University of Chicago researchers find chemosignal that encourages women’s sexual desire

Breastfeeding women and their infants produce a substance that increases sexual desire among other women, according to research at the University of Chicago.

“This is the first report in humans of a natural social chemosignal that increases sexual motivation,” said Martha McClintock, the David Lee Shillinglaw Distinguished Service Professor in Psychology at the University, and the lead researcher in a team at the University’s Institute for Mind and Biology. Chemosignals are substances that while not necessarily perceived as odors, nonetheless have an impact on mood and menstrual cycles when absorbed through the nose.

The researchers found that after being exposed to the breastfeeding compounds for two months, women with regular partners experienced a 24 percent increase in sexual desire as reported on a standard psychological survey. Women without partners experienced a 17 percent increase in sexual fantasies after exposure for the period.

Women in the control group with partners who were exposed to a neutral substance reported an insignificant decrease in sexual desire, while women without partners in the control group experienced a 28 percent decrease in fantasies.

The work on sexual desire is reported in the paper “Social Chemosignals from Breastfeeding Women Increase Sexual Motivation,” being published in the latest issue of *Hormones and Behavior*. 
Joining McClintock in writing the paper were Natasha Spencer, Sarah Sellergren, Susan Bullivant and Suma Jacob, researchers at the University of Chicago, and Julie Mennella, a scientist with the Monell Chemical Senses Center, in Philadelphia. The study was conducted both in Chicago and Philadelphia.

In Philadelphia, Mennella recruited 26 breastfeeding women, who were asked to eat a bland diet to avoid transmitting odors such as curry through the breast milk. The breastfeeding women wore pads in their nursing bras, where the saliva from their infants in addition to their own perspiration and milk was collected. They also wore pads secured by underarm shields to collect perspiration.

The pads were collected, cut in pieces and frozen. Other studies in the McClintock lab have shown that the procedure is effective in collecting chemosignals.

In Chicago, the researchers recruited about 90 women between the ages of 18 and 35 who had not born a child. The women were divided into two groups, one group exposed to the pads with breast feeding substances, and the other group exposed to pads with potassium phosphate, a substance that mimics the concentration of the sweat and breast milk.

“Because preconceived ideas about pheromones could potentially influence their responses, study participants were blind to the hypotheses and the source of the compounds,” Spencer said. “The study was presented to the subjects as an examination of odor perception during the menstrual cycle.”

Participants were given a set of pads on a regular basis and asked to swipe them under their noses in the morning and at night and any other time of the day in which they may have wiped their upper lips, showered or exercised.

The women with partners were asked about their moods and were asked to complete daily a survey with a scale indicating “the degree you felt desire today for sexual intimacy.” They also recorded their sexual activity. Women without partners were also asked about their moods and reported whether they experienced “any fantasies/daydreams today of a sexual or romantic nature.”

Among women exposed to the breastfeeding substance, “The effect became striking during the last half of the menstrual cycle after ovulation when sexual motivation normally declines,” McClintock said.

Further study is needed to determine if the chemosignals the team discovered are pheromones. In order to be pheromones, researchers much show that the substances operate “in the context of normal daily interactions with breastfeeding women and their infants. Ideally, such a study would also demonstrate how these effects would have increased the evolutionary fitness of individuals who used this system of social communication during human evolution,” McClintock explained.

Other research suggests that women living in early societies produced children when food resources were plentiful. The chemosignal would have been a way of encouraging other women to reproduce when circumstances were optimal.

In 1998, McClintock and other researchers at the institute produced the first evidence of human pheromones.
University of Chicago research teams have done leading edge research on pheromones and related issues. In a paper published earlier this year in the journal Human Reproduction, “Effects of Breastfeeding Chemosignals on the Human Menstrual Cycle,” the researchers, working again with Mennella in Philadelphia, showed that the breastfeeding compounds increase variations in ovarian cycle length and cause women with long cycles to become longer and women with short cycles to become shorter.

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