

Male Aesthetics: A Review of Facial Anatomy and Pertinent Clinical Implications

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ABSTRACT

Aesthetics continues to be a rapidly growing field within dermatology. In 2014, Americans spent 5 billion dollars on an estimated 9 million minimally invasive cosmetic procedures. Between 1997 and 2014, the number of aesthetic procedures performed on men increased by 273%. The approach to male aesthetics differs from that of females. Men have a squarer face, a more angled and larger jaw, and equally balanced upper and lower facial proportions. Facial muscle mass, subcutaneous tissue, and blood vessel density are also increased in men relative to women. While many of the same cosmetic procedures are performed in males and females, the approach, assessment, and treatment parameters are often different. Improper technique in a male patient can result in feminizing facial features and patient dissatisfaction. With an increasing number of men seeking aesthetic procedures, it behooves dermatologists to familiarize themselves with male facial anatomy and the practice of cosmetic dermatology in this population.

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INTRODUCTION

The number of aesthetic procedures performed in the United States has skyrocketed in recent years, as trained practitioners are satisfying the wishes of an increasingly interested public. Between 1997 and 2014, there was a 274% increase in the number of cosmetic procedures performed annually.¹ During these same years, the pursuit of non-invasive procedures surpassed that of invasive procedures. In 2014, Americans spent approximately 5 billion dollars on an estimated 9 million non-operative cosmetic procedures. Recent data suggests that this growth is not slowing.¹ According to a 2014 American Society of Dermatologic Surgery study, 5 in 10 adults are considering a cosmetic procedure.²

While the focus in aesthetic medicine has classically been on females, the market for male aesthetics is growing. Between 1997 and 2014, there was a 273% increase in the number of cosmetic procedures performed on men, with neurotoxin and dermal filler being the most common.¹ The number of adult males seeking cosmetic injections has increased by 81% since 2010 and 254% since 2000—totaling 571,307 injections in 2014.¹ Several theories for this increase have been proposed, including a desire to be more competitive and youthful in the workforce, an increase in the social acceptability of cosmetic procedures, and a greater awareness of the safety and efficacy of botulinum toxin and dermal filler. Additionally, cosmetic injections offer immediate results with minimal post-treatment recovery, enabling men to return to work immediately.³

The approach to male aesthetics differs from that of females. Anatomical, psychological, and social factors determine treatment goals. Here we review male facial anatomy to help guide physicians performing noninvasive cosmetic procedures in male patients.

Facial Proportions

The standards of facial beauty vary according to culture and are known to change with time, thus eluding an objective definition. Facial beauty may be characterized by a combination of factors that involve symmetry and aesthetically pleasing proportions. Measurement of the ideal face has been well described and documented since the days of ancient Egypt and classical Greece. A recovered limestone bust of Queen Nefertiti, dating to 1350 BC was designed symmetrically and geometrically using grids of equal sized squares.⁴ In the 5th century BC, Phidias, a Greek sculptor, based his creations on golden sections or rectangles; he used divisions of a line to form ratios of proportion in which the smaller was to the larger segment as the larger was to the whole (1:1.618).^{5,6} This principle has been incorporated into aesthetic models that divide the ideal face into distinct facial units or shapes based on Phidias' principle.⁷

500 years later, in the early Christian era, the Roman architect Vitruvius (circa 70-25 BC) divided the face into horizontal thirds that are equal in size and volume, a concept that was incorporated into Leonardo da Vinci's Vitruvian Man, and a practice that is still performed by many cosmetic physicians (See Figure 1).^{8,9}

The upper third extends from the hairline (trichion) to the glabella, the middle third from the glabella to the subnasale, and the lower third from the subnasale to the inferior most aspect of the chin (menton). The neoclassical canon of facial proportions divides the face vertically into fifths, with the ocular width, the intercanthal distance, and the nasal width all measuring one-fifth (See Figure 2).¹⁰

MALE FACIAL ANATOMY

Sexual dimorphism refers to phenotypic differences between sexes of the same species. In humans, differences in external genitalia, hair growth, muscle mass, and skeletal size are apparent. Sexual dimorphism in facial structure is often less obvious. Women have a smaller skull and more prominent upper facial characteristics, with a gradual taper in the facial silhouette from upper to lower. In contrast, men have a squarer face, a more angled and larger jaw, and equally balanced upper and lower facial proportions. In the following section, male facial anatomy is further described to aid practitioners performing cosmetic procedures in men (See Table).

