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The importance of personal scent

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The importance of personal scent

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ABSTRACT

This paper reports the crucial role of olfactory signals in human being life, affecting their behavior and emotional status.

The use of pheromone-mimetic substances within cosmetics preparations is proposed as supportive of both sex health and wellness.

INTRODUCTION

Olfactory signals are often considered a nuisance. We notice bad odors, try to remove them or mask them and do not consider the possibility that olfactory signals might play important roles in our life. And yet, fragrances can affect our mood, stimulate our focus, reduce our mental confusion, increase vigor, decrease anger and anxiety. Their effect is mediated by the binding of the fragrant molecule to a receptor and the neurological transmission of a signal that provokes a cerebral response *via* the release of neuropeptides.

Olfactory signals in animals

As much as many acoustic signals, such as ultrasounds that are not detected by our ears, some olfactory signals are not odoriferous (we call them subliminal) and consist of molecules that, while undetected by our sense of smell, bind to receptors in our olfactory organs and provoke a variety of physiological effects. We release subliminal olfactory signals that can vary with our physiological status, and we receive subliminal signals with behavioral consequences that depend on our physiological status.

The studies carried out on primates are consistent with human studies and the results obtained reinforce our understanding of the importance of individual odor in the choice of a mate, in human beings as well.

The chemical profile of the molecules released by female lemurs injected with hormonal contraceptives was totally different from the profile of the molecules released when they were not receiving the contraceptive. Of the hundreds of chemicals identified before the females were injected, only a few were left and the highly diverse assortment became relatively homogeneous; and after the females had been injected with hormonal contraceptives, male lemurs spent with them, less time than they did before[1].

In another experiment, two groups of female monkeys were injected with hormonal contraceptives at different times. When the favorite sexual partners of the α-male were injected, he stopped having sex with them and addressed his attention to non-injected females.

When his replacement mates received the contraceptive hormone and the medication wore off his original partners, he switched back. Once the second group of shots had worn off, all the females received the contraceptive. The α-male began to attempt rape, masturbate, and behave in a turbulent and confused manner. But no matter what he did, there was never the usual episode of intercourse[2]. The response of the α-male seems to indicate that the "chemical pregnancy" created by hormonal contraception eliminates the primal desire to procreate. In other words, the injected female monkey's pheromones (or lack thereof) diverted the α-male from sexual relations with them.

Olfactory signals in humans

It is known that androstenol (5α-androst-16-en-3-ol) is a natural steroid with 19 carbon atoms, synthetized in the human testicles. It is found at a high concentration in human urine, armpits, sweat and saliva, while «copuline» is a complex mixture of aliphatic acids normally contained in vaginal secretory products of young healthy women with regular, hormone-controlled menstrual cycles.

When asked to smell the T-shirts of a large cohort of college male students, female students preferred (or found less repugnant) the odor of T-shirts from males whose MHC (Major Histo-compatibility Complex) was complementary to their, as if the scent could direct women to choose a mate such that the offspring would have an optimal immune response[3]. Conversely, females are more attractive when they are fertile than

when they are not. It was found that fertile, regularly cycling lap dancers made about $20 more in tips per hour than when non-fertile, and about $35 more in tips per hour than when menstruating![4]. There are numerous studies that tell us that men find women more attractive when they are fertile, for instance[5]. Juette and Grammer asked a group of men to rate pictures of females for attractiveness while having them exposed to female pheromones or to a non-pheromone control[6]. While unknowingly being exposed to vaginal pheromones, the men rated the same females as being more attractive than they felt when they were not exposed to the pheromones.

It might be of interest to learn that women who are using the contraceptive pill choose men with immunity genes similar to themselves, as opposed to naturally cycling women, who choose men with immunity genes different from their own (and mating with an individual with different immunity genes is evolutionarily beneficial). In addition, the use of hormonal contraceptives reduces the production of copulin and its fluctuations. As we said above, copulin is a blend of aliphatic acids (acetic, propionic, butyric, isovaleric, isocaproic) usually present in vaginal fluids of healthy women[7].

One study even proposed that this phenomenon could have downstream effects on the health of future children[8] and lap dancers who were using hormonal contraceptives received in tips about $80 dollars less per shift than dancers that did not use oral hormonal contraceptives[4]. This supports what we know about how the human olfactory system picks up on pheromones and subconsciously uses them to interpret attractiveness.

Possible application of the results of this research

The conclusion is that Homo sapiens is an efficient receiver and sender of chemical signals like all species with an active olfactory communication system[9]. From these studies, it can be inferred that it is important to maintain the release of the molecules that constitute the chemical signature of fertility and immune response, which might well be weakened or altered by the use of hormonal contraception in females and by the use of deodorants fragrances and the excessive cleaning of one's skin in males.

It appears therefore possible to add to fragrances or other personal care products, molecules able to mimic the ones released by fertile women to maintain their «attractiveness» or the ones released by males that are recognized as stimulating by women even when they are using hormonal contraception.

Experiments in this sense have been performed, for instance by Friebely and Rako[10]. They reported that the addition of female pheromones to common perfume increased the sexual attraction of postmenopausal women. This effect was assessed by documenting behavioral changes in their contemporary partners. Other experiments have shown that adult males exposed to a female pheromone-mimetic substance do produce more testosterone than unexposed controls, and this effect is amplified by physical exercise[11].

