

THE TRANSGENDER BRAIN

Since the 1990s, researchers have investigated various features of the brains of transgender people. The results have yielded a mixed picture of the neural mechanisms that may underlie what's known as gender dysphoria. Some studies, for example, have identified aspects of transgender brains that more closely match those of people of the same gender or fall in between typical cisgender women and men, supporting the idea that there is a mismatch between the development of gender in the brain and the body 🌟. But others have found features of the brains of transgender individuals that are more similar to those of people who share their sex assigned at birth, or differ from cisgender people of both sexes ❖.

❖ THALAMUS AND PUTAMEN

Relevant to: Self-perception

Findings: In one study, these areas were smaller in transgender women than in cisgender people of either sex. However, other comparisons of putamen size have yielded inconsistent results.

🌟 RIGHT SUPERIOR FRONTAL GYRUS

Relevant to: Higher cognitive functions, including working memory

Findings: While discerning male from female voices, trans and cis women had similar levels of activation in this area, while cisgender men showed higher activity.

🌟 BED NUCLEUS OF THE STRIA TERMINALIS (BNST)

Relevant to: Sexual behavior

Findings: Size and neuron numbers are comparable in trans- and cisgender women, and different from trans- and cisgender men, whose numbers are similar.

🌟 HYPOTHALAMUS

Relevant to: Hormone release, sexual orientation

Findings: In adolescents, neural activation was in line with the experienced gender when subjects smelled the male chemical signal androstadienone.

🌟 INAH3 SUBNUCLEUS (PART OF HYPOTHALAMUS)

Relevant to: Sexual orientation

Findings: Volume is similar in trans- and cisgender women.

❖ CORTICAL THICKNESS

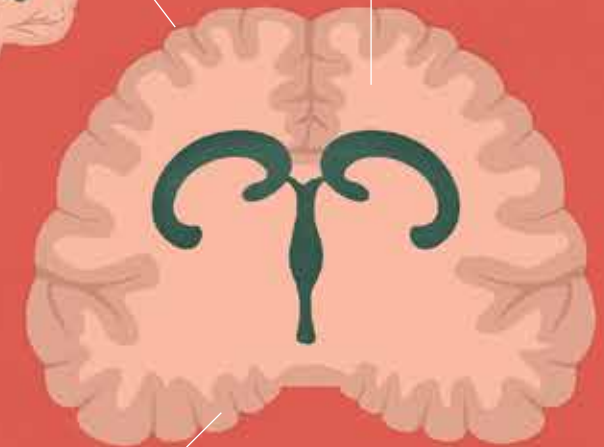
Relevant to: Cognitive ability

Findings: Total cortical thickness of both transgender women and men was similar to that of cis women, but there were differences in some specific regions.

🌟 WHITE MATTER MICROSTRUCTURE

Relevant to: Structure and connectivity of multiple brain regions

Findings: Overall white matter connectivity of transgender men and women fall between those of cisgender people of both sexes.



🌟 ❖ GRAY MATTER DISTRIBUTION

Relevant to: Numerous brain areas and functions

Findings: The relative bulk of gray matter regions is broadly similar between transgender adolescents and those who share their genders, with some differences in the left superior medial frontal cortex, the right cerebellum, and the left superior posterior hemisphere of the cerebellum and the hypothalamus. However, a study of adults found that transgender women had greater gray matter volume than cisgender people of either sex.