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## **Brain Areas Shut Off During Female Orgasm**

### **Study: Fear and Emotional Control Centers of Brain Switch Off During Female Orgasm**

**By EMMA ROSS**

**The Associated Press**

**Jun. 20, 2005** - New research indicates parts of the brain that govern fear and anxiety are switched off when a woman is having an orgasm but remain active if she is faking.

In the first study to map brain function during orgasm, scientists from the Netherlands also found that as a woman climaxes, an area of the brain governing emotional control is largely deactivated.

"The fact that there is no deactivation in faked orgasms means a basic part of a real orgasm is letting go. Women can imitate orgasm quite well, as we know, but there is nothing really happening in the brain," said neuroscientist Gert Holstege, presenting his findings Monday to the annual meeting of the European Society of Human Reproduction and Embryology.

In the study, Holstege and his colleagues at Groningen University recruited 11 men, 13 women and their partners.

The volunteers were injected with a dye that shows changes in brain function on a scan. For men, the scanner tracked activity at rest, during erection, during manual stimulation by their partner and during ejaculation brought on by the partner's hand.

For women, the scanner measured brain activity at rest, while they faked an orgasm, while their partners stimulated their clitoris and while they experienced orgasm.

Holstege said he had trouble getting reliable results from the study on men because the scanner needs activities lasting at least two minutes and the men's climaxes didn't last that long. However, the scans did show activation of reward centers in the brain for men, but not for women.

Holstege said his results on women were more clear.

When women faked orgasm, the cortex, the part of the brain governing conscious action, lit up. It was not activated during a genuine orgasm.

Even the body movements made during a real orgasm were unconscious, Holstege said.

The most striking results were seen in the parts of the brain that shut down, or deactivated. Deactivation was visible in the amygdala, a part of the brain thought to be involved in the neurobiology of fear and anxiety.

"During orgasm, there was strong, enormous deactivation in the brain. During fake orgasm, there was no deactivation of the brain at all. None," Holstege said.

Shutting down the brain during orgasm may ensure that obstacles such as fear and stress did not get in the way, Holstege proposed. "Deactivation of these very important parts of the brain might be the most important necessity for having an orgasm," he said.

Donald Pfaff, professor of neurobiology and behavior at Rockefeller University in New York, said the interpretations were reasonable. "It makes poetic sense," said Pfaff, who was not connected with the research.

On the Net:

European Society of Human Reproduction and Embryology

<http://www.eshre.com>

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From NewScientist.com news service (20 June 2005):  
[<http://www.newscientist.com/article.ns?id=dn7548>]

"At the moment of orgasm, women do not have any emotional feelings," says Gert Holstege of the University of Groningen in the Netherlands....

As the women were stimulated, activity rose in one sensory part of the brain, called the primary somatosensory cortex, but fell in the amygdala and hippocampus, areas involved in alertness and anxiety. During orgasm, activity fell in many more areas of the brain, including the prefrontal cortex, compared with the resting state...

In one sense the findings appear to confirm what is already known, that women cannot enjoy sex unless they are relaxed and free from worries and distractions. "Fear and anxiety levels have to go down for orgasm. Everyone knows this but we can see it happening in the brain," (Holstege) explains.

From an evolutionary point of view, it could be that the brain switches off the emotions during sex because at such times the chance to produce offspring becomes more important than the survival risk to the individual. Holstege points to the extraordinary behaviour seen in some animals during the breeding season, such as March hares, when the urge to mate seems to override the usual fear of predators.