

Is Being Transgender a Choice?

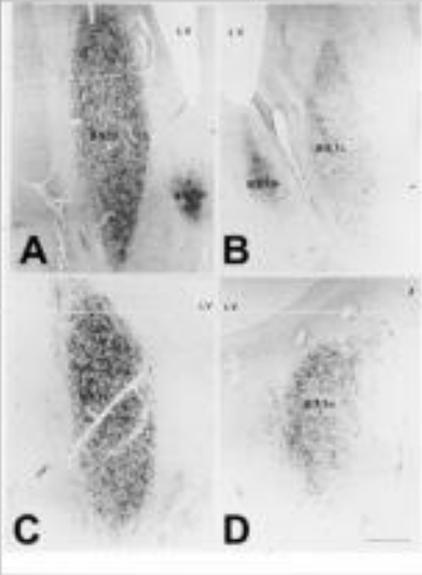
This paper is a compilation of several articles (sources at bottom of article) relating to the biological origins of transvestism and gender identity

Brain Mapping Gender Identity: What Makes A Boy A Girl? A study, published in 2012 and conducted at the Laboratory of Neuro Imaging at UCLA School of Medicine, explored the extent to which brain anatomy is associated with gender identity. "The degree to which one identifies as male or female has a profound impact on one's life," the authors wrote. "Yet, there is a limited understanding of what contributes to this important characteristic termed gender identity." Many who live at variance to their birth gender as well as many in the scientific field would heartily agree.

Specifically, the UCLA researchers chose to investigate potential neuroanatomical variations associated with transsexualism; in particular, they applied a "whole-brain approach" in which they would compare the thickness of the cortex across the lateral and medial brain cortical surfaces at thousands of surface points. "The cerebral cortex contains approximately 80% of the neurons of the central nervous system and contributes largely to factors such as social awareness, attitudes, and decision-making," the authors wrote. Given the relevance of these factors in association with transsexualism, they expected to find alterations in MTF (male to female) transsexuals compared to control men. They found the MTF transsexuals, as compared to the control participants, had thicker cortices (outer layers of their cerebellums), both within regions of the left hemisphere and right hemisphere.

"Regional gray matter characteristics in MTF transsexuals are more similar to the pattern found in men (i.e., in subjects sharing biological sex) than in women," the authors wrote. "However, we also noticed that brain characteristics in MTF transsexuals and in control men were not fully identical." "The current study provides evidence that brain anatomy is associated with gender identity, where measures in MTF transsexuals appear to be shifted away from gender-congruent men," wrote the authors. Scientific corroboration, then, supports what individuals have tried to express for years. In all likelihood, scientists may soon find distinct features of the brain that correspond with each individual point along this continuum of gender possibility, identification, and expression.

Comparison of BSTc Size & Shape



Legend
A = Heterosexual man
B = Heterosexual woman
C = Homosexual man
D = MtF transgender

Of note here:
- BSTc of biological men (both heterosexual and homosexual) is twice the size of both biological female and MtF subject
- BSTc of biological female and MtF are very close in size and shape

Transgender: A Choice?

Source: Bao & Swaab, 2011

Biological differences in MTFs and cisgender males

People continue to misunderstand that there are very real biological differences between the average cisgender male and male-to-female transsexuals. Below is an important image to understand that I extracted from [Transgender Chicago: The New Health Frontier](#).

The image above is the central nucleus of the bed nucleus of the stria terminalis (BSTc), in the thalamus. Note that heterosexual and homosexual males have nearly identical brain structures in that region. Note that biological females have very different structures in that region from those of the males. And finally note that MTF transsexuals have brain structures that are very close to the female's and nothing at all like the male's neurological structures.

There are numerous other studies that highlight the biological differences between MTFs and cisgender males. What this image and many other studies show is that, in the brain where our essential self lies, that MTFs truly are female, not male.

This also shows why both the AMA and the APA regard being transsexual as a medical condition – because it is. And transition, for those that need it, is one of the most successful treatments available

Gender is not strictly a social construct

Gender is not solely a social construct. It is, in fact, partly biological. If I can show you just one image that demonstrates this (and there are dozens of scientific studies about this now), will you believe me?

[This link contains pictures of actual brain scan results done during autopsies.](#) Please note the image partway down the page. That image is a stained cross sectional slice of the central section of the bed nucleus of the stria terminalis in the hypothalamus (BSTc) in the brain.

Please note that the upper left image is the BSTc of a heterosexual adult male. Then lower left image is the BSTc of a homosexual adult male. They are almost identical, aren't they?

The upper right image is the BSTc of an adult heterosexual female. It is very different from that of the males, isn't it? And the lower right image is the BSTc of a male-to-female transsexual. Her BSTc is very similar to the adult heterosexual female BSTc. It is also nothing like the male BSTc, is it?

This is just one of nearly a dozen different physical brain differences between transsexual individuals and the rest of the population. I, we as transsexual women, literally have a female brain inside a male body.

Most people do not realize that there is this duality inside them. They don't realize it because their brain and their bodies match. So to them it seems like one uniform whole.

But to those of us born this way, it is a constant clawing pain inside. It's horror as your body becomes something that your brain isn't intended to work with.

And we don't know how to fix the brain. These brain structures form and set between the 8th and 16th week of pregnancy. Once set, they can never be changed. No amount of testosterone will change my brain into male. In fact, more testosterone usually makes us more depressed.

