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Avoiding Unnecessary Fragrance-Induced Pigmented Contact Dermatitis: The 'Pulse Point' Myth

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Key Words

Pigmented cosmetic dermatitis • Pigmented contact dermatitis • Pulse point, perfume • Fragrance allergy • Cosmetics

Fragrances are the leading cause of allergic contact dermatitis due to cosmetics, accounting for more than 30% of identified cases [1]. More than half of the reported cases of cosmetic dermatitis occur on the face. The 'pigmented cosmetic dermatitis' type is caused by cosmetic components and mainly affects women's faces. This form constitutes a greater problem than the others since it lasts longer and is difficult to treat.

The considerable progress that has been made in reducing the risk of fragrance-induced allergic contact dermatitis notwithstanding, our ability in taking preventive measures remains limited because of the complex chemistry of fragrance materials. We believe that avoiding the use of any kind of scent directly on the face and neck, and especially behind the ears, will go far to alleviate the problem, particularly the pigmented form of contact dermatitis. The real challenge now is to persuade the public to change such long-standing practices.

Why do people put perfumes and scents on the neck and face and not elsewhere? 'Toilet water, cologne, or layering scented bubble bath, body cream, or powder start with a dab on a pulse point' [2]. Indeed, there is a brand of Pulse Point Perfume. Why is a location where an artery (the radial in the wrist, the brachial at the antecubital fossa, carotid in the neck, the popliteal behind the knee and the posterior tibial at the ankle) runs close enough to the surface to render its pulsations palpable the ideal place for a scent? The most frequently proffered rationale behind this teaching is that the blood vessels there make the overlying skin warmer, and that this extra heat helps to release the scent.¹

There would seem to be some logic and science behind this proposition. Body core temperatures are higher than skin surface temperatures. Arteries coming from the body core carry that warm blood to where it eventually reaches and helps warm the skin. Furthermore, we can treat hyperthermic patients by injecting cooler fluids at veins near these pulse points to help to cool

the blood returning to the core, so does it not stand to reason that the converse is true?

In point of fact the argument lacks merit. Although heat does help a scent to disseminate, there is nothing to suggest that the average variations of surface skin temperature [4] significantly alter that dissemination or have anything to do with 'unlocking' a scent. Moreover, of the several factors that determine skin temperature, none of them depend on the arteries coursing at our pulse points. Circulation plays a large role here, but it is the blood flow through the smaller vascular beds in the dermis, specifically the superficial vascular plexuses, that determines temperature [5].

Vasoconstriction by glomus bodies constricts blood flow to this superficial dermal region and reduces heat loss to the environment (and reduces the temperature of the skin, assuming ambient temperatures below body core temperatures). Heat exchange here depends upon exposed surface area, and the exposed surface area of those smaller vessels generally dwarfs that of the relevant pulse point artery by at least an order of magnitude.

Blood flow through the superficial vascular plexus is under both local and central regulatory control. The hypothalamus mediates central control; perceived cold leads to a sympathetic nervous response that constricts precapillary sphincters and leads to lower skin temperature while perceived heat does the reverse. Vasodilation can also result from local irritants and increased surface temperatures although no one, to our knowledge, has ever suggested perfume should be applied to mosquito bites, abscesses or cutaneous tumors.

Two noncirculatory factors also contribute to skin surface temperature. First, skin, along with subdermal tissues, acts as an insulator for the body, so temperatures tend to be higher where the skin is thinner and has less underlying fat. Similarly, regions where skin insulates skin (e.g. the axilla) will have temperatures closer to the body core, while those with more exposed surface area (e.g. fingers) will be more influenced by environmental temperatures, which are typically colder than the body core temperature.

The temperature-regulating mechanism of evaporation may aid scent dissemination. Eccrine sweat glands are distributed throughout the body, with higher concentrations in the axilla, the forehead, and in the plantar and palmar regions [5]. Some pulse points coincide with these areas, but only coincidentally. And of course, evaporation cools the skin.

¹ See, e.g., 'Howard Rombough buys perfume' [3]: 'They advise consumers to test fragrances on the pulse point of the wrist ("the veins give off a little heat which improves olfactory sensitivity").' The authors submitted the question 'why do women apply perfume to pulse points?' to an Internet question board and received 6 answers, 4 of which were variations of the following response: 'The heat from the pulse points increases the smell of perfume.'

Thus, there is no 'scientific' justification for wearing perfume on a pulse point but ample reason to avoid the neck and face. Persons wearing perfume may still use other places; even other pulse points may be good even if the body's circulation does not provide the reason to choose them. When a proper gentleman takes a lady's hand to kiss, he will take in the intoxicating aroma of a perfume gently placed on the wrist. And, as Jerry Seinfeld once quipped, a woman's dabbing perfume on her wrist may ensure that a man will still find her intriguing after she has slapped him.

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