Volumetric sculpturing of the lower two thirds of the face and neck is the contemporary attempt to beautify the facial appearance which has been called for many decades classic facelift. Since the 1970s we have done it in two layers, including superficial musculo-aponeurotic system (SMAS) manoeuvres, and since the early 1990s the third dimension has been included and we have started to think and act volumetrically.

Operative arrangements vary from surgeon to surgeon and from one surgical school to another. Some Brazilian schools prefer endotracheal anaesthesia: they suture sterile operative cloths (sterile operative covering) to the skin and shave the hair where the incisions will be made. They also mark the sinuous line from the cheek bone, lateral to the mouth angle, reaching the paramedical line on the neck, where the perforant vessels should not be damaged as they provide blood supply for the skin flap. It is the border till which the undermining would be safe.

European patients mostly prefer not to shave their hair. We band tufts of hair with rubber bands to liberate the incision line and prefer intravenous sedation combined with local anaesthesia.
**Fig. 36.1.**  
*a* Incision line reaches the temple: temporal lift and correction of crow’s-feet can be adjusted.  
*b* Design of incision lines if access for correction of lower two thirds of the face (and neck) has been planned.  
*c* Retroauricular incision line *(red)*, vectors of traction and presumed superficial musculo-aponeurotic system *(SMAS)* flap.  
*d* Extent of skin mobilization in minimal-invasive, deep-intensive *(MIDI)* facelift *(red dotted line)* and face–neck-lift *(blue dotted line)*

**Fig. 36.2.**  
*a* Shaved incision lines; sutured operative covering to the skin; protective plastic plug in the ear.  
*b* Personal way of operative arrangement for facelift
36.3

Preferable Incision Lines

A scalpel blade is mostly used to make incisions for facelift. If one has a 4.0 MHz radiofrequency instrument, it is possible to divide the skin by touch, without any pressure on the skin and without bleeding.

If we incise the border of the hair-bearing skin, we should cut the skin perpendicular to the hair roots. This will allow the hair to regrow, otherwise we will have a more visible scar at the hair-bearing skin border.

If female patients have more hair in the preauricular region, similar to male hairy pattern (like sideburns), it is desirable to remove this part of the hair-bearing skin and it will look more feminine through appropriate planning of excisions.

After facelift surgery comes the traction of the skin and SMAS flap on the ear and frontal underlying Loré fascia in the caudal direction, so we can presume the dislocation of the ear downwards. Anticipating that fact, we can prevent this by excising a smaller or larger triangle of skin in the direct supraauricular region. We make a preauricular incision in men 3–5 mm pretragal. This scar will be hardly visible because the border of the sideburns will just correspond to this scar and will hide it accordingly.

In women it is of advantage to make a retrotragal incision, which is very unobtrusive. To do so we trim the skin miniflap which surrounds the tragus – we have to remove excess fat below this skin flap. Additionally it is advisable to make the “dimple suture” which takes a bit of skin-flap base and the perichondrium at the frontal base of tragus. In this way, the tragus will have its projection. Otherwise it would have an “amputated” look.

Fig. 36.3. Precise incision lines with radiofrequency treatment without bleeding
Fig. 36.4. **a** Unobtrusive temporal prehairline scar. **b** Improper, visible temporal prehairline scar (another clinic). **c** Prehairline scar: normally not visible. **d** If we seek the terrace prehairline scar, we may find it.

Fig. 36.5. Reducing excess hair-bearing skin of the preauricular region in a woman.
Fig. 36.6. a, b Excision of supraauricular skin triangle prevents caudal dislocation of the ear due to the SMAS and skin traction. We make a pretragal preauricular incision in men. c Such a scar is already hardly visible after 12 days.

Fig. 36.7. a Subdermo-epichondrial suture for creating a pretragal dimple. b Intradermal 3.0 Prolene suture. c Proper tragus projection 2 weeks postoperatively.
When we finish the surgery, we leave anchorage sutures supraauricular (one) and retroauricular (two), where main tension of the skin flap is. An additional anchorage suture with slight tension is above the tragus. There should be no tension at the ear lobe.

When we perform retrotragal incision, our radio-surgery needle or scalpel blade should “jump” on the back side of the concha. Traction of the retroauricular skin flap will pull the scar into the retroauricular sulcus. If our incision were in the sulcus, the skin flap would pull it back and downwards, and it would become visible.

