

# Deep-Plane Face-lift vs Superficial Musculoaponeurotic System Plication Face-lift

## A Comparative Study

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**Objective:** To evaluate deep-plane face-lift vs superficial musculoaponeurotic system (SMAS) plication face-lift in correcting the melolabial fold, jowl, and cheek areas of the face in short-term follow-up.

**Design:** Masked, randomized review by 4 board-certified facial plastic surgeons experienced in rhytidectomy of full-face (frontal, oblique, and lateral views) before-and-after photographs of 20 patients who underwent deep-plane face-lift and 20 who underwent SMAS plication face-lift. Participants rated the melolabial fold, jowl, and cheek areas for overall correction of the deformities pertaining to the aesthetic results for deep-plane vs SMAS plication face-lift. Categories were excellent, good, average, acceptable, and poor.

**Results:** Three categories of results were determined: best, average, and poorest. Overall, SMAS plication face-lifts scored higher than deep-plane face-lifts. In the best category, there were more SMAS plication face-lifts. In the average category, there were more deep-plane face-lifts. In the poorest category, there were equal numbers of deep-plane and SMAS face-lifts. Patients were divided into the following age groups: 50 to 59, 60 to 69, and 70 to 80 years. In the 2 younger groups, SMAS face-lifts scored higher than deep-plane face-lifts. In the oldest group, deep-plane face-lifts scored slightly higher than SMAS face-lifts.

**Conclusion:** Deep-plane face-lift does not seem to offer superior results over SMAS plication face-lift in patients younger than 70 years.

