



PHEROMONES AND MATING CHOICE

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Pheromones and Mating Choice

Many people in the world today fall in love at first sight. Imagine two people walking; the wind is blowing their hair, and it seems there are special effects around them. As they walk past each other, they smell the most attractive scent from each other. They have fallen in love at first sight. This love-at-first-sight reaction is usually just a pheromone attraction.

The situation portrays one of the many ways scent plays a role in relationships. The scent of a person, whether pleasant or unpleasant, can significantly influence people's perceptions and initial impressions, as it provides insight into their character. For example, someone with an unpleasant smell may be seen by others as unsanitary and unhygienic. People are instinctive to surround themselves with those with a good smell and avoid those who do not. Moreover, the natural scent of our body plays a crucial role in finding a relationship. This is exemplified by "smell dating," where people use scents to find a partner and pheromone perfumes that imitate the attractive natural smell that bodies produce.

Both women and men indicate that an individual's body odor and scent are "the most important physical factor driving sexual attraction and mate choice" and "equally important as physical appearance" (Keaveny & Mahmut, 2021, p.1). It was found that a partner's body odor determined one's commitment to a relationship due to the preeminent role of scent in sexual interactions. Smell provides a sense of closeness and security, which is needed in maintaining intimate relationships. This natural odor of one's body is known as *pheromone*. Many people may rely on pheromones to choose mates because of their crucial role in sexual attraction.

Introduction to Pheromones

Pheromones, or scents, are compounds that send signals to organisms of the same species. One's pheromones are determined by their biological gender. In the form of sweat or oils, these chemical compounds are detected and responded to by others. Pheromones "allows for a form of silent, purely chemical communication" (Yuhas, 2014). When released, pheromones "stimulate sexual arousal, desire, hormone levels, and even fertility" (*The Science Behind Pheromones Affecting Attraction And Humans* | *BetterHelp*, 2023, p.1). Pheromones play an important role in sexual attraction, which is necessary to fall in love and is essential to relationships.

The Role of Female Hormones

Females send chemical signals to males through their pheromones, which specific hormones can alter. Oestrogen, a female sex hormone, is responsible for developing and regulating the female reproductive system and secondary sex characteristics. Secondary sex characteristics include any physical characteristics created due to the particular sex but are not directly a part of the reproductive system. Of the three types of oestrogen hormones, oestradiol is one of the more important as it is most commonly measured. Oestradiol is known to affect the

physical attractiveness of a woman. Higher oestradiol levels create a body shape that men prefer - an hourglass figure.

Moreover, oestradiol levels affect how attractive one's body odor is (Lobmaier et al., 2018). In a study by Lobmaier et al., men were exposed to a variety of scents, and each chose the most appealing to them. The results showed a correlation between women's oestradiol levels and men's attraction to them. The study concluded, "Specifically, women's body odors were rated as more attractive the higher their oestradiol levels" (Lobmaier et al., 2018, p.5). Oestradiol is positively related to a woman's reproductive potential and provides information on a woman's future or potential fertility; it has become a desirable trait. These oestradiol levels can be revealed through one's scent that men can smell.

Progesterone is another hormone that plays a vital role in sexual attraction. This hormone supports menstruation and helps maintain the early stages of pregnancy (*Progesterone*, n.d.). However, progesterone levels have the opposite effect on the sexual attractiveness of pheromones. Lower progesterone leads to a more attractive scent because it signifies higher fertility. Women in the peak stages of their menstrual cycle have lower progesterone levels. This can be discovered through the pheromone that men can smell. Thus, the higher a woman's oestradiol levels and the lower their progesterone levels were, the more attractive her body odor was rated.

Attractive Female Pheromones

Specific pheromones women release make them more sexually attractive than other women. Vulvar scents, produced by the external female genitalia, had a more prolonged effect. On the other hand, axilla odors emanating from the armpits were more potent than genital odors since they are a more natural source of chemical communication. Based on a study led by

Mondragón-Ceballos et al. (2013), when males smelled the periovulatory axilla and vulva scents, their testosterone and cortisol levels increased, causing an increased sexual interest.

It was found that periovulatory axilla and vulva scents were perceived as more pleasant and familiar. In contrast, "luteal vulvar odors were perceived as intense and unpleasant," leading to decreased sexual desire (Mondragón-Ceballos et al., 2013, p.1). The periovulatory phase is when women are most fertile, ovulating, and likely to get pregnant. The luteal phase occurs after a woman ovulates; an ovum from one of the ovaries has already been released. During this phase, women are less fertile. Thus, the body phase of a woman in her menstrual cycle and fertility displays how the same body scent can be perceived differently.

The Role of Male Hormones

Similar to how the same body scents can be different based on the individual's body, the state of the person's body receiving chemical signals is also very important. The state of the receiving individual's body affects how these pheromones are perceived. Based on a study, the scent of men with higher *testosterone*, a male sex hormone important to sexual development and functions, was considered more pleasant by "women who were at the most fertile stage of their menstrual cycles" (Lewis, 2013). This was not found in women who were outside of the fertile phase of their cycle, ultimately concluding that testosterone levels did not influence the attractiveness of a man's scent when the woman's fertility was not considered. However, during ovulation, the female body becomes more sensitive, and testosterone levels play a role in women's mating preference. Therefore, ovulation significantly impacts a woman's preference for a partner's scent.

Attractive Male Pheromones

Testosterone also has a role in producing specific pheromones, such as androstenone and androstadienone. Androstenone, also known as androstenol, is discovered in male axillary sweat and possibly in other bodily secretions and is produced by the adrenal glands and testes (*The Science Behind Pheromones Affecting Attraction And Humans* | *BetterHelp*, n.d.). It is pleasant to women and increases sexual attraction. Androstadienone is another steroidal pheromone that women detect. In a study by Verhaeghe et al. (2013), androstadienone created a positive mood and a heightened focus. A positive mood facilitates a woman's sexual response, and better focus improves sexual satisfaction. As a result, androstadienone had a beneficial effect on sexual desire and arousal.