Upper Third

Forehead

Forehead height and width are greater in men than in women.¹¹ The male forehead has extensive supraorbital bossing, and superior to this, there is a flat area before the convex curvature of the upper forehead begins. In females, there is considerably less or absent bossing, and a more continuous mild curvature.¹²

Eyebrows and Glabella

In women, the eyebrow lies just above the orbital rim. The female eyebrow has an arch, that peaks in the lateral third, and a central medial downward slope with the medial head of the eyebrow lying at or just below the rim.¹³ In males, the eyebrow is flatter in contour and sits lower along the orbital rim.¹⁴ As women age, their eyebrow becomes straighter and moves closer to the eye, appearing more masculine.¹⁵ On average, the inferior border of the male eyebrow is 11 mm above the pupil. Men with deep-set eyes and a prominent supraorbital rim have a slightly lower set brow.¹⁶ The medial supraorbital ridge in men blends into the glabella, resulting in a larger glabellar prominence in men than women.¹⁷ Glabellar width and projection were historically used for skeletal sex determination.^{3,18}

Middle Third

Eyes

Although the orbit is absolutely larger and more round in men, the male orbit is proportionally smaller in relation to the size of the skull.¹⁹ The male upper eyelid crease is positioned 8 mm above the lid margin, whereas in women it is 12 mm above the lid margin.²⁰ The male upper lid, unlike that of the female

lid, tends to be fuller and more redundant. Aging causes a downward shift of the lower eyelid that is more severe in men compared to women.

Nose

The ideal male dorsal nose is wide and straight, whereas in females it is narrow and laterally concave. The contour of the male nasal dorsum follows a straight line from the radix to the tip. In women, there is a subtle 2 mm concavity along this line.²¹ The female nose has an inflection point before the tip starts to elevate, known as the supratip break, which is typically absent in men.²¹ The nasolabial angle ranges from approximately 90°-95° in men and 95°-100° in women, causing a slight upward rotation of the female nasal tip and more nostril show.²¹

Cheek

Compared to the female cheek, the male cheek has more anteromedial fullness, a broader based malar prominence, and an apex that is more medial and subtly defined.²² The frontal and zygomatic processes are wider in males, creating a flatter appearance.²³ The malar prominence in females has a well-defined apex and is located high on the mid face, below and lateral to the lateral canthus.²²

Lower Third

Lips

Labial sexual dimorphism is well reported in the literature. The upper lip is larger than the lower lip in women and older men, while young men have a larger lower lip. In a 2014 Italian study of 20 Caucasian men and 20 Caucasian women ages 21-65, the upper lip was 24.1% thicker in males compared to females (10.8 mm vs 8.7 mm, respectively). The lower lip was 14.2% thicker in males (14.5 mm vs 12.7 mm, respectively); however, this difference did not reach statistical significance.²⁴ After the fifth decade of life, the lips become smaller and thinner in both sexes.²⁵ The ideal male upper lip projects 2 mm beyond the lower lip.²¹

Chin and Jaw

The male mandible, which includes a prominent jaw and chin, is one of the most characteristic features of a masculine face. In a study of British men and women, subjects were asked the gender of a prototypical female face within which male features were digitally grafted. The results showed that the jaw, eyebrows/eyes, and chin, in descending order, effected the most significant change in perceived gender.²⁶ Males have a protruding chin with well-developed lateral tubercles that combine to give a wide, square appearance to the lower jaw.²⁷ Men also have large masseter muscles, which provide further definition. Prominent angulation of the mandibular ramus is typical of the male jaw and is commonly used in skeletal sex determination.²⁸ As men age, the mandible becomes longer and wider in shape.²⁹

FIGURE 1.