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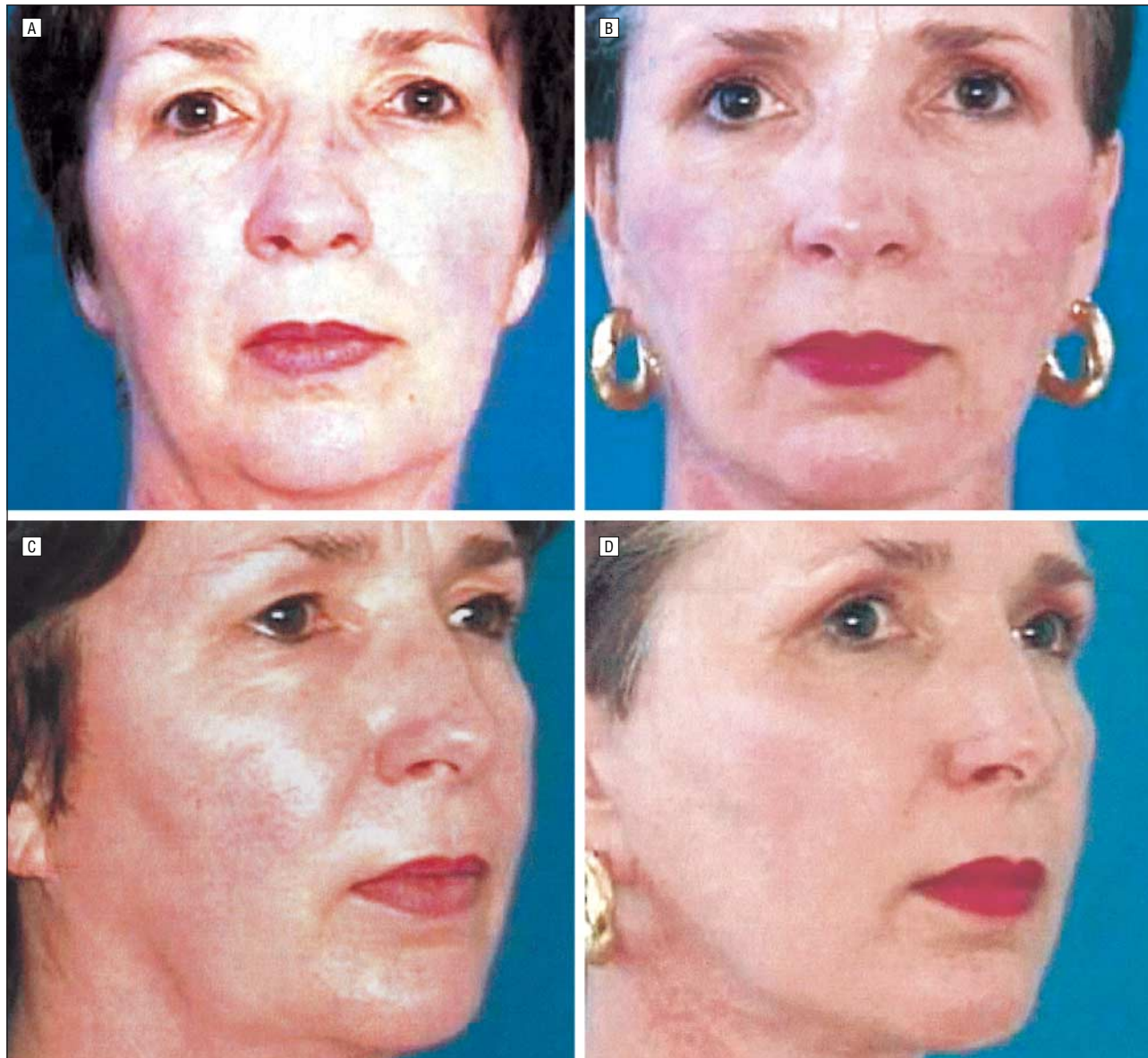
**S**UBCUTANEOUS DISSECTION AND skin excision to lift the face was first described at the beginning of the 20th century, with very modest excisions.<sup>1-3</sup> Subsequent studies,<sup>4-6</sup> although more extensive, still involved basically a subcutaneous face-lift. This situation prevailed until 1974, when Skoog<sup>7</sup> described a procedure for elevating the platysma in the neck and lower face without detaching the skin. Just 2 years later, Mitz and Peyronie<sup>8</sup> first described the deep layer of the superficial facial fascia and coined the term “superficial musculoaponeurotic system” (SMAS). Since the mid 1970s, there have been countless articles<sup>9-13</sup> describing various face-lift procedures involving manipulation of the SMAS-platysma complex and other descriptions involving dissection in the deep planes of the face. Although other procedures have been developed, including subperiosteal face-lift<sup>14</sup> and triplanar face-lift,<sup>15</sup> most surgeons in their standard operations tend to prefer SMAS plication or deep-plane face-lift; some physicians use both of the latter procedures, depending on the circumstance of the patient. Hamra<sup>16</sup> has been a major innovator and proponent of deep-

plane face-lift among plastic surgeons. Kamer,<sup>17</sup> who learned the deep-plane technique from Hamra, is a major advocate among facial plastic surgeons; Baker,<sup>18</sup> a plastic surgeon, and Mangat, a facial plastic surgeon, have been proponents of the SMAS approach.<sup>19</sup> It was believed by many surgeons that the results of SMAS face-lift were outstanding and long-lasting for the neck but not as good or more temporary for the melolabial fold region. Proponents of deep-plane face-lifts have suggested that results in the melolabial fold are better from an aesthetic point of view and longer lasting than with SMAS face-lifts.

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Between 1972 and 1996, one of us (F.F.B.) performed SMAS-platysma plication-type face-lifts. In 1997, there was a shift toward performing more deep-plane face-lifts, as well as SMAS face-lifts. With a documented series of SMAS plication and deep-plane face-lifts, a study was designed to evaluate the early (6- to 18-month) postoperative results. We objectively evaluated correction of the melolabial fold, jowl, and cheek skin by deep-

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**Figure 1.** Preoperative frontal (A), postoperative frontal (B), preoperative oblique (C), and postoperative oblique (D) facial views of a 53-year-old woman who underwent bilateral upper eyelid blepharoplasty, bilateral transconjunctival lower eyelid blepharoplasty with laser resurfacing of the lower eyelids, and cervicofacial rhytidectomy (superficial musculoaponeurotic system technique) with submental liposuction.

plane vs SMAS face-lift. A review of the literature did not find a study that attempted to do this. One study<sup>20</sup> compared the rate of tuck-up procedures after SMAS vs deep-plane face-lifts, but it was based on subjective criteria.

