

7 Differences Between Male and Female Brains



When actor Daniel Sharman (Teen Wolf, The Originals, Medici: The Magnificent) and music producer Christian “Leggy” Langdon visited Dr. Daniel Amen as part of the [Scan My Brain](#) series, they had a lot of questions. They wanted to find out what brain scans could reveal about Sharman’s feelings of [depression](#) and Langdon’s [anxiety](#). The co-hosts of The 2 Lads Podcast, which explores what it means today to be men, had one other burning question for Dr. Amen: “Do you see a difference between the female brain and the male brain.”

The short answer is YES.

In one of the [largest functional brain imaging studies](#) ever, Amen Clinics compared the brain SPECT scans of 46,034 female and male brains. SPECT is a brain imaging technology that looks at blood flow and activity patterns. This study, which appeared in the *Journal of Alzheimer’s Disease*, revealed fascinating differences between the female and male brains.

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The Difference Between Male & Female Brains, with...



Here are 7 of the most important gender-based brain differences you need to know.

A word of caution: Overall, there are significant brain differences between the sexes that can be measured in a laboratory, seen on a brain scan, and observed in our everyday lives. However, not all women are the same, nor are all men the same. And there is still much research to be done to gain a better understanding of the brains of nonbinary and transgender individuals. What is clear is that even when we succeed at the same task, we may call on different strengths and areas of the brain to do it.

7 UNIQUE TRAITS OF FEMALE AND MALE BRAINS

1. Female brains are busier.

For the 2017 brain imaging study at Amen Clinics, the team analyzed 80 areas of the brain. In 70 of those regions, female brains showed significantly more activity than male brains. Overall, women have much **busier brains** compared with men. In problem-solving, women tend to harness several areas of the brain while men rely on a more localized effort.

2. The prefrontal cortex is “sleepier” in men.

According to the study findings, men tend to have less activity in the PFC compared with women. The PFC is involved with planning, judgment, empathy, and impulse control. This can make men more likely to take risks, which can then make them more vulnerable to **head injuries** that can further decrease activity in this brain area. Hearing about the differences in the PFC activity prompted record producer Langdon to say, “We’re kind of almost fighting different battles as men and women in the world. We’ve got a different set of cards that we’re starting from.”

3. The brain’s emotional centers are more active in women.

In the Amen Clinics study, female brains showed higher activity levels in the limbic system or emotional system. Situated beneath the cortex, this part of the brain colors our emotions and is involved with bonding, nesting, and emotions. This may explain why women are the primary caretakers of children and the elderly. Upon learning about the limbic brain differences in the Scan My Brain episode, Langdon says, “So it’s almost like as men, we have to work a bit harder to get access to some of those things that come a bit more naturally to women and probably vice versa.” Higher activity here is also associated with an increased risk of depression and anxiety.

4. The anterior cingulate gyrus works harder in women.

Within the brain’s frontal lobes is an area called the ACG. Known as the brain’s gear shifter, it helps you shift attention and recognize errors. Higher activity in the ACG increases the tendency to get stuck on **negative thoughts** or negative behaviors and to see what is wrong rather than what is right. It is also one of the brain’s worry centers. More activity here translates into more worries. Of course, this doesn’t mean that men don’t worry or see problems. But men and women tend to worry differently.

5. Visual and coordination centers work harder in men.

These areas of the brain are more active in men and may explain why men tend to be more adept at judging distances and making a beeline to where they parked the car.

6. Women's intuition is real.

Other brain imaging research reveals that females have larger areas in the brain dedicated to tracking gut feelings, specifically areas deep in the frontal lobes called the insula and ACG. The female brain is generally quicker at assessing the thoughts of others based on limited information, gut feelings, and hunches.

7. Serotonin systems work differently in men and women.

Production of the neurotransmitter serotonin is 52% higher in men than in women, according to a foundational [brain imaging study](#) in *PNAS*. A calming neurotransmitter, serotonin plays a role in mood, sleep, pain, and other issues. At Amen Clinics, low serotonin levels are often seen in people with depression, anxiety, pain syndromes, and obsessive worrying.

Learning more about how the male brain differs from the female brain led to a revelation for actor Sharman. "There are certain things that we're going to have to work harder at as men, and that's okay," Sharman says in the Scan My Brain episode.

Understanding the strengths and challenges of your own brain is one of the most important keys to success. Optimizing your unique brain can help you reach your goals in every area of your life.

Anxiety, depression, and other mental health issues can't wait. At Amen Clinics, we're here for you. We offer in-clinic brain scanning and appointments, as well as mental telehealth, clinical evaluations, and therapy for adults, teens, children, and couples. Find out more by speaking to a specialist today at 855-401-1104 or visit our contact page [here](#).