts of the brain as thinking about an airplane, a friend or a lamppost. For instance, one study showed that when religious people prayed to God, they used some of the same areas of the brain as when they talked to an average Joe. In other words, in the religious person’s brain, God is just as real as any object or person.

Research also suggests that a religious brain exhibits higher levels of dopamine, a hormone associated with increased attention and motivation. A study showed that believers were much more likely than skeptics to see words and faces on a screen when there were none, whereas skeptics often did not see words and faces that were actually there. Yet when skeptics were given the drug L-dopa, which increases the amount of dopamine in the brain, they were just as likely to interpret scrambled patterns as words and faces as were the religious individuals.

So what does the research mean? At the moment, we do not have a clear way to connect all the dots. For now we can say that the religious and atheist brains exhibit differences, but what causes these disparities remains unknown.