Other Pheromones Roles

Information from Pheromones

In addition to their role in sexual attraction, pheromones provide essential information about a person that ultimately influences mate choice. Through pheromones, people can detect the immune systems of potential mates. For instance, the major histocompatibility complex (MHC), an influential group of genes in the immune system, is revealed through pheromones. The impact of MHC genes on pheromone production, detection, and response can significantly influence attraction. Interestingly, pheromones can disclose an individual's specific type of MHC genes through scent. Based on a sweaty T-shirt experiment, women found the scent of men who had different MHC genes than their own as more attractive (*Evolution: Library: Sweaty T-Shirts and Human Mate Choice*, n.d.). This suggests a higher attraction to an individual who is more genetically dissimilar.

The reason behind this is survival. A greater variety of MHC genes results in a more diverse immune system. Because offspring with a more diverse immune system have a higher

chance of survival, as a human instinct, people are more likely to choose a mate that can produce healthy offspring with a diverse and robust immune system (News, A. B. C., n.d.). Moreover, a study by Garver-Apgar et al. (2006) suggested that having a partner with a different MHC gene may lead to better sexual attraction and greater relationship satisfaction (Wu, 2022).

Pheromones in the Sense of Mate Choice

Downsides of Attractive Pheromones

Pheromones play a significant role in mate choice, impacting both males and females. Pheromones have the potential to drastically alter sexual attraction toward an individual, with somebody scents being more appealing than others. If the pheromones that are emitted are unpleasant, many will choose to avoid them. Not only do pheromones dictate attractiveness, but it also gives information about an individual's genotype. This is important in mating choice because sexual interaction and intimacy are two of the most significant factors in starting and maintaining a relationship.

As described, certain levels of hormones, whether high or low, affect pheromone attractiveness. Although certain levels of hormones create more attractive pheromones, they have downsides. For one, while high testosterone was found to be more sexually attractive in pheromones, excess testosterone levels can harm health. Excess testosterone levels can cause "bad" cholesterol levels, leading to heart issues like a heart attack, cardiovascular disease, or stroke (*Unhealthy testosterone levels in men*, n.d.). There are also risks of sleep apnea and infertility. Also, while low progesterone creates a more attractive scent, low progesterone levels in women can lead to irregular menstrual periods, spotting, headaches, and hamper one's ability to get pregnant.

Factors of Mate Choice

Even though pheromones play a significant role in mate choice, they are only one part of the equation. Physical attractiveness is subjective and can vary significantly from person to person. Factors such as shared values and interests, communication skills, and mutual respect are crucial for a successful and fulfilling relationship. While surface-level attraction may initially catch someone's attention, a lasting connection requires more. It is essential to take the time to get to know someone on a deeper level and to prioritize certain qualities like kindness, empathy, and understanding in a potential partner. For instance, two crucial components that should be considered are communication and personality.

The statement, "communication is key," is very prevalent in the world today. Communicating emotions and thoughts is essential when maintaining relationships because it gives a sense of connection and understanding. People should be able to talk it out without leaving room for grudges when there are disagreements or problems. Communication skills in a relationship are important to the point where "a person's ability to communicate engagingly and dynamically may be able to supplement for some lack of physical attractiveness" (*Communication in the Real World*, 2016)—because of this, finding a partner, or a mate, that can communicate their needs but also understand your needs is very vital.

Personality also plays a big role in human mate choice as it determines compatibility and the "chemistry" between two people. People choose their partners based on how well they match with the other person. If traits clash, it creates more troubles in the relationship, making maintaining a healthy and long relationship challenging. Specific traits like being funny can also be more appealing than others, like seriousness. Finding a mate with appealing and compatible personality traits is important in creating a relationship filled with joy and love.

These are only two of the many factors that affect mate choice. Physical attraction is also a critical component of mate choice, as it can create a sense of chemistry and spark between two people. However, it is crucial to recognize that physical attraction is not the only factor that matters. If the other factors are not considered, it could lead to troubles and more difficulties in maintaining a healthy relationship. It is important to note that mate choice in humans should not be solely based on pheromones. A person's overall combination of qualities and compatibility between two individuals is essential for a successful relationship.

Conclusion

Pheromones, a source of chemical communications, play a crucial role in mate choice:

1. Pheromones can increase a person's sexual attractiveness if they have the appropriate levels of necessary hormones.
2. Pheromones convey important information, including an individual's MHC genes, which can significantly influence mate choice.
3. Specific pheromones can evoke stronger attraction in males, mainly when a female is in a specific menstrual cycle phase.

Because attractive pheromones can cause relaxation, more focus, better mood, better sexual interactions, and ultimately attraction, many products today work to imitate the works of pheromones. Although there is a growing dependence on pheromones, a person's many other components regarding mate choice should be considered: family background, values, communication styles, and personality.

This paper analyzed the significance of pheromones in the sexual attraction that subsequently affects mate choice: people choose partners who are most sexually attractive. Continued research into this topic can provide valuable insights into the complex interplay between biology,

psychology, and social behavior in mate choice, helping us better understand and navigate the intricacies of human relationships. However, more research is needed to identify many unknown topics: the healthy levels of hormones that can create attractive pheromones, additional information about a person that is conveyed, and other potential roles of pheromones in our daily lives. It is important to continue studying this topic to gain a deeper understanding of the complex biological and psychological processes underlying our social interactions and relationships.

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