# Contemporary Concepts in Brow and Eyelid Aging

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### **KEYWORDS**

• Dermatology • Facial rejuvenation • Brow aging • Eye aging • Aging face

### **KEY POINTS**

- Aging is a 3-dimensional process, with changes in multiple tissues contributing to the overall effect.
- Patients most commonly correlate aging changes with expressions of anger, sadness, and fatigue.
- The role of volume loss in the clinical changes observed in the aging face is becoming widely appreciated. Mastery of volume replacement has become essential to the successful practice of esthetic medicine.
- Lifting techniques alone, without addressing volume loss, can no longer adequately address the aging process in the upper third of the face. In fact, this approach may actually exacerbate, rather than ameliorate, the aging process.
- Rejuvenation of the eyelids and eyebrows requires an understanding of the interrelationships between these and other facial structures to ensure optimal outcomes.
- Anatomy informs concepts, concepts inform technique, and technique determines outcomes.

## INTRODUCTION

Current literature suggests that the aging process is occurring in all tissue structures of the face and that a change in one area may greatly influence the neighboring tissues, leading to a cascade of secondary events. The central role of volume loss and deflation in the aging face, rather than ptosis alone, has been clearly illustrated by Lambros¹ in a longitudinal photographic analysis of more than 100 patients spanning an average period of 25 years. These studies have eloquently demonstrated that volume loss in fact mimics gravitational descent.

The age-related changes in the eyelid and eyebrow continuum, similar to other regions of the face, should be thought of as a 3-dimensional construct with deflation rather than ptosis being the primary factor in the aging process. Esthetic facial rejuvenation has traditionally focused on surgical procedures, which are based on a paradigm of removing and lifting "excess" tissues to

counteract gravitational changes. Open and endoscopic browlifting techniques, as well as "nonsurgical" eyebrow lift with chemodenervation, have been widely used in clinical practice. Approaching the aging face from the standpoint of volume loss invokes an entirely different paradigm of rejuvenation. Instead of simply excising and lifting the tissues, the volume paradigm invokes the concept of "filling" the face. The focus of this article, outlining current concepts in the aging brows and lids, therefore focuses on this current "evolution" to the 3-dimensional construct. Although we often look for ideals, such as the perfect cheek, perfect lip, or perfect brow position, there is likely no singular esthetic that fits every individual face. Thoughtful analysis of the underlying anatomy, ethnicity, gender, and goals of each patient will greatly enhance our ability to address sitespecific corrections to achieve optimal and natural-looking results. For this reason, relevant anatomy is reviewed in detail here.

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### YOUTHFUL AND AGING BROWS AND LIDS

In youth, the 3-dimensional surface contours of the face predominantly reflect light. Volume changes over time result in broken reflections with intervening shadows. This is beautifully illustrated in Fig. 1, which shows 2 pictures of the same woman, one from her high school years and the other 37 years later.2 The profound global volume loss in the older photograph is easy to appreciate. The youthful oval face in the frontal view dramatically flattens with age. The young eye appears long and full, the bony orbit is not visible, the skin is elastic and thick, most of the upper lid is concealed by the full brow, with only a few millimeters of upper lid show. The upper lid sulcus lacks a shadow, and the eye has an overall "almond" configuration, with the lid margin, lid crease, and eyebrow all parallel.

All of these characteristics are affected by aging in predictable ways. In the older photograph, we see brow deflation that does not result in significant brow ptosis, but rather results in the brow laying flat against the orbital rim. Shadows develop below the brow and in the concave temple. As the upper lid deflates, a fold of skin develops where there was once fullness, and the shadow of the upper lid sulcus emerges. With increasing age, this fold of upper lid skin often droops and may encroach on the lash line, completely effacing

any visibility of the upper lid ("hooding"). The eyelid skin may also slip into the lid crease, revealing the upper lid veiled in youth by the full brow. Often this is initially most pronounced medially resulting in the so-called "A-frame" deformity.

More than 20 years ago, Van den Bosch and colleagues<sup>3</sup> collected and analyzed data on eyeball and eyelid position of 320 men and women, equally divided into 10-year age cohorts between the ages of 10 and 89 years, and found that aging mainly affects the size of the horizontal eyelid fissure, which lengthens by about 10% between the ages of 12 and 25, and then shortens by almost the same amount between middle age and old age. Additional findings from their study were a higher skin fold (meaning increased upper lid show), and higher eyebrow position in both sexes. Sagging of the lower eyelid was noted, especially in men. These changes seen with aging (an increased upper lid show, which makes the eye look taller vertically, in combination with a horizontal shortening) result in a perceived "rounding" of the eye.

These changes are extremely well illustrated in Fig. 2, taken from Lambros' article on volumizing the brows. The top pair of pictures of the same woman at 21 and 64 years old demonstrate how the eyes have an almost "almond"-shaped appearance in youth and a more rounded configuration with aging. In the middle row, a photograph of





Fig. 1. The concept of aging is shifting from 2-dimensional to 3-dimensional, as illustrated by these photographs. (A) High school photograph exhibiting fullness and highlights. (B) The same person 37 years older. (From Glasgold M, Lam SM, Glasgold R. Volumetric rejuvenation of the periorbital region. Facial Plast Surg 2010;26:3; with permission.)

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