



# *Love Potion #10*

## **Part I**

by

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"Hey Laurie! Did you notice how the guys at lunch today were flirting with me? I'm sure it's because I'm wearing my new guy attracting chemical!"

"What's a guy attracting chemical?" Laurie asked.

Jean explained, "They call it a pheromone. I found an ad for this stuff called Pheromone 10:13 in a magazine. It sounded really great. The ad said that it would 'increase your sex appeal.' You just mix a little bottle of this unscented chemical with your cologne and it 'gets you more romantic attention.' It was expensive, about \$100 for one little bottle, but I used it today and obviously it's worth it. You should buy some too."

Laurie really hadn't noticed the guys paying more attention to Jean. She retorted, "If this pheromone stuff really attracts guys, why don't more people use it? Why should I waste my money on a quack product?"

Jean bristled at Laurie's comment. "I should show you the ad! They make two kinds of pheromones—10X for guys to attract girls and 10:13 for girls to attract guys. You should read what people are saying! One guy says that this pheromone stuff 'really has science behind it' and that he notices a big difference when he's wearing it. A woman says that she can almost feel the 'energy of the men's attraction to her.' They have testimonials from all sorts of people who say pheromones really work for them."

Laurie couldn't believe that Jean would fall for testimonials. "You see those kinds of things in lots of ads. Diet pill ads have lots of people saying they lost gigantic amounts of weight. But they're a rip-off—they usually don't work and my mother says that they're not safe."

But Jean had a come-back for that: "A real doctor who has written in medical books and journals discovered these pheromones. She did scientific research that proves that pheromones work. These pheromones aren't cheap imitations that fail. She started a company that sells them. And how can it be unsafe if you just put a little on your skin? They even have an Internet site that tells you all about this scientific evidence."

Laurie wasn't quite sure now. If these pheromones had been scientifically tested by a real doctor, well, that made her wonder. "I'll take a look at the Internet site tonight. What's the address?"

Jean had the address written down. "It's <http://www.Athena-Inst.com>. Go see for yourself."

### Questions

1. Do you believe that the Athena pheromone really does what the ad claims?
2. What information in the advertisement leads you to believe that the pheromone works?
3. What additional information would help to convince you that the pheromone does what is claimed?

**Image Credit:** Lilli Lehmann as Isolde in Wagner's opera *Tristan and Isolde*. Photograph by Aimé Dupont, courtesy of the Metropolitan Opera, used with permission. <http://www.metopera.org/history/week-961230.html>.

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## Part II

Jean was annoyed. Laurie had treated her like a gullible sucker. That night she did some research on the website listed in the advertisement. The next day she gave Laurie copies of the information.

"I found more information about pheromones that I think you should read. This stuff should convince you that pheromones really are sexual attractants."

Laurie had decided to prove that Jean was wrong. She had also collected some information on human pheromones.

"The stuff that I read really didn't prove that pheromones work. Some people think it might work but they really don't have any evidence."

### Questions

1. What is a pheromone? How do pheromones work? Do pheromones really affect human behavior?
2. What information in the articles supports the advertising claim?
3. What information in the articles makes the advertising claim questionable?
4. Based on this information, do you believe that the Athena pheromone really does what the ad claims?

## Part III

Today at lunch with friends, Laurie had continued the argument. "Would you believe that Jean still thinks that pheromone stuff she bought really works? She thinks the pheromones are the reason that she has a date this weekend. How could she be so gullible?"

Jean had expected this and was ready with a response. "How can you ignore the scientific facts? Doctor Cutler, from the Athena Institute, did an experiment that proved 74% of the people who wore pheromone were more attractive to members of the opposite sex. It was too long and boring to read completely, but here's the abstract and data from her experiment. I don't believe you won't even trust the scientific evidence."

This study tested the effect of human male pheromone on the sociosexual behavior of men and by implication, the sexual responses of the women they encountered, as well as the men's perception of these effects. Thirty-eight heterosexual men, ages 26-42, completed a 2-week baseline period and a 6-week placebo-controlled, double-blind trial testing a pheromone "designed to improve the romance in their lives." Each subject kept daily behavioral records for 5 sociosexual behaviors: petting/affection/kissing, formal dates, informal dates, sleeping next to a romantic partner, and sexual activity and FAXed them each week. Significantly more pheromone than placebo users increased above baseline in sexual activity and sleeping with a romantic partner. There was a tendency for more pheromone than placebo users to increase above baseline in petting/affection/kissing, and informal dates but not in formal dates. A significantly larger proportion of pheromone than placebo users increased in two or three of the five sociosexual behaviors. Thus, there was a significant increase in male sociosexual behaviors in which a woman's sexual interest and cooperation plays a role. These initial data need replication but suggest that human male pheromones affected the sexual attractiveness of men to women.

**Abstract from article in *Archives of Sexual Behavior*, Vol. 27, No. 1, 1998,  
"Pheromonal Influences on Sociosexual Behavior in Men," by Winnifred  
Cutler, Ph.D., Erika Friedmann, Ph.D., Norma L. McCoy, Ph.D.**

| <b>Table I. Initial Age, Height, Weight, and Relationship Status<br/>for Subjects by Treatment Group</b> |                       |      |                     |      |
|--|-----------------------|------|---------------------|------|
|  | Pheromone<br>(n = 17) |      | Placebo<br>(n = 21) |      |
| Age (years)  | 33.1                  |      | 33.8                |      |
| Height (inches)  | 69.6                  |      | 71.7                |      |
| Weight (pounds)  | 189.7                 |      | 187.0               |      |
|  | <i>N</i>              | %    | <i>n</i>            | %    |
| Not dating but would like to be  | 7                     | 41.2 | 9                   | 42.8 |
| Dating   | 2                     | 11.8 | 8                   | 31.8 |
| Keeping steady company   | 2                     | 11.8 | 1                   | 4.8  |
| Married  | 6                     | 35.3 | 3                   | 14.3 |

