

# Sex is in the brain, says new research

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More than 40 percent of women ages 18-59 experience sexual dysfunction, with lack of sexual interest — hypoactive sexual desire disorder, or HSDD — being the most commonly reported complaint, according to medical researchers. While some question the validity of this diagnosis, a multidisciplinary team from the Stanford University School of Medicine is devoted to objective investigation of such problems.

Here is a quick briefing on new research on this problem from Bruce Arnow, PhD, professor of psychiatry and behavioral sciences, and Leah Millheiser, MD, clinical assistant professor of obstetrics and gynecology and director of the Female Sexual Medicine Program at Stanford Hospital & Clinics.

The question: What role does the brain play in some women's lack of sexual desire?

Background: Studies of factors affecting sexual performance have largely focused on men, and on physiology of the body rather than the brain. But the brain, rather than peripheral organs, may play the key role in female sexual dysfunction.

The study: The trial is the first to compare brain-activation patterns of females who have HSDD with those who don't. Sixteen women diagnosed with HSDD, along with 20 normal control subjects, took part in the study. All subjects identified themselves as heterosexual.

The experiment: Subjects were shown erotic video segments interspersed among footage of female sporting events. These segments were separated by intervening tranquil sequences of such subjects as flowers, mountains or ocean waves to bring the women's brains to a resting state between more-active segments. Their brain activity was monitored by functional magnetic-resonance imaging, which allows the activity of different brain regions to be assessed in real time. The women also reported their subjective levels of sexual arousal throughout the viewing. Meanwhile, the researchers also collected objective measurements of the women's level of genital arousal.

The findings: Activity patterns throughout most of the brain were more or less identical among the HSDD and normal groups, but with a few notable exceptions. There was a bigger jump in relative activity in three brain areas of HSDD women — the medial frontal gyrus, right inferior frontal gyrus and bilateral putamen — compared with the control subjects when shown the erotic clips. In another brain area — the bilateral entorhinal cortex — the opposite effect occurred. This finding establishes specific locations in the brain where activity in women with HSDD is altered in comparison with women not reporting this problem.

Discussion: Two of the brain areas where the HSDD women had increased activity (the medial frontal gyrus and right inferior frontal gyrus) have been previously associated with, respectively, heightened attention to one's own and others' mental states, and suppression of one's emotional response. The research suggests that increased attention to one's own responses to erotic stimuli plays some part in the sexual dysfunction. The increased activation in the entorhinal cortex observed in the control subjects may correlate with an improved ability among women with no sexual dysfunction, compared with HSDD women, to lay down emotional memories related to sexual events.

Caveats: Correlation is not cause and effect. The study could be showing

how paying too much attention causes inhibition of sexual desire — or how the lack of desire in a sexually charged situation causes heightened self-consciousness.

Bottom line: "The results of this study provide yet another valuable tool for understanding the complexity of female sexual function as it relates to desire," Millheiser said. "The next step is to translate this information into the clinical realm, specifically as it relates to cognitive and pharmacotherapeutic approaches."

**More information:** The results appeared in the Jan. 23 issue of the journal *Neuroscience*.

Source: Stanford University Medical Center

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