Simple Skin Talk: Women Are Different Than Men

Zoe Diana Draelos, MD

Women are not petite men. Men are not muscular women. Women are not long-haired men. Men are not bearded women. The real difference between women and men begins with the skin, but manifests in profound physical, emotional, and mental attributes. Several years ago, a popular book pronounced that men were from Mars and women were from Venus. This is the subject of intense ongoing debate. The magnitude of differences between men and women cannot be elucidated in this short article, but some insight into the dermatologic uniqueness of men and women can be highlighted. Differences in skin structure, biochemistry, and functionality are worth exploring, as they may explain the gender aspects of dermatologic disease.

Skin Structure

Although obvious differences exist between men and women concerning hair-growth patterns, the other subtle aspects of skin structure uniqueness may not be so apparent (Table 1). For example, male skin is more deeply pigmented than female skin, perhaps accounting for the saying that women are the "fairer" of the species. Male skin also is thicker and thus contains more collagen. This may explain why women appear to age more quickly than men, as both genders experience the same rate of collagen loss, but women begin with a lower baseline and lose proportionately more collagen. Women, on the other hand, possess more subcutaneous fat, which predisposes them to cellulite and creates less muscle definition. Gender-specific fat also distributes in different body areas, with men depositing truncal fat and women depositing more gluteal and femoral fat.

Men appear to age slower than women, not only because of increased skin thickness, but also because of the presence of facial hair. As the collagen is degraded with intrinsic and extrinsic aging, the terminal hair bulbs on the face take up more space. This prevents the fine "cigarette paper" wrinkling on the cheeks primarily found in women. It will be interesting to see how male skin ages after permanent laser hair removal on the face, which is becoming more popular in certain geographic areas.

Skin Biochemistry

Structural skin differences can be visibly appreciated, but biochemical skin differences are equally important (Table 2). Males secrete more sebum than females throughout life. Although female sebum production dramatically decreases after menopause, male sebum secretion continues. This reduction in sebum is also accompanied by a reduction in stratum corneum lipids in females, which may be attributed to a reduction in estrogen with advancing age. This sebum reduction may explain why mature males have a higher incidence of seborrheic dermatitis than mature females.

There are also differences in the ability of female fibroblasts versus male fibroblasts to proliferate. Female fibroblasts proliferate at a higher rate than male fibroblasts at age 30 years. This may explain why female skin tends to heal better than male skin, especially after facial surgery. Another explanation for superior healing may be the reduced thickness of female facial skin.

Although differences exist in skin structure between males and females, there also are differences in the substances that are present on the skin surface. Males tend to sweat more than females, creating an environment more conducive to bacteria growth, which results in odor production. Male sweat also remains on the skin longer. In addition, males possess more body hair, which increases the body surface area for bacterial colonization. This may explain the increased popularity of antibacterial soaps among men. The presence of sweat also may contribute to differing skin pH measurements between men and women. Women have a higher more alkaline pH, whereas men have a relatively lower pH, but the pH of the axillae are identical in both sexes.

Finally, women have a higher transcutaneous oxygen level than men. The exact significance of this is not

Dr. Draelos is Consulting Professor, Department of Dermatology, Duke University School of Medicine, Durham, North Carolina.

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Correspondence: Zoe Diana Draelos, MD (zdraelos@northstate.net).

TABLE 1

Skin Structure Gender Differences

Attribute	Female	Male
Skin color	Lighter	Darker
Red skin tones	Lower	Higher
Yellow skin tones	Higher	Lower
Skin thickness	Thinner	Thicker
Amount of collagen	Less	More
Rate of collagen loss	Same	Same
Subcutaneous fat	More	Less
Fat distribution	Gluteal and femoral	Truncal
Cellulite	More	Less
Appearance of aging	Faster	Slower

known, but may be explained by the thinner epidermis (Table 2).

Skin Functionality

In addition to biochemical skin differences, there are also differences in skin functionality (Table 3). These functional differences can impact how skin care products perform on the skin and may dictate product-formulation specifics. It is interesting to note that transepidermal water loss is lower in females than males, even though when polled, women feel that their skin is drier. Women also generally feel that their skin sags more than men's skin, but skin elasticity is identical between the sexes. The increased impression of sagging may be due to thinning collagen rather than decreased skin elasticity.

Female skin is more functionally responsive than male skin. This is manifested by the lower temperature at which heat induces vasodilatation. It also presents as an increase in irritant contact dermatitis and increased sympathetic tone. This may explain why females exhibit increased redness and irritation to skin care products, sometimes referred to as "tender" skin, over males who are characterized as having "tough" skin.

TABLE 2

Skin Biochemistry Gender Differences

Attribute	Female	Male
Sebum production	Less	More
Fibroblast proliferation	More	Less
Sweat production	Less	More
Sweat evaporation rate	Higher	Lower
Transcutaneous oxygen level	Higher	Lower
Body skin pH	Higher	Lower
Axilla skin pH	Same	Same

It also is interesting to note that females possess cooler skin than males, especially at the fingertips. Could this be why women tend to have cold hands as compared to their male counterparts? Could this also explain why women complain of being cold more than men? Although many of these observations have been linked to personal perception, it may indeed be true that gender-unique skin physiology is more important than previously thought.

Summary

The differences between male and female skin structure, biochemistry, and functionality are interesting from a pure scientific standpoint. However, these facts are more than just trivia to impress colleagues at the country club Christmas party. These gender differences are used to develop skin care products that meet the needs of the intended consumer. For example, odor control is much more challenging in males than females because of body hair and the increased production of both sweat and sebum, providing excellent growth media for bacteria. The fact that facial stinging is much more prevalent among females points to the need to test female facial skin care products and cosmetics for sensitive skin. Less collagen and thinner facial skin in women create a larger female antiaging skin care market. Finally, increased body fat makes cellulite treatments aimed at women a market segment, whereas male cellulite products are nonexistent.

TABLE 3

Skin Functionality Gender Differences

Attribute	Female	Male
Transepidermal water loss rate	Lower	Higher
Skin-blistering times	Longer	Shorter
Skin elasticity	Same	Same
Stratum corneum stiffness	Higher	Lower
Tape-stripping removal of stratum corneum	Same	Same
Skin temperature	Cooler	Hotter
Fingertip temperature	28°C	33°C
Heat-induced vasodilatation temperature	Lower	Higher
Sympathetic tone	Increased	Decreased
Irritant contact dermatitis incidence	Higher	Lower
Facial lactic acid stinging	Higher	Lower
Minimal erythema dose	Higher	Lower

Marketing experts at all skin care companies spend a great deal of time examining gender differences and understanding the intended end user of their products. Male products are not female products merely packaged in a blue box; female products are not male products to which a floral fragrance has been added. Understanding gender differences and formulating appropriately are important for the cosmetic chemist. The consideration of unique gender needs also may assist the dermatologist in better understanding the differences in presentation and prevalence of skin disease between men and women.

This article has examined the key differences between male and female skin structure, biochemistry, and function. I will leave it up to the reader to determine if men are from Mars and women are from Venus. ■