

Editorial

Differences of Skin Physiology in Men vs. Women: Expert Opinion on Recent Advancement

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The American author John Gray emphasizes explaining the fundamental differences between men and women by a well stood statement “Men Are from Mars, Women Are from Venus”. One can say that these differences are logical from a sociological point of view, but question still arises therefore is whether gender-related distinctions exist in human skin as well. Initially, the physiological properties, including transepidermal water loss (TEWL), stratum corneum hydration (SC hydration), sebum content and pH value of the human’s largest organ seem equal in both genders. However, with the beginning of hormonal production in puberty, skin differences become believable. Moreover, it is known that the susceptibility to several skin diseases, such as acne, rosacea and seborrhoeic eczema, vary between the sexes, and that therapeutic needs of male and female skin are often diverse.

More recently, an interesting research has been published by Luebberding and his co-workers entitled “Skin physiology in men and women: *in vivo* evaluation of 300 people including TEWL, SC hydration, sebum content and skin surface pH”. In this systematic assessment, they have tried to clinical study, gender-related differences in skin physiology in men and women, with a special focus on changes over lifetime, so that to test a previous hypothesis that differences in skin physiological properties exist between men and women. In this study, first time a large population of 300 healthy male and female subjects (20–74 years) were selected following strict criteria including age, sun behavior or smoking habits. The physiological parameters like TEWL, hydration level, sebum production and pH value were measured with worldwide-acknowledged biophysical measuring methods at forehead, cheek, neck, volar forearm and dorsum of hand. It was observed, until the age of 50 men’s TEWL is significantly lower than the water loss of women of the same age, regardless of the location. Young men show higher SC hydration in comparison with women. But, whereas SC hydration is stable or even increasing in women over lifetime, the skin hydration in men is progressively decreasing, beginning at the age of 40. Sebum production in male skin is always higher and stays stable with increasing age, whereas sebum production in women progressively decreases over lifetime. Across all localizations and age groups, the pH value in men is below 5, the pH value of female subjects is, aside from limited expectations, higher than 5. Finally they concluded that skin physiological distinctions between the sexes exist and are particularly remarkable with regard to sebum production and pH value. Now two questions arise if we look at the final findings of this first of its kind study;

1. It has been supposed to date that elevated sebum levels remain one of the major causes of the acne in acne vulgaris patients along with the evidence which assumes female population is more prone to the acne than male population. But results of this study clearly indicate that “sebum production in male skin is always higher and stays stable with increasing age” so one must re-think that besides to elevated sebum level, there are some other factors as well which render female population more prone to acne than men.
2. Another important aspect to discuss is pH of skin which according to above study remains below 5 for men and above 5 for women in all age groups. So, one must have to consider a lot about pH adjustment of

the topically applied formulations. It drives towards new discussion that men and women products should be separately designed keeping in view the needs of varying skin physiology. Now a days, a lot of discussion is going on about the pH adjustment of the topically applied formulations for acne, psoriasis and eczema because a badly pH adjusted formulation could worsen the conditions in spite of benefiting to the conditions. Desperately pH adjusted cleansers and soaps are well stood examples of it.

References

Luebberding S, Krueger N, Kerscher M. Skin physiology in men and women: in vivo evaluation of 300 people including TEWL, SC hydration, sebum content and skin surface pH. *International Journal of Cosmetic Science*, 2013, 35, 477–483.

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