Received: 10 May 2024 | Accepted: 10 May 2024

DOI: 10.1111/srt.13776

LETTER TO THE EDITOR

WILEY

Assessment of supine positioning and smiling dynamics before dermal filler injections

Dear Editor,

The expanding clinical applications of dermal fillers have significantly transformed the approach to facial rejuvenation, particularly in treating wrinkles and restoring facial volume. Initially, these interventions utilized fillers with varied particle sizes and consistencies, primarily to enhance skin quality and address challenging areas such as around the eyes and mouth, targeting different types of wrinkle lines. However, with the advent of fillers characterized by high viscoelasticity, practitioners have been enabled to adopt a comprehensive volumetric approach that more holistically addresses facial contours.

To achieve a balanced and harmonious appearance, it is imperative to consider more than just a face at rest; practitioners must aim for an aesthetic that appears natural across various expressions. This requires a focus on the anatomical positioning and structure of the soft tissues overlying the facial bones, taking into account the changes that occur with aging, rather than solely focusing on skeletal structures.[1] Therefore, an accurate analysis of the face, aligned with contemporary aesthetic standards and tailored to the individual differences of each patient, becomes essential.

In designing treatments that enhance the facial volume, the goal is not merely to add mass but to mimic the natural beauty of a dynamic expression, such as a smile. The ideal facial configuration, therefore, is one that naturally occurs during smiling (Figure 1). Analysis shows that during a smile, the contraction of lip elevator muscles causes an oblique upward pull on the midfacial and lower facial skin and soft tissues. This results in the tissues of the cheek area being pulled forwards and upwards, while tissues near the nose and mouth are drawn laterally and upwards. Such movement creates a lifting effect that makes the lower face appear narrower and more V-shaped, pulling up sagging tissues and enhancing the fullness of the anterior cheek areas.

Emulating these soft tissue changes during filler treatments can lead to a naturally oval face with a soft, smiling-like appearance. This concept has shifted the focus of facial aesthetic treatments from simply volumizing the facial soft tissues to achieving a noticeable lifting effect. Commonly, the most noticeable change in the face due to aging is thought to be wrinkles; however, a more significant alteration is the change in facial shape, especially in areas where loose tissues susceptible to gravity accumulate.[2]

As the elasticity of the skin and soft tissues decreases with age, and the supporting deeper fat layers lose volume, the effect of gravity on these loose tissues intensifies, causing them to sag noticeably while standing. However, when changing the orientation of the face by lying down, the direction of gravity also changes, altering the position of the loose tissues and making the overall shape of the face appear as though it has undergone a lifting procedure. This phenomenon has been quantitatively assessed using 3D cameras to observe the direction and degree of movement of soft tissues and the lifting vectors when patients lie flat. It was found that in certain facial regions, the density and hardness of tissues increase under the force of gravity, and loose soft tissues migrate towards areas with denser tissues, resulting in a lifting effect and volume shift (Figure 2).

Thus, understanding how different facial tissues move and change both while standing and lying down is crucial for achieving the most natural lifting effect. Aiming to replicate the appearance of taut tissues while supine during standing is a key goal of using filler treatments for natural lifting. These treatments not only provide volume but also cre-

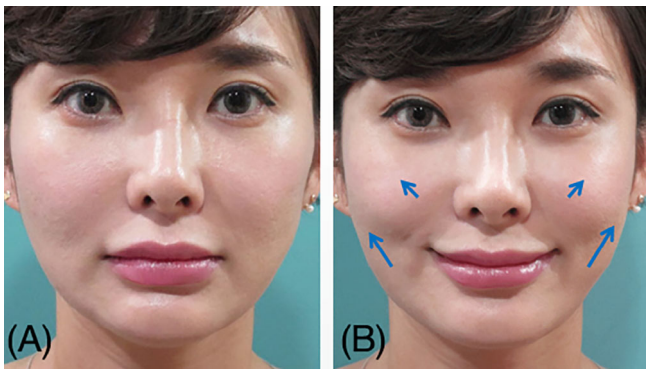

FIGURE 1 During a smiling expression compared to no facial expression (A), specific physiological alterations in facial soft tissue are observed. The anterior malar area, which is anatomically located below the eyelids and extends toward the upper cheeks, exhibits an anterosuperior movement (B). This biomechanical shift contributes to the elevation of the cheekbones, enhancing the overall expressiveness of the eyes. Simultaneously, the paranasal and perioral areas – encompassing the regions around the nose and mouth – undergo a laterosuperior movement. These coordinated movements of soft tissues are essential in amplifying the smile, producing a pronounced expression that integrates both aesthetic appeal and functional dynamics of the facial musculature.

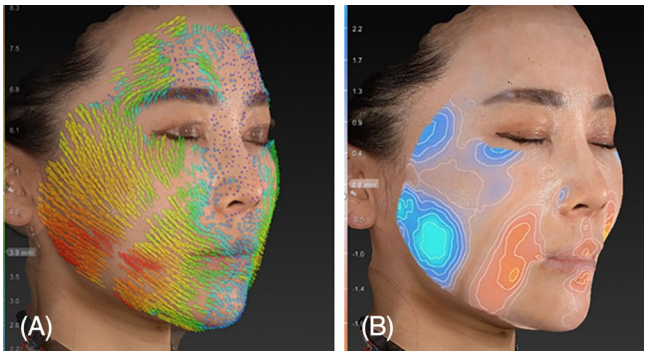

FIGURE 2 The variations in tissue displacement when comparing the prone and supine positions. To ensure a natural-looking outcome in lifting procedures, it is essential to assess the prone position to accurately identify and address issues. This figure includes an image (A) depicting the lifting vector and an image (B) demonstrating changes in volume.

ate a tightening effect on the skin, which is maximized when the face is dynamic, such as when smiling or making other expressions.[3] Additionally, when filler treatments are performed to create a lifting effect, even the same amount of filler makes the volume appear more pronounced, enhancing the overall aesthetic outcome.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest with respect to the research, authorship, and publication of this article.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article. This study was conducted in compliance with the principles set forth in the Declaration of Helsinki.

Gi-Woong Hong[1]
Kyu-Ho Yi[2,3]

[1]*Sam Skin Plastic Surgery Clinic, Seoul, South Korea*
[2]*Division in Anatomy and Developmental Biology, Department of Oral Biology, Human Identification Research Institute, BK21 FOUR Project, Yonsei University College of Dentistry, Seoul, South Korea*
[3]*Maylin Clinic (Apgujeong), Seoul, South Korea*

Correspondence
Kyu-Ho Yi, Division in Anatomy and Developmental Biology, Department of Oral Biology, Human Identification Research Institute, BK21 FOUR Project, Yonsei University College of Dentistry, 50-1 Yonsei-ro, Seodaemun-gu, Seoul 03722, South Korea.
Email: kyuho90@daum.net

ORCID

Kyu-Ho Yi https://orcid.org/0000-0001-5572-1364

REFERENCES

1. Lim TS, Wanitphakdeedecha R, Yi KH. Exploring facial overfilled syndrome from the perspective of anatomy and the mismatched delivery of fillers. *J Cosmet Dermatol*. 2024;23(6):1964-1968.
2. Yi KH, Lee JH, Hu HW, Kim HJ. Anatomical proposal for botulinum neurotoxin injection for glabellar frown lines. *Toxins (Basel)*. 2022;14(4):268.
3. Trévidic P, Trévidic T, Imanilov A, Criollo-Lamilla G. Midface multilayering filler injection technique: understanding of the dynamic facial anatomy through a "smiling cadavers" anatomical study. *Plast Reconstr Surg*. 2022;149:1326-1336.