#### METHODS

Between October 1, 1997, and April 30, 1999 (19 months), one of us (F.F.B.) performed 101 rhytidectomies (60 deep-plane face-lifts and 41 SMAS plication face-lifts). This study reflects the experience of the senior author's (F.F.B.) techniques, which may not apply to other surgeons' variations of deep-plane and SMAS plication face-lift. Preoperative and postoperative photographs in frontal, oblique, and lateral views were obtained for 40 patients; these patients had at least 6 months of recovery time. Twenty of these patients underwent SMAS plication face-lift and 20 underwent deep-plane face-lift. Patients were randomly selected from a pool of patients who were available for postoperative photographs. In a randomized manner, the sets of photographs were numbered 1 through

40. Four sets of photographs were made. The sets were then sent to 4 board-certified facial plastic surgeons, each of whom is an experienced, recognized expert in rhytidectomy. Participants were asked to evaluate the aesthetic improvement in the melolabial fold, jowl, and cheek areas. Some patients had also undergone other facial procedures, such as forehead lift, blepharoplasty, and laser resurfacing of the perioral region and lower eyelid regions. Participants were asked to disregard these areas and to concentrate on the region in question only. Participants were asked to remember that the object of surgery is not to totally efface the melolabial fold, since this gives an unnatural look. Rather, they were to judge the result for naturalness and how it achieves a more youthful and rested appearance. They were asked to rate the results as excellent, good, average, acceptable, or poor (**Table**).

#### RESULTS

The survey results were tabulated as follows: a score of 5 was given to an excellent result, 4 to a good result, 3



**Figure 2.** Preoperative frontal (A), postoperative frontal (B), preoperative oblique (C), and postoperative oblique (D) facial views of a 60-year-old woman who underwent transconjunctival lower eyelid blepharoplasty with laser resurfacing of the lower eyelid, cervicofacial rhytidectomy (deep-plane technique) with corset platysmoplasty, and temple lift and perioral laser resurfacing.

**Aesthetic Result Categories for the Melolabial Fold, Jowl, and Cheek Areas After Rhytidectomy**

Category	Point Value	Description
Excellent	5	This is a result that is achieved for a particular area that is as good a result as one can expect
Good	4	This is a result that you would be pleased with, and you feel that the patient would be pleased with you
Average	3	This is a result that you think would be average
Acceptable	2	This is a result that you think would be okay but below average
Poor	1	This is a result that you think would not be acceptable, and you probably would want to do more surgery

to an average result, 2 to an acceptable result, and 1 to a poor result. The overall average score was 3.75 for SMAS face-lifts and 3.64 for deep-plane face-lifts.

Based on the scores, patients were then divided into 3 categories. The best category had scores greater than 4.00. The average category had scores between 3.00 and 3.99. The poorest category included scores less than 3.00. There were 17 patients each in the best and average categories and 6 in the poorest category. In the best category, there were 10 SMAS and 7 deep-plane face-lifts (average patient age, 62.3 and 68.3 years, respectively). In the average category there were 7 SMAS and 10 deep-plane face-lifts (average patient age, 66.9 and 68.6 years, respectively). In the poor category, there were 3 SMAS and 3 deep-plane face-lifts (average patient age, 69.7 and 61.7 years, respectively).

