

## Introduction

Everyday you wake up; you probably take a shower, put on some deodorant, maybe some perfume, cologne or a scented lotion. This is all to make ourselves smell good, which is supposed to be attractive. But, what if I told you that these practices do the opposite of that? What if taking a shower or even wearing your favorite cologne made you LESS attractive? The reasoning behind a theory like this is pheromones. Now, I'm not telling you to not shower anymore, but did you know that showering washes off chemicals that may make others attracted to you? You may have seen info-mercials or gotten emails about buying pheromone solutions to wear to make you more attractive to the opposite sex, but did you know that you make your own pheromones naturally? Today I will speak on pheromones. First, what they are, second, how we know that pheromones exist and finally, how pheromones are significant to you.

Let's begin first by talking about what pheromones are.

## Body

### I. What are pheromones?

A. This is a communications course so we've learned a lot about different kinds of communication.

1. We have talked about verbal communication.
2. We have discussed nonverbal communication.
3. Animals communicate using chemical communication: a type closely related to nonverbal communication. (Butler, 1970)
  - a. Ants leave a chemical trail to lead other ants to food.
  - b. Humans use chemical communications as well. (Pavia, 1998)
    - i. Some chemicals attract mates.
    - ii. Other chemicals are essential in mother young interactions. (Leon, 1983)
    - iii. Humans also produce chemicals that regulate hormones of other individuals. (McClintock, 1971)

B. Pheromones are the means by which we can communicate chemically.

1. The word "pheromone" comes from the Greek roots. (Kohl, Atzmueller, Fink and Grammer, 2001)
  - a. The first part comes from the word "pherein": to carry.
  - b. The ending comes from the Greek word "hormon": to excite.
2. Webster's dictionary ([www.m-w.com](http://www.m-w.com)) has defined pheromone as "a chemical that is produced by an animal and serves especially as a stimulus to other individuals of the same species for one or more behavioral responses.
3. Pheromones are very small in size.
  - a. Pheromones are smaller than the eye can see.
  - b. In fact even with the help of a microscope you cannot see them.
4. The chemical structure of pheromones is like that of hormones.
5. Pheromones basically are hormones, except they are transmitted outside of the body to be used on other individuals.

C. Pheromones are released by the apocrine system, and are picked up by the VNO.

(Kohl et al., 2001)

1. Humans release pheromones through apocrine glands of the skin (armpits, mouth, feet, and genitals). (Kohl et al., 2001)
  - a. Apocrine glands do not secrete until after puberty.
  - b. Secretions are odorless.
  - c. Normal flora of the skin causes it to smell like B.O.
  - d. We shower to rid ourselves of this smell, but also wash off pheromones.
2. Pheromones are picked up by VNO. (Kohl et al., 2001)
  - a. "The vomeronasal organ, also termed Jacobson's organ, is a special part of the olfactory system and can be found in most tetrapods at least in the embryonic stages. In most mammals, it is located above the hard palate on both sides of the nasal septum and consists of a pair of blind-ended tubes that open into the nasal cavity." ([www.nel.edu](http://www.nel.edu))
  - b. Recently, studies have shown that VNO does exist in adult humans.
  - c. The existence of pheromones was not accepted by many scientists because VNO could not be found in humans.

This leads me to my next point, how we know that pheromones exist. Since you can't see pheromones and since the organ that senses them could not be found in humans it was hard for many people to believe. Studies were critical in the acceptance of this invisible communication.