We perform subcutaneous instillation of dilute local anaesthetics with adrenalin with a blunt 1.6-mm-diameter cannula. When we were using a sharp long needle for that purpose, sometimes we cut small vessels and produced haematomas. Even damage of nerve branches could occur. Since we have used blunt cannulas we have had almost no haematomas.
Fig. 36.9. One anchorage supraauricular and two anchorage retroauricular sutures; one anchorage suture supratragal with semitension. No tension at the ear lobe at all!

Fig. 36.10. a Flattened tragus after face-lift in another office. b Reshaped tragus through advanced and trimmed skin miniflap and “dimple suture”
Fig. 36.11. a Retrotragal incision “jumping up” onto the back of concha. b Another patient – same procedure. c Advanced retroauricular skin flap, fixed with two anchorage sutures to be resected at the level of the retroconchal skin incision. d Advanced supra-, pre-, and retroauricular skin flaps to be resected.

Fig. 36.12. a Unobtrusive scar settled down into the retroauricular sulcus, 2 years postoperatively. b Retroauricular hair margin scar hardly visible 1 year postoperatively. c Preauricular scar above and below the tragus; unobtrusive proper tragal projection and hidden retrotragal scar.
**Skin Flap Preparation**

With local anaesthesia and preparation of subcutaneous separation with liposuction cannula of 2 mm diameter we can achieve optimal preparation of 2 mm of underlying fat attached at the skin flap. Juarez Avelar has produced very useful instruments for this purpose.

After the incisions have been made, tumescent anaesthesia infiltrated, and the subcutaneous layer of fat determined by liposuction cannula or special dividing instruments (see Chap. 39 by Juarez Avelar and Yves Gerard Illouz), we start to elevate the skin. There are two sorts of surgeons: one group prefers scalpel division of the skin flap and the other one prefers using scissors. Preparation by scalpel is faster, but requires virtuosity and absolute anatomical precision. After all, there is danger that even with very experienced surgeons the scalpel blade will run 1 or 2 mm too deep. Then superficial nerve branches could be damaged: n. auricularis magnus, marginal, buccal, or the frontal branch of the facial nerve.

We prefer the technique with spreading scissors. We drive with closed scissors below the skin. At the end of this movement, we spread the scissors. Doing so, we separate the tissue layers from each other. The nerve branches can be stretched, but not cut! It requires a couple of minutes longer for each side, but this technique is safer regarding nerve damage and enables a restful sleep for both surgeon and patient.

Further preparation could be done by radiofrequency or fingers, like Sherell Aston described for his finger-assisted facelift. Also Yves Gerard Illouz developed his nontraumatic technique of liposuction by asking his instrument manufacturer to create a blunt cannula which would be able to divide tissue layers like his fingers at facelift preparation. In fact the feeling and preparing finger is the most reliable "instrument" for detachment of skin adhesions.
Blunt dissection does not provoke bleeding because the vessels roll intraluminarily and plug themselves. By sharp cutting, the vessels stay open and the muscular layer protrudes at the cutting edge and can cause bleeding. When I was starting my career as a plastic surgeon, I spent almost one third of the operating time stopping bleeding, to do haemostasis. Now with blunt preparation I do almost no haemostasis; exceptions being sometimes the malar retaining ligament–McGregor’s patch–when it has to be divided sharply and sometimes the retroauricular region and its skin edges. Additionally, electrocautery can temporally damage the nerve branches by overheating them even when they are separated from coagulated vessels. This can cause mimetic disorders for a couple of weeks.

Fig. 36.15. a, b Technique of spreading scissors simulated over the skin. c Closed scissors advanced below the skin. d Spreading of scissors at the end of their advancement

Fig. 36.16. a Aston’s finger-assisted malar elevation (FAME) technique. b Technique of the same author: open liposuction of submandibular fat and communication between incisions of periauricular and submental access
Some 3–5 cm in front of the tragus we meet the malar retaining ligament or McGregor’s patch. It is very firm structure and it is not always possible to divide it bluntly. Electrocautery should be applied when we have to cut it. This ligament is visible on aging faces as a dimple 3–5 cm in front of the ear.

To have the best possible view below the skin flap in the cheek or neck region we need sufficient illumination. Some surgeons use head lights, but they have cables fixed at the surgeon’s back and this reduces his mobility. We prefer a cold light source transmitted through a special hook.

