

February 17, 2009

Varying Sweat Scents Are Noted by Women

By NICHOLAS BAKALAR

Men's sweat smells different when they are sexually aroused, and women can tell the difference, a new study finds — even though they are not conscious of it.

The sexual activity of animals is affected by odor, but little is known about the phenomenon in humans. Although all three types of sweat glands respond to emotion and sexual arousal, no one has ever convincingly established that body odor plays a significant role in human sexual relations or reproduction.

"In surveys, people say that body odors are important in selecting a mate," said Denise Chen, the lead author of the study. "But we don't really know exactly what role body odors play in human sexuality."

The report, published in the January issue of *The Journal of Neuroscience*, suggests that women distinguish the odor of sexual sweat from neutral sweat by processing the odors in different parts of the brain.

The researchers had 20 heterosexual male volunteers hold absorbent pads in their armpits while they watched 20 minutes of an erotic film, and then again while they watched a 20-minute film with neutral content. Then they had 19 heterosexual women smell the sexual sweat and neutral sweat pads from the three men who reported the highest level of sexual arousal.

The women also sniffed two additional pads, one moistened with androstadienone, a hormone produced naturally in sweat that some believe is a sex pheromone, and the other a control pad with a slight neutral odor. The pads were presented randomly, and the women were asked to rate the pleasantness and intensity of the odors. While the women sniffed, researchers monitored their brain activity with functional magnetic resonance imaging.

Adam K. Anderson, an assistant professor of psychology at the University of Toronto who was not involved in the study, called the methodology impressive.

"What's being taken as a stimulus is not some chemical created in a lab — it's real sweat from people who are sexually aroused," said Dr. Anderson, who does research in human olfaction. "What a scientist would normally do is try to distill the active component of that very complex perfume. They didn't do that. They compared the complex sweat to the sex pheromone and found that the brain was much more responsive."

In their verbal responses, all but two subjects denied smelling any sweat, or anything human, and none verbally distinguished the sexual from the neutral sweat. But their brain activity told a different story.

Two regions of the brain, the right orbitofrontal cortex and the right fusiform region, responded significantly more to the sexual sweat of men than to any of the other smells.

Dr. Chen, an assistant professor of psychology at Rice University, said that only one brain area, the hypothalamus, is known to be important in sexual motivation and behavior, and that region did not respond to the odors. But the researchers did find that the brain somehow recognizes social or emotional information contained in sexual sweat, treating it differently from other odors. In this sense, they conclude, humans communicate with smell.

No man should imagine that based on these conclusions he can improve his sex life by refraining from bathing.

“Our findings do not convey the suggestion that human sweat is an aphrodisiac,” Dr. Chen wrote in an e-mail message.

So what does the scent of a man mean to a woman? Dr. Anderson suggested there was no reason to conclude that men now know what women want. “They didn’t find activations of typical reward centers or regions associated with pleasure,” he said. “It’s just as likely that their brains are picking up a man in heat that they are not particularly attracted to.”