

New Revelations About Orgasms

Neurological Discoveries

Sexual researchers are exploring the orgasm experience from the perspective of the central nervous system, and the association of electrical impulses that travel up the spine and into the brain. While the genitalia may be the sensory receptors of sexual experience, the brain and central nervous system is the master panel of activity.

One phenomenon that has stimulated so much new exploration lies in the fact that scientists have been at a loss as to how to explain why accident victims with shattered spinal cords can experience orgasms. Since the electrical signals from their genitalia have been shut down as a result of spinal nerve damage, there appeared to be no basis to explain the reality that this phenomenon was occurring. Statistics from a 1999 study show that, among Americans, 43% of women and 31% of men (18-60 years of age) manifested the standards for sexual dysfunction.

The Sequential Process of Orgasms

From the data we know now, here's what occurs neurologically during the orgasmic process:

- Initial stimulation of the genitals sends electrical signals into three main pathways – the *pelvic*, *hypogastric* and *pudendal* nerves. These nerve pathways go into the spinal cord at the base of the spine and travel up to certain brain regions that react to genital impulses.
- Then other brain regions send back signals to the body to commence sexual response (faster blood flow and breathing rate, vaginal lubrication, penile erection).
- The intensity level gradually increases; the heart rate doubles, blood flow saturates the genitals, all building to a climatic, explosive finale.

New Pathways of Sexual Movement Previously Unknown

Scientists have discovered clusters of cells that conduct electrical activity in the brain stem and spinal cord that enable rhythmical movement in the body completely functioning without higher brain control. They have traced and linked this activity into the animal kingdom as *central pattern generators* (enabling mollusks to swim, rats to crawl, tadpoles to swim) that, in humans, cause males to push and drive their pelvises and ejaculate.

New Pathways of Sexual Orgasm Previously Unknown

Researchers at Rutgers University, through their study of accident victims with spinal cord damage, have discovered a pathway of orgasmic activity that completely circumvents all spinal cord activity. Their findings show that a different system of nerves, called the vagus nerve complex, which travel a roaming path from the base of the brain in the neck (away the spinal cord) down to all the major organs and, possibly into the human pelvis. In animal studies, the vagus nerve pathway extends in female rats into uterus and cervix. If the vagus nerve pathway in humans does reach the pelvis, then genital impulses could jump over the spinal cord and travel back to the brain. (While exact clinical proof in humans is still undetermined, animal experiments do confirm this theory.)

To explore this new theory, the researchers at Rutgers University have performed tests upon women with severed spinal cords, where the women stimulated their cervixes with a phallus, while the scientists used fMRI imaging to observe brain activity. The stimulation did activate the brain region (which processes vagus nerve activity), and the women did experience orgasms.

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New Pathways of Sexual Orgasm Previously Unknown - continued

The orgasms also produced powerful activity in the brain's reward center (*nucleus accumbens*) also in the cerebellum (involved into coordinating muscle tension); and in the hypothalamus (which releases oxytocin – see *The Chemistry of Lust and Love* in this **Sexuality** section for more information about oxytocin)

Other New Discoveries

More breakthroughs in understanding the process of orgasm have been discovered by neurologist Dr. Gert Holstege, in the Netherlands. Their contribution has been in identifying that, in addition to key brain activity necessary for orgasmic response, they have been able to pinpoint how orgasms also shut off areas of the brain as part of the whole process.

The centers of reasoning and behavioral control go offline as part of the process of orgasm. Specifically, the lateral orbitofrontal cortex, which when damaged causes people to act in uncontrollable antisocial and impulsive ways, including *hyper-sexuality* (characterized by a debilitating need for frequent genital stimulation. The concept of hypersexuality replaces the older concepts of *nymphomania* and *satyriasis*) is shut down. This shutdown process in the centers for reasoning and behavioral control seems to be crucial in the orgasmic process, because in experiencing orgasm, one loses control.

A Discovery in Human Physiology Relating to Female Orgasms

Studies indicate that just 7% of women achieve orgasms with sexual activity alone, while 27% reported they never experience orgasm.

At Emory University, neuroendocrinology researchers believe that they have discovered a new physical indicator of a women's ability to achieve orgasm. And while clinical proof is still yet to be established, preliminary research appears to indicate its veracity.

In short, scientists maintain that the distance between a women's clitoris and the entrance to her vagina has a physiological influence on whether she can achieve orgasm. Specifically, if there is less than 2.5cm distance between the clitoris and vagina, there is a favorable physiology for a woman to easily achieve orgasm. If there is greater distance, the women often must rely on additional oral or manual stimulation. And this supposition does make anatomical sense, since the clitoris must receive proper stimulation along with vaginal penetration.

G Spot Orgasms

In 1982, the book *The G Spot & Other Recent Discoveries About Human Sexuality* was published, promoting the findings of Dr. Ernest Grafenberg, who first discovered this erogenous zone in women way back in 1950. Since the G Spot book, much speculation has been generated as to the existence and properties of this erogenous zone.

Essentially, the G Spot is a bean-shaped area located on the anterior vagina wall approximately three inches from the opening of the vagina. Women who experience this type of orgasm report that G Spot stimulation triggers a deeper, more powerful orgasm (as opposed to stimulation of the clitoris). Proponents of the G Spot orgasm speculate that this stronger orgasm is due to stimulation of the pelvic nerve, which is neurologically wired to a wide range of internal body parts (uterus, urethra, bladder, pubococcygeus muscle and uterine muscles).

In research at Italy's University of L'Aquila, scientists performed gynecological ultrasounds on women and announced that they have determined that women who experience G Spot orgasms had thicker tissue between the urethra and the vagina. And those women not anatomically blessed, simply do not have this special erogenous zone. They maintain an inexpensive

gynecological exam (by a female gynecologist who believes in its existence) can confirm its presence.

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Sources: **The Science of Orgasm** *Johns Hopkins University Press* Barry R. Komisaruk, Carlos Beyer-Flores, and Beverly Whipple ISBN 978-0-8018-8490-0 **The Story of O** *Rutgers Magazine* May 30, 2007 **Female Orgasms and a 'Rule of Thumb'** *Los Angeles Times* February 11, 2008 **Mystery of the G Spot Explored** *The Independent* (www.independent.co.uk) 22 February 2008