Male and female pheromones can be synthesized following routine chemical reactions. Since in cosmetics the use of hormones is prohibited or controversial, two molecules of a non-hormonal nature were studied. These molecules were selected because they reproduce the typical effects of female pheromones (Osmopherine®) as well as of male pheromones (Osmopherone®). Both molecules were synthesized in 1978[12] as osmostenicizing steroids, that is, steroids which can enhance olfactory stimuli. They were later substituted with specific osmostenicizing elements, always obtained by synthesis, identified in human-specific acidophilic microflora cultures. Both exert their function at the subliminal level and therefore should be included in target products in minimal amounts so to remain below the threshold of perception.

The olfactory signals released by the woman change with her fertility status and the woman's perception by the man varies accordingly. The positive perception of women by men can be maintained by providing the woman with personal care products containing female pheromones. These pheromones will be sustainably released over time by the woman and will generate a constant olfactory signal. It has been handed down that this was already understood by the women of the Middle Ages who used their vaginal fluids to perfume their cheeks, a bit like a love filter.

The woman exposed to male pheromones is more confident, less confused, less depressed and less angry and is therefore in an ideal state to react positively to any type of human interaction. These observations have been confirmed in a double-blind study carried out for five months between 2000 and 2001 with twenty-six stable heterosexual couples having lived together for at least five years, aged between 25 and 45, in good general health conditions, not under drug treatment, who did commit not to change their lifestyle habits[12]. The synthetic substitutes of male and female human pheromones or their placebos were added to a moisturizing emulsion and to a deodorant gel. Males received either placebos (P) or products with male pheromone (MP) and females received either placebo (P) or products with female pheromones (FP). They were applied on skin areas daily, once or

more often, according to the free choice of the participants. The test was carried out between October and February in order to avoid the influence of pollen and other products such as solar products that could affect the results. Every month the applied product was changed. The chronology of application was:

1st month: P/P; 2nd month: P/MF; 3rd month: FP/MF; 4th month: FP/P; 5th month: P/P

The aim of the research was to verify if and to what extent the two substitutes constitute and enhance the natural osmostenicizing compound in a pheromonic sense. The results show that the substances used had a remarkable effect when they were simultaneously administered to both members of the couple. As a matter of fact, the interpersonal relationship within a couple, assessed according to the positive evaluation of the partner's scent seems to be increased in the month when the male partner applies male pheromones and the female partner applies female pheromones. The positive effect of balanced overload therefore confirms that well-balanced pairs are normally in pheromonal harmony.

CONCLUSION

Olfactory signals are an integral and fundamental part of our existence. The examples could be dozens, from the interaction and recognition of the mother-baby, to the increase or decrease of fertility, to the alignment of the menstrual period between isolated women living together.

The supplement of pheromone-mimetic substances, when properly operated, has shown to be of support in both sexes being able to contribute to an improvement on an individual and collective basis in terms of mood, acceptance, relationship and emotion.

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WHAT IS RELATA TECHNICA?

Starting from the beginning of the human story numberless substances have been applied on the skin to favour wound healing, for the management of skin diseases, or simply and perhaps more often for cosmetic aims. In sharp contrast, only in recent years, and with a great delay as compared with otherfields of pharmacology, the study of the effects of chemicals on the skin moved from art to science; now it is soundly based on a rational approach. Regulatory Authorities classify substances and formulations to be applied on the skin in two distinct categories: drugs and cosmetics. This in order to prevent that harmful or extremely active chemicals, contained in cosmetic preparations, are used without medical control.

Nevertheless, all pharmacologists know that in its widest meaning drug is every substance capable of modifying cell function, and it is difficult to admit that chemicals used in cosmetic preparations are devoid of any influence on biochemical mechanisms of epidermal cells, in particular in the case of long-term treatments. Thus dermopharmacology and cosmetology are at least overlapping disciplines, and there is no doubt that the same methodology should be employed in both fields.

Over the years Relata Technica has achieved a wide readership; at present its aim is to broaden the journal to make it a truly comprehensive dermopharmacology research journal in which articles in all of the most interesting and exciting areas of modern skin care have their forum. As a consequence, Relata Technica should attract manuscripts concerning the pharmacokinetic behaviour and the pharmacodynamic activity of old and new chemicals used to control skin diseases or to prevent skin aging, as well as studies providing insights on which to base rational development of new compounds for medicinal or cosmetic use.

Investigations on the various aspects of the interaction of chemicals with the skin can be analysed by the use of several experimental models: the intact animal, fragments of surviving skin, keratinocytes cultures or the more sophisticated in vitro reconstructed human skin, subcellular fractions and pure enzyme systems. The end point examined in the study may be the macroscopic appearance of the skin, its histological, histochemical or ultrastructural features, and a biochemical or molecular marker.

An important aspect of dermopharmacology, and even more of cosmetology, is safety assessment. Therefore the journal will be also very interested in publishing the results of research dealing with the local and systemic tolerability of new compounds. In this respect, one of the major goals of Relata Technica is to promote studies on the use and validation of the so called alternative assays which should have the final aim of substituting, at least for cosmetics, the use of laboratory animals in the assessment of systemic toxicity, local irritant activity and, in a broader sense, of any possible adverse effect.

Finally, Relata Tecnica should be the natural publication outlet for manuscripts concerning the formulation of dermopharmaceutical and cosmetic preparations, and in particular for those which analyse the influence of the vehicle and other ingredients on the efficacy and tolerability of the active substance.

It is essential that the quality of papers published in Relata Technica be good and, on the other hand, it is important for the journal to process and publish papers promptly. We will make every possible effort to improve and shorten the review process, and I believe that Relata Technica will become a preeminent journal in the field of dermopharmacology.

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