Patients were further divided into the following age groups: 50 to 59 years, 60 to 69 years, and 70 to 80 years. In the youngest group, deep-plane face-lifts had an average score of 3.00 and SMAS face-lifts had an average



**Figure 3.** Preoperative frontal (A), postoperative frontal (B), preoperative oblique (C), and postoperative oblique (D) facial views of a 73-year-old woman who underwent bilateral upper eyelid blepharoplasty, bilateral transcutaneous lower eyelid blepharoplasty, and bilateral cervicofacial rhytidectomy (superficial musculoaponeurotic system technique) with submental liposuction.

score of 4.30. In the middle age group, the average scores were 3.30 for deep-plane face-lifts and 3.81 for SMAS face-lifts. The average scores for the oldest age group were 3.79 for deep-plane face-lifts and 3.29 for SMAS face-lifts. Overall, the 5 best scores included 4 SMAS face-lifts, with an average patient age of 55 years (**Figure 1**), and 1 deep-plane face-lift in a 61-year-old patient (**Figure 2**).

An exact  $\chi^2$  test was used to test for an association between the type of face-lift (deep-plane or SMAS) and the percentage of average ratings in the poorest, average, and best groups. No statistically significant association was found ( $P = .70$ ).

The data were analyzed similarly for the 3 age groups. In the youngest group, no association was found between the type of face-lift and the percentage of average ratings in the poorest, average, and best categories ( $P = .33$ ).

Twenty (12 deep-plane and 8 SMAS) face-lifts were performed in the middle age group. No association was

found between the type of face-lift and the percentage of average ratings in the poorest, average, and best categories ( $P = .83$ ). The means of the average ratings did not statistically differ ( $P = .45$ ), but there was a trend toward the SMAS technique.

Fourteen (7 deep-plane and 7 SMAS) face-lifts were performed in the oldest group. No association was found between the type of face-lift and the percentage of average ratings in the poorest, average, and best categories ( $P = .59$ ). The means of the average ratings also did not statistically differ ( $P = .17$ ), but there was a trend toward deep-plane face-lift.

#### COMMENT

In the poorest category, patients who underwent SMAS face-lift tended to be older (**Figure 3**) and those who underwent deep-plane face-lift tended to be younger. Para-



**Figure 4.** Preoperative frontal (A), postoperative frontal (B), preoperative lateral (C), and postoperative lateral (D) facial views of an 84-year-old woman who underwent forehead rhytidectomy and cervicofacial rhytidectomy (superficial musculoaponeurotic system technique) with submental liposuction.

doxically, 2 patients 70 years and older in the SMAS group were in the best category (**Figure 4**) and 1 patient in the deep-plane group was in the poorest category (**Figure 5**).

Although the results do not show statistically significant differences, there are trends among the 3 age groups. Patients aged 50 to 69 years had a trend toward obtaining a better result from SMAS plication face-lift. In patients aged 70 to 80 years, the deep-plane face-lift had a trend toward better results.

In conclusion, the goal of rhytidectomy is to improve facial appearance without causing any permanent adverse effects, such as facial nerve damage. Deep-plane face-lift, even when performed by experienced surgeons, places branches of the facial nerve at more risk during dissection than the SMAS plication technique. In fact, Hamra<sup>21</sup> recently published his results of a long-term study to decrease the nasolabial fold by repositioning the malar fat. The article concludes by stating that “only direct excision

will produce a permanent correction of the aging nasolabial fold.”<sup>21</sup> The results of the present study reveal that deep-plane face-lift does not offer superior results over SMAS plication face-lift in patients younger than 70 years. However, deep-plane face-lift may give slightly superior results in patients 70 years and older. Based on the objective results of this study, SMAS plication face-lift is recommended in patients younger than 70 years.

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**Figure 5.** Preoperative frontal (A), postoperative frontal (B), preoperative oblique (C), and postoperative oblique (D) facial views of a 51-year-old woman who underwent bilateral upper eyelid blepharoplasty, bilateral transconjunctival lower eyelid blepharoplasty with canthal tightening and laser resurfacing of the lower eyelid, and cervicofacial rhytidectomy (deep-plane technique) with submental liposuction.

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