II. Many studies have been done over the years to prove that pheromones exist in humans.

- A. Martha McClintock did a study - published in Jan. 1971 - Nature magazine (McClintock, 1971) on menstrual synchrony and suppression in females.
  1. McClintock's study was based on the fact that women who live together (such as in dorms) develop menstrual synchrony.
  2. McClintock wanted to test whether the synchrony was due to friendships or due to chemical signals.
    - a. She took samples from the underarms of women and then rubbed these samples on the upper lips of other women.
    - b. Women's menstrual cycles began to synchronize with the women whom the samples were collected.
    - c. This synchronization proved that a chemical signal was present in the sweat; however, this study alone could not prove the existence of pheromones.
- B. Many studies have been done on the chemical recognition of mother/young or the recognition of spouses.
  1. There have been many TV studies done to see if spouses can recognize each other by the chemicals left on a T-shirt from sweat.
  2. More scientific studies have been performed as well (Leon, 1983)
    - a. A study was done in 1968 that showed that rabbits chemically mark and can recognize their young by these chemicals.
    - b. Similar studies have been done with sheep, goats and pigs.
    - c. A study done by Porter and Moore (1981) shows that humans

- are also capable of recognizing their children by chemical signals.
- d. Studies have been done that have also shown that babies recognize their mothers chemically.
- C. As stated earlier, many scientists would not accept the existence of pheromones until it was proven that humans had a VNO to sense pheromones.
  1. VNO was proved to be in animals by cutting off the noses of these animals to see if they would still respond to pheromones.
  2. Tests like this cannot be done on humans; however, much has been learned from people with an underdeveloped olfactory system (Kallmann's disease). (Kohl et al, 2001)
  3. A study done by Monti-Bloch and Grosser proved the existence of VNO and found that it responds to picogram amounts of pheromones. (Kohl et al., 2001)

So, we've talked about what pheromones are and how we know they exist, but what do pheromones do for you?

### III. Pheromones are important in our everyday life.

- A. I mentioned earlier that humans use pheromones in many different ways.
  1. Chemical signals are essential in reproduction.
    - a. Pheromones are responsible for menstrual regulation. (McClintock, 1971)
      - i. When women of a community have synchronized menstrual cycles it increases the mortality rate (esp. in past).
      - ii. This quality of pheromones may lead to a pheromone contraceptive in the future. (McClintock, 1983)
    - b. Chemicals are a part of choosing good mates.
      - i. Pheromones help us select for partners with compatible immune systems. (Weiss, 1998)
      - ii. Pheromones help us select partners that are genetically diverse. (Kohl et al., 2001)
    - c. Pheromones play a part in mother-young interactions.
      - i. Pheromones helped you to recognize your mother.
      - ii. Chemical signals also helped you to discriminate between friend and foe.
  2. Probably what you're most interested in is how pheromones are used by humans to attract members of the opposite sex. (Kohl et al., 2001)
    - a. It is unknown how many pheromones exist in human sweat.
    - b. The androgen pheromones have been identified specifically.
    - c. Studies have been done to see whether the application of these pheromones will increase the attractiveness of the person wearing them.
    - d. A study done by Filsinger, Braun and Monte showed that women

- prefer the pheromone androstenol and dislike the pheromone androstenone.
- e. Androstenol (the attractive pheromone) is produced in all male sweat however it is soon oxidized to androstenone.
  - f. Many synthetic pheromones are on the market (most similar to androstenol).
    - i. These are also broken down by the normal flora on the skin and will eventually smell like B.O. as well.
    - ii. If you look on web sites that market these pheromones you will see many testimonials that swear that these chemicals work.

You can use your own judgment on the use of pheromones based on the information we have discussed.

## **Conclusion**

Edward Wilson (1970) of Harvard University wrote: “Odors drift back and forth across the boundary of human consciousness. Never explicit, never freighted with exact information, they carry, above all, emotional meaning.” Pheromones are such odors. Although they often affect us subconsciously they carry information that can affect such abstract part of us as emotions. We talked about how pheromones are a form of communication and what they do, second we discussed how the existence of pheromones was proved, and last we talked about how pheromones play a role in our everyday lives. So, next time you are sitting next to me in class and you feel overwhelmingly attracted to me, just remember, it may not just be my good looks. It may be my incredible horrible hygiene habits!

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