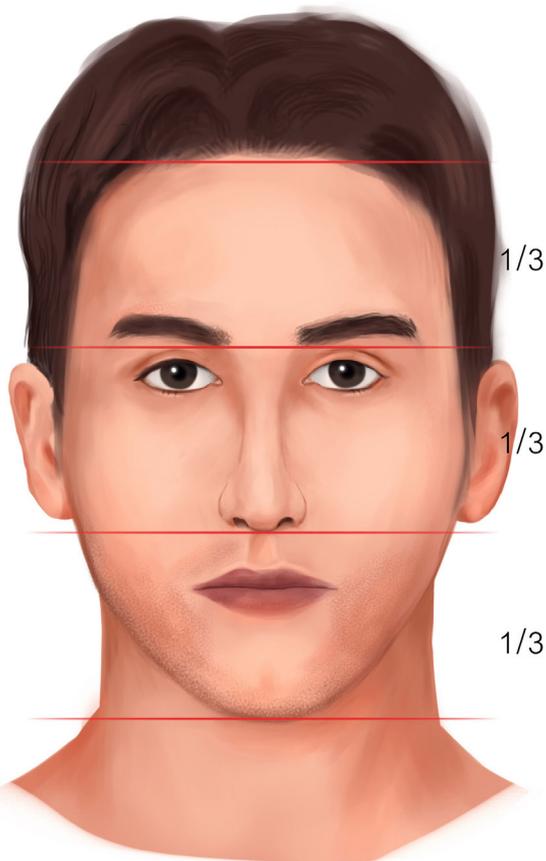
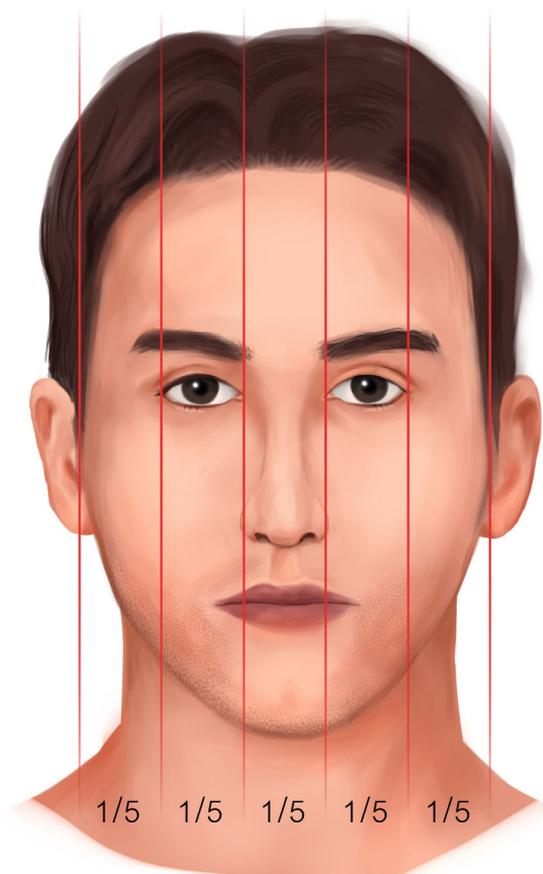


FIGURE 2.



Other Anatomical Considerations

Males and females demonstrate differences in facial muscle movement, with men having larger facial expressions after adjusting for differences in face size.³⁰ Men also have greater upward vertical movement of facial muscles as when smiling or puckering the lips.³¹ Gender based differences in facial muscle movement result in sex differences in the degree and distribution of facial rhytids. In a study of 173 Japanese men and women, males were noted to have more severe wrinkles in all facial areas, except the upper eyelid (no difference) and nasolabial groove (more pronounced in women); young men and older women had deeper rhytids at the oral commissure compared to similarly aged individuals of the opposite sex.³² Men also have less subcutaneous adipose than women, further contributing to the appearance of deep wrinkles in aged males versus fine lines in females.³³ These anatomic differences cause men to appear on average 0.37 years older and women 0.54 years younger than their true ages.³⁴

There is a greater density of blood vessels in the male face than in the female face.³⁵ A Doppler perfusion study demonstrated greater blood flow in men compared to women, mainly due to a greater number of microvessels present.³⁶ This may be related

to the presence of coarse facial hair.³ A dense vascular plexus supports individual hair follicles, and thicker hairs tends to have more capillaries supplying the dermal papilla.³⁷ Consequently, men are more prone to bruising after injections and more likely to develop post-operative bleeding following facial surgery.^{38,39}

Facial aging is usually more noticeable in women than in men, at least in part due to differences in skin thickness and collagen content. The epidermis and dermis are thicker in men than in women.⁴⁰ In a study of 74 Caucasian males and 80 Caucasian females ages 15-93, women had less dermal collagen than men at all ages. Similarly, skin collagen density was decreased in females compared to males. This difference is likely attributable to disparate androgen production, since patients with primary cutaneous virilism have increased skin collagen density.⁴¹

"Young men and older women had deeper rhytids at the oral commissure compared to similarly aged individuals of the opposite sex."