For skin flap release of persistent fibres of connecting tissue similar to retaining ligaments between the skin and the deeper SMAS–platysma layer, we use the technique which has been popularized by Hector Gonzales Miramontes. He grasps such fibres near skin attachments and pulls them downwards. The advantage of this manoeuvre is that this does not produce bleeding like if we were to cut these rigid structures sharply. This is the “grasping forceps” technique. Transillumination is a simple way to check the vessel pattern of the skin flap. The light source is directed onto the skin surface and we look from the other side (below the flap) “through” the skin.

**Fig. 36.17.** Blunt preparation with scissors

**Fig. 36.18.** a Undetached malar ligament makes free advancement of the skin flap impossible. b Closed forceps indicating the malar ligament which has to be detached to liberate the skin flap. c Soft tissue from the cheek is drooping into jowls; McGregor’s ligament retains skin, creating a typical dimple. d Appearance after volumetric skin and SMAS rearrangement and malar ligament deattachment
199

Fig. 36.19. a Hook with cold light over the skin. b The hook below the skin illuminating anatomic structures. c Operating with a head light. d Head light illuminating the operating field

Fig. 36.20. a Forceps grasping the persistent fibres from skin attachment and b pulled down. c, d Grasping method of skin liberation
The skin flap has been raised, we have free access to the deeper layer: SMAS and platysma. Pulling them with forceps, we check their mobility.

Now we have to decide if the SMAS plication will be enough to fill up the “empty cheeks” and to harmonize the face. José Guerrerosantos has done a series of facelifts where on one side he did SMAS-flap advancement and on the other side SMAS plication. Ten years later he revisited these results and was not able to say which side was done by which method without looking at the patients’ records!

When we place sutures for plication or for SMAS-flap fixation we should try to stitch the tissue of the cheek in a radial direction from the ear lobe – not perpendicular to that imagined direction. In this way the chance of getting branches of the facial nerve, which follow this direction, into our suture is lower and the surgery is safer.

In about 25% of all facelifts we perform, especially in younger patients, we find plication of the SMAS layer to be enough.
Fig. 36.23.  a SMAS plication sutures as the surgeon sees them. b The volumetric effect which we gain with plication. The plication suture is c placed d tightened
Fig. 36.24. Patient with hollow cheeks a before and b after SMAS plication with volumetric effect

Fig. 36.25. Bichat’s fat pad a protruded and b sutured over the depressed area. Patient c before and d after Bichat’s fat pad advancement combined with MIDI facelift
Sometimes it is useful to fill up the depression of the deep cheek layer by protruding Bichat’s fat pad and by advancement of it. Usually we can add this manoeuvre to some other volumetric procedures. To perform it alone will be very rarely sufficient to solve all the problems.

After SMAS fixation – by plication or flap advancement – we can sometimes find that the fatty tissue of the jowl is still mobile. If so, we can cut it off or advance it upwards and fix it to gain volumetric improvement.
We have decided to elevate the SMAS flap and to advance it. Five to ten millimetres in front of the preauricular incision we cut an about 1-cm-long incision in the vertical direction and undermine it with spreading scissors.

We mostly make a horizontal incision at the lower edge of the zygomatic arch, which is palpable directly in front of the tragus. Sometimes we need to cut the upper horizontal incision at the upper edge of the zygomatic arch. We call this "high SMAS". In that case we have to respect the imagined line from the ear lobe aiming some 5 mm above the lateral end of the eyebrow. This is the position of the frontal branch of the underlying facial nerve. By advanced dissection of the SMAS flap, at the frontal border of the parotid gland there are buccal branches of the facial nerve which should not be cut. As a safe technique we use the "spreading scissors" and "grasping forceps".
In the past, since 1974 the regular procedure with the SMAS flap was that after advancement of it we resected the cranial and lateral part of it in an L shape or a boomerang shape. Nowadays we do it too, but mostly in full cheeks of "heavy faces". We achieve full mobilization of the cheek skin with "back-cut" at the malar end of the horizontal zygomatic SMAS incision.

Fig. 36.29.  a SMAS flap advanced from above with marked line of resection.  b SMAS flap advanced from below with marked line of resection.  c "Heavy face" with full cheeks.  d The same patient after SMAS L-shaped resection.
Since the early 1990s, we have learned to think in third dimension: the volumetric face was born. Bill Little introduced his malar imbrication with accentuated zygomatic prominence and deepening of the nasolabial fold. The work of Oscar Ramirez also went into the third dimension. The results were more natural, youthful faces.

