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Where Do We Look?

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efficiency of the muscle contraction. This predictably produces a more beautiful smile by elevation of the apparent lid-cheek junction with smiling, reducing the pretarsal bulging of the orbicularis oculi, and softening of the crow's feet with smiling.

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DISCLOSURE

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Where Do We Look? Assessing Gaze Patterns in Cosmetic Face-Lift Surgery with Eye Tracking Technology

Sir:

With great interest we have read the article by Cai et al. entitled “Where Do We Look? Assessing Gaze Patterns in Cosmetic Face-Lift Surgery with Eye Tracking Technology” in *Plastic and Reconstructive Surgery*.¹ They instructed 36 subjects—ranging from laypersons to attending plastic surgeon—to look at preoperative and postoperative face-lift images and to judge them with regard to the aesthetic quality of the procedure as based on a Likert scale while eye-tracking equipment tracked their gaze and analyzed the distribution of their attention. Whereas the professionals focused

quickly on the cheeks, chin, and neck and had evenly distributed gaze across the entire face, laypersons looked more to the central area of the face.

Their statement that evaluation of gaze patterns may contribute to a better understanding of favorable cosmetic outcomes indeed is fully right. However, what is even more important to realize is that the central area of the face has a significant impact on our judgment of beauty of a face, even more than the jaw and neck line: “beauty is around the eyes of the beheld.” In the late 1980s, I (B.v.d.L.) remember a statement of an old and very experienced plastic surgeon from England who told me (then a just starting facial plastic surgeon) that to show to your potential clients your best face-lift results you should show them preoperative and postoperative photographs of people that also had eyelid surgery performed next to their face lift.

In former days, psychologists had already demonstrated, also by means of eye-tracking studies, how one looks at other faces: mainly to the centropalpebral area (around the eyes, nose, and lips).² Also, there is a study by two anthropologists who evaluated opinions regarding beauty with regard to faces of Western women as judged by two Indian tribes from South America that had hardly ever seen people from the Western world. All of them found that the eyes, lips, and a smooth skin were uniformly seen as the most beautiful aspects of female faces; the judgment of these Indian people was comparable to the judgment of people from America, Russia, and Brazil.³ Recently, we have also demonstrated the importance of a certain aesthetic balance around the eyes, “the orbital oval balance principle,” whereby an equal distance from the center of the pupil to the lower lid-cheek junction and eyebrow is associated with optimal facial appearance.⁴ A youthful face therefore is characterized by a low eyebrow position and a high lid-cheek junction. Moreover, the periorbital area also had a significant effect on the perception of facial expressions such as happiness and tiredness.^{4,5}

Thus, to be more successful in face-lift surgery with regard to what our clients and potential clients think about it, we should also treat and improve the centropalpebral area of our clients instead of only focusing on the jaw and neck line: this “beauty is around the eye of the beheld” principle probably also explains why performing only minilifts or other types of limited face lifts does not always result in great client satisfaction unless also significant treatment and improvement of the centropalpebral area and skin texture has been reached.⁶

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Reply: Where Do We Look? Assessing Gaze Patterns in Cosmetic Face-Lift Surgery with Eye Tracking Technology

Sir:

We thank the authors for their interest in our article on assessing gaze patterns in cosmetic face-lift surgery with eye-tracking technology and for your thoughtful comments on our study.¹ We certainly agree that the central region of the face has a significant impact on viewer assessments of beauty and that this region needs to be evaluated when considering the overall aesthetics of a face. We were not aware of the recent work demonstrating the orbital oval balance principle and appreciate the authors' efforts in defining the core traits of a youthful face. The emphasis on the periorbital aesthetic is also in line with our findings of central tendencies for laypeople as well, even if not explicitly measured in our study. Our study was intended specifically to evaluate the impact of face-lift procedures on aesthetic assessments and did not include patients who had undergone eyelid surgery, but we recognize that this would be an interesting avenue to explore in future studies.

In addition to the cheeks and neck, our study also included the eyes, nose, and mouth as areas of interest for the gaze analysis. In viewers with less surgical experience (i.e., laypersons and medical students), we saw that they spent a disproportionate amount of time looking at the central region of the face, even when they were specifically informed that patients had undergone a face-lift procedure. This finding is in agreement with the existing psychology literature that was cited. Interestingly, this gaze pattern was not seen in more experienced viewers (i.e., plastic surgeons), who spent more focused gaze time on the surgical areas. Although attention to the central face has been shown to be highly conserved across cultures, our investigations also suggest that these gaze patterns can be influenced and modified by characteristics such as one's level of surgical training, one's personal experience with cosmetic plastic surgery, and even one's gender identity. We thank Dr. Gülbitti and colleagues for the opportunity to respond to their comments on our work.

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