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TABLE**Differences in Male and Female Facial Anatomy**

	Male	Female
Forehead	Larger in size Inferiorly flat and superiorly convex	Smaller in size Continuously convex
Eyebrows	Flat contour Positioned low on a prominent orbital ridge	Arched in the lateral third Positioned high on a less prominent orbital rim
Glabella	Wide and prominent	Narrow and subtle
Eyes	Orbit is large, but proportionally smaller in relation to the skull Upper eyelid crease is 8 mm above lid margin	Orbit is small, but proportionally larger in relation to the skull Upper eyelid crease is 12 mm above lid margin
Nose	Dorsum is wide and straight Absence of a supratip break Nasolabial angle: 90-95° More nostril show	Dorsum is narrow, superiorly concave, and laterally concave Presence of a supratip break Nasolabial angle: 95-100° Less nostril show
Cheek	Apex is medial and subtly defined	Apex is lateral and well-defined
Lips	Lower lip is larger than upper lip in young men, but smaller than upper lip in older men	Upper lip is larger than lower lip for all age groups
Chin	Wider and more prominent	Narrower and less prominent
Mandible	Wider and more prominent	Narrower and less prominent
Subcutaneous Fat	Less	More
Muscles Mass	More	Less
Vasculature	Higher density of blood vessels	Lower density of blood vessels
Skin Layers	Thicker epidermis Thicker dermis Thinner subcutis	Thinner epidermis Thinner dermis Thicker subcutis
Sebum	More	Less

Men also have larger facial pores and produce more sebum than women. Caucasian men have an average of 3 µg of sebum per square centimeter of skin surface, while Caucasian women have 0.7 µg/cm².^{42,43} Sebum helps waterproof and lubricate the skin, and maintains flexibility of the stratum corneum. Men usually find excess sebum undesirable, as it is associated with pore enlargement, greasy-appearing skin and acne.⁴³

CLINICAL IMPLICATIONS

In 2014, the two most common cosmetic procedures performed in men were injections of botulinum toxin type A (BTX-A) and dermal fillers.¹ Successful use of these injectable agents requires a balancing act between masculinizing and feminizing the face,

as overuse or misplaced agents may result in poor cosmetic outcomes.

The presence of larger facial muscles in men requires higher doses of BTX-A to achieve the same cosmetic effects observed in women. A prospective, double-blind, randomized study by Carruthers and Carruthers showed that the glabellar region in men should be treated with at least 40 units of BTX-A, which is twice the standard dose given to women.⁴⁴ When treating forehead rhytides in men, the medial and lateral frontalis should be equally treated to avoid creating an eyebrow arch ("Mephisto sign"), which is feminizing when present in a male patient. Crow's feet in men usually have an inferior fanning pattern due to the relative increased size of the zygomaticus

muscle.⁴⁵ Accordingly, the injection site is low and often near the insertion of the zygomaticus. Superficial microinjections are recommended in this area to avoid inadvertently treating the zygomaticus major and causing an asymmetric upper lip droop. When treating the middle and lower face, the perioral area is not a common injection site due to the relative lack of perioral rhytides in men. Caution must be taken prior to treating masseter hypertrophy in men to ensure that true muscular hypertrophy exists, as opposed to normal lateral flaring of the mandibular ramus.³⁹

Dermal fillers are useful in male patients who struggle with volume loss given their relative lack of subcutaneous fat. Filler can also be used to augment masculine facial features or eliminate deep rhytides. The cheek is a common area of concern for men seeking cosmetic augmentation. Overcorrection, especially by administering too much volume medially or laterally, can result in a feminine appearance. Special care must also be taken when injecting mens' lips, since overfilling, especially the upper lip, is feminizing.

Rhinoplasty is the second most common cosmetic surgery performed in men.¹ For those seeking a non-surgical alternative, soft tissue fillers can be used to augment the radix and nasal dorsum. Dermal filler can also be used to improve definition in the chin and jaw.

CONCLUSION

Male aesthetics is a new frontier in cosmetic dermatology. With the number of men seeking noninvasive cosmetic procedures increasing each year, aesthetic dermatologists should become familiar with male facial anatomy. While the procedures performed in men and women are the same, the application, objectives, and parameters are often very different. Disregarding or minimizing gender when treating a male patient can result in poor cosmetic outcomes and decrease patient satisfaction.

DISCLOSURES

None of the authors have conflicts of interest to declare.

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