So no, gender is not solely a social construct. That is a myth promulgated by Dr. Money and Dr. McHugh (who recently wrote a pile of crap in the Wall Street Journal) back in the 1960s at Johns Hopkins. And their assumptions have all been disproved. Gender really does have a partial biological component and when that component is mismatched to person's body, significant psychological trauma can occur. This is why we take hormones and undergo surgery – to align our body with our brains, because we have no idea how to do the reverse.

For more information on how hormonal levels in the womb impact individuals, please review this 2011 AMA Webcast. It is about an hour long but contains important medical information that relates to how transsexual brains come to be the way they are.

One Stop Trans Brain Research List

The following list of links is to demonstrate that there is a very large body of evidence pointing to brain differences beginning in utero as the fundamental cause of most instances of transsexuality. [Part of the resistance to the brain-sex theory comes directly from Dr. Anne Lawrence who critiqued two early studies in this area](#) (clear back in 2002) but who has a personal vested interest in arguing a different basis as she has based her entire career on that different basis. *This list is not even close to comprehensive.*

[Variants of Gender Differentiation in Somatic Disorders of Sex Development: Recommendations for Version 7 of the World Professional Association for Transgender Health's Standards of Care](#)

[Androgens and the evolution of male gender identity among male pseudo-hermaphrodites with 5-alpha reductase deficiency](#)

[On the quest for a biomechanism of transsexualism: Is there a role for BDNF?](#)

[Transgender Science: How Might It Shape the Way We Think about Transgender Rights](#)

[A sex difference in the hypothalamic uncinate nucleus: relationship to gender identity](#)

[Regional gray matter variation in male-to-female transsexualism.](#)

[White matter microstructure in female to male transsexuals before cross-sex hormonal treatment. A diffusion tensor imaging study.](#)

[The microstructure of white matter in male to female transsexuals before cross-sex hormonal treatment. A DTI study.](#)

[A sex difference in the human brain and its relation to transsexuality.](#)

[Specific cerebral activation due to visual erotic stimuli in male-to-female transsexuals compared with male and female controls: an fMRI study.](#)

[Male-to-female transsexuals show sex-atypical hypothalamus activation when smelling odorous steroids.](#)

[Intersex, brain differences, and the transgender tipping point](#)

[Sexual differentiation in the developing mouse brain: contributions of sex chromosome genes](#)

[Update on the Biology of Transgender Identity](#)

[Sex differences in the structural connectome of the human brain](#)

[Cortical activation during mental rotation in male-to-female and female-to-male transsexuals under hormonal treatment.](#)

[Gender Orientation: IS Conditions Within The TS Brain](#)

[Increased Cortical Thickness in Male-to-Female Transsexualism](#)

[Prenatal Exposure to Female Hormones: Effect on Psychosexual Development in Boys](#)

[Sexual differentiation of human behavior: Effects of prenatal and pubertal organizational hormones](#)

[Frontiers in Neuroendocrinology.](#)

[Brief Report: Female-To-Male Transsexual People and Autistic Traits](#)

[Dr V. Drantz Lecture: Myth & Science of Sexuality](#)

[Male-to-female transsexuals have female neuron numbers in a limbic nucleus](#)

[Discordant Sexual Identity in Some Genetic Males with Cloacal Exstrophy Assigned to Female Sex at Birth](#)

[The role of androgen receptors in the masculinization of brain and behavior: what we've learned from the testicular feminization mutation.](#)

[Regional cerebral blood flow changes in female to male gender identity disorder.](#)

[Sexual Hormones and the Brain: An Essential Alliance for Sexual Identity and Sexual Orientation](#)

["Prenatal hormones versus postnatal socialization by parents as determinants of male-typical toy play in girls with congenital adrenal hyperplasia"](#)

[Disorders of sex development expose transcriptional autonomy of genetic sex and androgen-programmed hormonal sex in human blood leukocytes.](#)

[Sexual differentiation of the human brain in relation to gender identity and sexual orientation](#)

[Changing your sex changes your brain: influences of testosterone and estrogen on adult human brain structure](#)

[Clinical Implications of the Organizational and Activational Effects of Hormones](#)

[Dichotic Listening, Handedness, Brain Organization and Transsexuality](#)

[Biased-Interaction Theory of Psychosexual Development: “How Does One Know if One is Male or Female?”](#)

[Increased Cortical Thickness in Male-to-Female Transsexualism](#)

[Prenatal exposure to testosterone and functional cerebral lateralization: a study in same-sex and opposite-sex twin girls.](#)

[Prenatal exposure to diethylstilbestrol\(DES\) in males and gender-related disorders:results from a 5-year study](#)

[Chapter 5 of The Transsexual Phenomenon](#)

[Prenatal phthalate exposure and reduced masculine play in boys](#)

[Brain gender identity](#)

[Current Thinking on the Etiology of Gender Dysphoria](#)

[Gender Differences in Human Brain: A Review](#)

[Begging the Question: Autism in Trans Men](#)

[Largest Study to Date: Transgender Hormone Treatment Safe](#)

[Hormone Therapy and Venous Thromboembolism Among Post-Menopausal Women](#)

Sources

<http://lizdaybyday.wordpress.com/2013/11/09/biological-differences-in-mtfs-and-cisgender-males/>

<http://lizdaybyday.wordpress.com/2014/08/14/one-stop-trans-brain-research-list/>

http://media01.commpartners.com/AMA/sexual_identity_jan_2011/index.html