We know that many film actresses and actors have had silicone implants for this purpose as a prominent zygoma increases the attractiveness in members of the Caucasian race. But these are foreign bodies after all and they can be distorted. Even slight asymmetry is visible for everybody and this looks very disharmonic. There are a variety of SMAS manoeuvres for how to elevate and accentuate the so-called malar bone with rearrangement of the deep layer of the cheek. One of the options is the SMAS advancement on the top and dividing the smaller preauricular SMAS flap to be pulled and fixed over the mastoid bone from larger buccal flap. This should be pulled upwards and rotated inwards and fixed over the zygomatic arch as a "horizontal snail flap".

Fig. 36.30. a "Horizontal snail SMAS flap". SMAS flap b raised and c rotated inwards and fixed over the zygomatic arch as a "horizontal snail flap"
Fig. 36.31. Patient a before and b 10 days after "horizontal snail flap" rotation. The same patient in semiprofile c before and d after this procedure with augmented malar prominence.
After we have prepared the SMAS flap we can divide the retrotragal portion and advance it in the retroauricular direction and we rotate the buccal portion of the SMAS flap inwards in the horizontal direction, producing a "simple vertical snail SMAS flap", the upper part of which we fix again over the zygomatic arch, augmenting the malar region at the same time.

Fig. 36.32. a "Simple vertical snail SMAS flap". b Preoperative view of a patient with this type of SMAS rearrangement. c Same patient of 39 years, 6 days postoperatively (MIDI facelift)
If we need more volumetric effect we can roll the vertical snail SMAS flap once more, rotating it inwards, building in such case the “double vertical snail SMAS flap”.

We can gain the greatest volumetric effect in augmenting the malar prominence by tripling the SMAS flap first divided into three leaves by means of a “tricuspidal SMAS flap”. For that purpose we mark pre-operatively the zygomatic arch and those three SMAS leaves.

After complete SMAS preparation, the SMAS flap should be divided into three leaves, as shown in Fig. 36.37.

The operative setup with four steps to be done is shown in Figs. 36.38 and 36.39. An obvious volumetric effect can achieved with this technique (Fig. 36.40)
Fig. 36.34. a ”Double vertical snail SMAS flap”. Patient b before and c 2 weeks after this procedure

Fig. 36.35. a SMAS flap raised. b First rotation done, to be done once more, and then to be fixed onto the zygomatic arch: ”double vertical snail SMAS flap”
Fig. 36.36.  
**a** Zygomatic arch in prolongation of the tragus, marked in blue.  
**b** Accentuated malar prominence, 2 weeks postoperatively

Fig. 36.37.  
**a** SMAS flap prepared, ready to be divided.  
**b** Tricuspidal SMAS flap with assumed directions of rotation
Fig. 36.38.  

a) Tricuspidal SMAS plication: the prepared SMAS flap could be divided into three leaves.  
b) The upper leaf should be elevated and sutured over the zygomatic arch.  
c) The middle leaf should be elevated and fixed at the half length onto the middle portion of the zygomatic arch (already covered with the first leaf), overlapped, and sutured so that the tip of this flap should be fixed over the highest malar prominence.  
d) The third, lowest leaf of the SMAS flap should be advanced and sutured over the mastoid region.
Fig. 36.39. The tricuspidal SMAS flap (*red dotted line*) and the zygomatic arch (*blue dotted line*)

Fig. 36.40. Patient *a* before volumetric facelift and *b* 1 week after facelift with a tricuspidal SMAS flap
How do we choose which SMAS procedure to apply? We respect the following factors:

- The patient’s idea of his/her facial appearance.
- Inspection, palpation of facial structures, and pulling them in different directions while the patient faces the mirror.
- As professionals we can propose to the patient one or the other manoeuvre, but the patients desire stays suprema lex.
- In the operating theatre, after having finished the skin flap preparation, we should check the SMAS mobility. At that point we make the final decision of which procedure should be done.

For all SMAS fixations we use 4-0 monofilament colourless nonresorbale nylon sutures.

When we elevate and rotate the SMAS flap in the vertical direction and the flap of neck skin in the oblique backward direction very often there is a K-point 3–5 cm lateral to the lip commissure where those two vectors come together. There is an impression of the skin which is sometimes hardly visible. It becomes more visible when we put tangential light on it. We have to release it with “spreading scissors” or “grasping forceps”, otherwise this dimple will be visible especially when smiling as a facelift stigma of an “operated look”. It takes no more than 10–15 seconds, we just have to think of it.

