

Changes in Skin Morphology Based on Hormonal and Anatomical Differences

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Overview

There are obvious anatomical and physiological differences between men and women. However, the multitude of factors that come into play may also affect the treatment methods that we pursue. Preventative measures such as birth control or Spironolactone may be helpful for acne in women, but not in men. The difference in hormonal changes affects the hormone therapies that are available to an individual. In the same way, we can target preventative measures for aging, and can better educate individuals on the differences in the aging process for men and women. Previous studies have indicated an increased interest in male cosmetic procedures. Despite this, few studies have examined the significance of gender in aesthetic treatments. By discussing the matter further, we hope to bring light to the importance of examining gender in regards to aging, acne, cosmetic procedures, and preventative medicine.

It is crucial for us to investigate the numerous differences between men and women in relation to skin conditions and aging. Although we may like to assume that both genders age identically, there are various factors that play into skin conditions and the aging process. In addition to the extrinsic factors that contribute to these processes (sun exposure, smoking, etc), intrinsic factors must also be considered. For example, anatomical differences such as a larger face and less subcutaneous soft tissue in men. These factors also include biochemical changes, such as genetics and hormonal changes [1].

Regarding skin conditions, we will focus on an extremely common skin condition called Acne vulgaris, which affects nearly all individuals at least once in their lives [2]. This is a common condition in both adolescent and adult individuals. Acne can be

classified by looking at lesion type. For example, noninflammatory acne which consists of open or closed comedones. Or inflammatory acne that forms papules, pustules, or nodules. These classifications can then be used to select the most effective therapy [3]. Acne can cause pain, lesions, and reduction in quality of life due to disfigurement and permanent scarring. However, in order to take preventative measures into account, we must further examine the underlying causes of acne. Turning our attention to endogenous hormones will help us to elucidate the differences between men and women concerning skin health. Although the hormonal changes in aging women are well-studied and documented, the normal sex hormone profile for the aging male is more obscure [1].

Several studies suggest that women are more likely to report acne than men. One study also found that women are four times more likely to experience more severe acne than men [3]. However, acne is a complex condition with a multifaceted pathogenesis and a considerable variation in severity [3]. Inspecting endogenous hormones such as testosterone are important when treating conditions like acne. Androgens (testosterone, androstenedione, etc.), are sex hormones which are produced by both sexes (more so in men). They are also involved in acne development. Raised androgen levels in women with acne have been consistently reported in numerous studies. The manifestation of acne may arise through mechanisms such as increased circulating levels of androgens, increased metabolism of androgens, and increased tissue sensitivity to androgens [1]. An increased level of androgens results in increased sebum production in women, consequently causing increased oil production and breakouts [4].

By recognizing an imbalance in hormones, individuals are able to better address treatment methods to

prevent hormonal acne from occurring. When we see, for example, that serum testosterone levels are higher in women, we may aim for antiandrogen therapy. This therapy is used in order to counter the high levels of androgens in the body. This therapy is not limited to acne, and may be used in other conditions such as female pattern baldness and hirsutism [5]. However, antiandrogens are not as necessary in men.

Preventative skin care measures mean that we must address hormone imbalance. It's also important to note that hormonal imbalance and acne in women may actually be a sign of underlying conditions such as PCOS (polycystic ovarian syndrome) [6]. Because we know that androgens increase sebum production, our treatment must aim to ameliorate that. The favored and most effective hormonal therapies for treatment of acne include birth control pills or spironolactone [6]. These are reliable therapies in women, and many studies find that oral contraceptive pills result in significant reductions in lesion counts across all types compared to placebo [7].

Men and women tend to have different ways in which they age as well. This is also partially due to the abundance of sebaceous glands in men versus women. Despite both genders being exposed to UV rays, intrinsic factors tend to play a prominent role in determining wrinkling as well. Sebum levels tend to drop more than 40% in postmenopausal women, whereas no major changes appear in men [8]. The oil in men's skin is therefore more abundant. The postmenopausal decrease in sebum levels among women might be a feasible explanation for why perioral wrinkles generally develop in women with age, while they do not develop at all in a large percentage of men [8].

Aside from sebaceous gland abundance, men on average tend to have a thicker epidermis than women.

Conflict of interest

The author declares no conflict of interest.

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In a research study conducted, it was found that the stratum corneum of men had a richer blood flow than the stratum corneum of women. This was because the capillary blood flow velocity was shown to decrease in postmenopausal women, therefore better vascularization might have a decelerating effect on the development of wrinkles in the perioral skin. [8].

Despite perimenopause women developing wrinkles earlier, both sexes are prone to develop wrinkles faster in some places than in others. A study selected 200 men and women between the ages of 20 and 70 to evaluate the severity of periorbital, glabellar, and forehead lines using 3D imaging and validated assessment scales. In men, wrinkles manifested earlier and were more severe than in women while in women, periorbital lines were the first visible wrinkles, in contrast to the forehead lines in men. In both sexes, glabellar lines did not clinically manifest before the age of 40 [9]. This links wrinkles to aging in both sexes. Although the development of facial wrinkles happens earlier and is more severe in men, perimenopause seems to particularly affect development in women [9].

Despite women being more prone to developing wrinkles, another study showed wrinkle intensity was lower in women than in men in the groups of subjects less than 60 years old [10]. This takes into account extrinsic factors instead like UV radiation. Female hormonal decreases heighten the UV sensitivity of the skin and wrinkle progress markedly increases with long-term UV exposure, suggesting that female hormones may suppress UV-induced increases in wrinkle development [10]. Despite contrasting views on wrinkle development in men and women, both sexes respond to wrinkling in different ways, some being intrinsic and others being extrinsic.

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