HSDD and Brain Anatomy

Women with hypoactive sexual desire disorder (HSDD) appear to have differences in brain anatomy when compared to women without HSDD, scientists say.

A woman with HSDD has a chronic lack of interest in sex. Many factors, such as stress or hormonal changes, can cause a woman’s sex drive to dip every once in a while. But HSDD is different. It’s persistent and can cause a great deal of emotional distress. HSDD is estimated to affect one in ten women.

The brain is an important organ for sexual function. It works along with the body to process sexual stimuli.

Past research has shown that women with HSDD have different brain activation patterns when they watch sexually explicit film clips. In other words, blood flows to different parts of the brain in women with HSDD compared to women with normal sex drives.

Recent Research on HSDD and Brain Anatomy

With this in mind, a group of researchers from the Netherlands and the United States wanted to know whether women with HSDD had differences in brain anatomy. Their study, published online in December in the *Journal of Sexual Medicine*, involved 45 premenopausal heterosexual women between the ages of 21 and 45. Twenty-nine of the women were diagnosed with HSDD. The remaining 16 women, who had no history of sexual dysfunction, served as a control group.

The women completed questionnaires about their sexual function. They provided information on their experiences with sexual sensations, lubrication, enjoyment of sex, orgasm, pain, and their relationship with their partners. The women with HSDD had significantly lower scores than the women in the control group.

The researchers also conducted a series of three brain scans per woman spaced one week apart. Specifically, they looked at differences in gray matter and white matter fractional anisotropy.

One job of gray matter is to carry sensory information from sensory organs. White matter consists mainly of myelinated axons that help electrical signals travel and pass information.
After analyzing the data, the researchers found that the two groups of women did have differences in brain anatomy. The women with HSDD had less gray matter volume in 6 regions of the brain than the control group women. They also had larger white matter fractional anisotropy in 10 brain areas, although this measurement was smaller in 2 other regions.

The researchers suggested that less gray matter volume was associated with less sexual interest and arousal. It’s possible that the brains of women with HSDD, who had less gray matter volume, did not process sexual stimuli normally. As a result, they wouldn’t have the same levels of sexual interest as women without HSDD.

Increased white matter fractional anisotropy was linked to problems with orgasm, the researchers noted.

**Implications of the Research**

The researchers explained that their findings could not prove that anatomical brain differences caused HSDD or that HSDD caused anatomical brain differences. However, they wrote, “Even though cause or consequence could not be determined, these structural differences suggest that subjects with HSDD have decreased sexual cue sensitivity, decreased perception of sexual responses and sexual emotional awareness, and altered attentional mechanisms which are needed to induce an adequate sexual response.”

These findings could help healthcare providers develop more individualized treatments for HSDD in the future, they added.

**Resources**

*The Journal of Sexual Medicine*

Bloemers, Jos, MSc, et al.

“Reduced Gray Matter Volume and Increased White Matter Fractional Anisotropy in Women with Hypoactive Sexual Desire Disorder”

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**WiseGEEK**

Long, Jennifer

“What are the Functions of Gray Matter?”
Berger, S.

“What is the function of White Matter in the Brain?”

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