| <b>Table III. Number of Subjects with an Increase Over Baseline for Each of Five Sociosexual Behaviors by Treatment Group</b> |                       |      |                     |      |
|---|-----------------------|------|---------------------|------|
| Sociosexual Behavior  | Pheromone<br>(n = 17) |      | Placebo<br>(n = 21) |      |
|   | <i>N</i>              | %    | <i>n</i>            | %    |
| Sexual activity   | 8                     | 47.0 | 2                   | 9.5  |
| Sleeping next to romantic partner   | 6                     | 35.3 | 1                   | 4.8  |
| Petting/affection/kissing   | 7                     | 41.2 | 3                   | 14.3 |
| Informal dates  | 6                     | 35.3 | 2                   | 9.5  |
| Formal dates  | 7                     | 41.2 | 7                   | 33.3 |

**Data tables from the research article "Pheromonal Influences on Sociosexual Behavior in Men" by Winnifred Cutler, Ph.D., Erika Friedmann, Ph.D., Norma L. McCoy, Ph.D.**

## Questions

1. What hypothesis was Dr. Cutler testing?
2. What sort of people did she use as a control group?
3. What sort of people did she use as an experimental group?
4. How many people did she choose for each group?
5. What factors did she keep constant in her experimental and control groups, and how did she do this?
6. What procedure did she follow to make sure the pheromone is tested fairly?
7. What data did she collect? How often did she collect data?
8. How did she decide if the pheromone was effective or ineffective?
9. Do you think that Dr. Cutler's research provides credible evidence that the pheromone Jean bought really does what the advertisement claims? Why might people answer "yes" to this question? Why might people answer "no" to this question?
10. Do you think you would get the same results if you replicated Dr. Cutler's research? Why or why not? Why has her experiment not been replicated by other researchers?

## Part IV

Dr. Cutler's research was done with Athena Pheromone 10X (unscented fragrance additive for men). Jean had purchased Athena Pheromone 10:13 (unscented fragrance additive for women). A product should be properly tested to make sure that it does what it is supposed to do. Design an experiment to test Athena Pheromone 10:13 to see if gets women more romantic attention.

### Questions

1. What hypothesis would you be testing?
2. What sort of people would you use as a control group?
3. What sort of people would you use as an experimental group?
4. How many people would you choose for each group?
5. What factors would you have to keep constant in your experimental and control groups, and how would you do it?
6. What procedure would you follow to make sure the pheromone is tested fairly?
7. The data collected needs to be "socially appropriate"—involve only behaviors permitted by high school rules. What data would you collect? How often would you collect data?
8. Make a data table that you would use to record data from your experiment.
9. How will you decide if the pheromone is effective or ineffective?

## Part V

### Scientific Literacy - Applications

Scientific literacy means more than being able to design and conduct experiments. You must also be able to understand how scientific research affects your life and your decisions. Consider each of these mini-cases and indicate what you think should be done in each situation. Be prepared to share your answers with your classmates.

1. A researcher working for an herbal medicine company conducts an experiment on 10 middle-aged men. He tells them that he is testing an herbal medication that scientists think will make people feel more energetic. He instructs them to take one herbal medicine tablet a day for one week. After a week he asks them if they feel more energetic. He reports that 9 out of 10 people feel more energetic after taking the medication.

*Would you buy this medication? Explain why or why not.*

2. A college professor noticed that the men and women in her class usually formed male-only or female-only groups. She wondered if pheromones would encourage gender mixed groups. Without explaining what she was doing, she asked the women in the class if they would like to try a free sample of a new perfume. She did not tell them that the perfume contained a pheromone that attracted members of the opposite sex.

*Do you think this is appropriate? Explain why or why not.*

3. Scientists have discovered a medicine that they feel has the potential to cure a deadly form of childhood cancer. They need to test the medicine to be sure that it is safe and effective.

*Should they test this medicine on animals before they begin tests on humans? Explain why or why not.*

4. Parkinson's disease is a progressive neurological disease that gradually destroys a person's control of voluntary movements. Scientists have tested a treatment for Parkinson's disease in monkeys who showed disease symptoms. They drilled holes in the skulls of two randomly selected groups of monkeys. The experimental group had fetal tissue injected into their brains. The control group had distilled water injected into their brains. The treatment was 80% effective in treating the symptoms of the disease in monkeys. You have recently been diagnosed as having Parkinson's disease. Researchers have asked you to participate in their clinical trials to test the fetal tissue transplant treatment.

*Would you agree to become a subject in these clinical trials? Explain why or why not.*

5. Scientists are conducting a long-term (3-year) double-blind placebo-controlled clinical trial on a chemotherapy they hope will cure prostate cancer. They want to determine if the chemotherapy is safe and effective. They randomly assign patients to be members of the experimental or control group. After six months they found that early treatment with the chemotherapy results in a 90% cure rate with no dangerous side effects.

*Should they offer the medicine to people in the control group now or continue the research as planned? Explain why or why not.*

6. Testing and FDA approval are not required for natural herbal medications such as Ginkgo biloba, St. John's wort, and ginseng.

*Do you think people should use medicines that don't have FDA approval? Explain why or why not.*

7. During World War II, unethical scientists did research on the effects of radiation on humans. They used people in concentration camps as their experimental group—exposing them to dangerous doses of radiation. The results of these experiments have recently been discovered.

*Should this information be released? Explain why or why not.*