

The Aging Face

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INTRODUCTION

We live in a youth-oriented culture, yet there is an aging demographic of baby boomers. Thanks to many advances of modern medicine, people are living longer and remaining healthy and active for a greater number of years. The contradiction of health and a high level of activity with the reflection in the mirror of an aging face is a large part of what drives increasing interest in cosmetic facial surgery. This is embodied in a summary statement made by many patients: "I want to look as young as I feel." Medicine certainly cannot stop the passage of time, but as we begin to understand the changes in anatomy and physiology of the face that accompany aging, we have succeeded in devising strategies of slowing down or even setting back the clock.

AGING OF THE SKIN

The causes of facial skin aging are both hereditary and environmental. When one looks at the thin translucent facial skin of a child with the genetic disease of rapid aging called progeria, there can be no doubt that genetics plays a role in the rate at which the skin ages. The environment can also have a substantial impact. Cigarette smoking has been linked with premature aging of the skin. Better studied are the effects of the sun on skin aging. Ultraviolet light has been shown to generate free radicals in the skin which activate collagenase. Collagenase chews up the long, well-organized collagen fibrils in the dermis into shorter, less organized molecules. This process results in loss of elasticity in the dermis. This loss of elasticity is most evident in the periocular and perioral regions. Treatments such as chemical peels, ablative and nonablative skin resurfacing have been devised to alter skin elasticity and reduce the wrinkles that form in these areas.

Sun exposure also causes clumping of pigment in the skin so that the skin goes from the uniform color of a newborn baby's skin to the blotchy mottled skin

seen in those with actinic damage. Intense pulse light therapy (IPL) or visible light lasers can be used to target clumps of pigmented cells so that the pigment is carried away by the macrophages. The aging of skin also causes a reduction of thickness in the epidermis, dermis and subcutaneous fat. This results in a generalized deflation of the skin as we age. Compare the full cheeks and inflated tight skin of a newborn baby with the gaunt, sunken and deflated appearance of a very elderly person. The realization that aging causes deflation of the face has cosmetic facial surgeons focusing less on removing skin or fat from the face with a scalpel and focusing more on adding volume to the face with fillers or with injections of the patient's own fat.

AGING OF THE DEEPER FACIAL STRUCTURES

The soft tissue of the face is bound to the underlying bone via a series of structures referred to as ligaments. With the passage of time, these ligaments become less robust and begin to allow gravity to cause a slow relentless progression of the face towards the ankles. Descent of the forehead can be addressed using an endoscope and small incisions behind the hairline to elevate the forehead back into a normal position. The upper eyelids gain skin which can be excised with a blepharoplasty surgery. The tendon that elevates the upper eyelid stretches out and can be tightened with ptosis surgery. In the lower lid, the tendons that bind it to



After cosmetic surgery there is less skin in the upper eyelids, and the descending cheek and bulging lower lid fat pads have been repositioned. In addition, some of the fine lines and pigment clumping in the lower eyelids have been reduced.

the orbital rim give way. Laxity of the lower eyelid contributes to entropion (inward rotation) and ectropion (outward rotation) of the lower eyelid which can be corrected using surgical procedures that tighten the lower lid. The cheek fat pad slides inferior, barring the bone of the inferior orbital rim and allowing the lower eyelid fat pads to bulge forward while creating the nasolabial folds. With the new concepts of fat preservation in facial rejuvenation, this is addressed by modern surgeons by repositioning the lower eyelid fat and by elevation of the midface, as well as adding volume back to the midface with fillers. Descent of the lower face causes jowl formation. Elevation of the lower face with a miniature facelift can revert the squared bulldog-like jawline back to its youthful round configuration.

FACIAL REJUVENATION

Facial rejuvenation surgery, like all surgical endeavors, is a discipline. Like all disciplines in medicine, it involves a combination of art and science. Mastering the science begins with a basic understanding of the alterations in anatomy and physiology which underlie a patient's concerns and an armamentarium of procedures aimed at addressing these concerns. Facial appearances are central to one's identity and impact both how one is perceived by others and how one perceives themselves. An understanding of these perceptions is the key to mastering the art of facial rejuvenation. ■