We should often incise at the caudal end of the vertical SMAS incision as a “back-cut” of the platysma for better definition of the mento-cervical angle.
Fig. 36.42. a Platysma "back-cut" for better projection of the mento-cervical angle. b "Back cut" done: be aware of marginal branch of n. facialis. The same patient c before and d after facelift with platysma "back-cut"
In “heavy necks” it is safe to respect supraplatysmal fat for better shape. In the middle of the neck and if the fat layer is not too thick, we are advised to do closed liposuction. We have noticed that liposuction is useful even if there is hardly any submental fat, because it is easier to achieve a stretching effect of the skin.

Fixation of SMAS flap has the best stability if we suture it to the Loré fascia below the tragus. We can divide the latero-caudal part of the SMAS flap and advance it in a retroauricular direction, suturing it over the mastoid. We should direct the stitches directly obliquely upwards following the direction of the auricularis magnus nerve. Doing so, we avoid the danger of catching this nerve in our suture.

Fig. 36.43. a Liposuction enables better skin retraction. b Direct removal of supraplatysmal fat. The same patient c before this procedure and d after 3 days. Note some facial haematomas after endoscopic forehead lift but no cervical haematomas
Fig. 36.44.  

a Pre- and retroauricular vector of SMAS fixation. 

b Skin mobilization prior to its resection. Firmness of the Loré fascia by pulling it upwards and downwards. 

c Forceps pointing to the greater auricular nerve. 

Stitches should be placed parallel to its direction.
Application of fibrin glue at the end of surgery seals small vessels, so we do not need drainage after facelift surgery anymore.

At the end of the surgery we apply maximal tension on the skin flap and reduce it to 2–3 mm. In such a way we can avoid 90% of wound-healing problems and we achieve a harmonious appearance of the face, not making it mask-like without the possibility of mimetic expressions. We achieve long-lasting results through firm tightening of the deep layer.

Fig. 36.45. Fibrin glue applied a “open” and b “closed”. c Manual pressure for 3 min. It substitutes the drainage

Fig. 36.46. a Maximal tension onto the skin flap b to be released for 2–3 mm, to achieve harmonious results
There are special “pitanguy forceps” which indicate the point up to which the skin should be resected. The lower arm of it is adjusted over the wound edge, with the skin flap pulled moderately. The upper arm stitches the point of skin resection. It can also be demonstrated if the top of the upper arm has been dipped into methylene blue.

If we have incisions running through hair-bearing temporal or retroauricular skin it is faster to close those sutures with staples. To close the skin in preauricular, retrotragal, and retroauricular regions, we use running pull-out sutures of 3-0 or 4-0 monofilament nylon. There are two to three anchorage single knot sutures in supraauricular and retroauricular angles of skin excision.

Fig. 36.47. Forceps are a placed onto lower incision edge and b closed over the moderately pulled skin flap. c, d When the skin flaps can hide the ear (d) the preparation is finished.
Nicotine is a vascular poison and can compromise our skin flap, leading to healing problems at wound edges up to extensive necrosis of the skin. This is why many plastic surgeons refuse to do rhytidectomy in smokers.

Usually we ask our patients not to smoke 3 weeks preoperatively and 3 weeks postoperatively. If they were not able to follow this restriction, we make either a subcutaneous bridge at the mandibular angle and prepare separately face and neck, or we use en bloc preparation of skin and SMAS together.

For en bloc preparation of the SMAS together with the skin flap we use the longest rhino-speculum, as suggested by Helga Eder from Belgium. First we cut the SMAS layer with radiosurgery.

In both cases we tell our patients that we cannot achieve such excellent results as we could by playing with different vectors for traction of skin and the SMAS flap. The results we are able to achieve in smokers will be for some 5-10% less excellent or more modest than in cases if they had not been smokers, because we cannot “play” with different vectors of traction to optimize the outcome.

### Bibliography

Please see the general bibliography at the end of this book.
Fig. 36.49. a This patient did not smoke 3 weeks prior to the surgery, but started to smoke again 1 day postoperatively. Her look 7 days postoperatively. b Three weeks postoperatively, after she has stopped smoking again. c Six weeks postoperatively. d Three months postoperatively

Fig. 36.50. a Smoker with NICO marking where the subcutaneous bridge between the SMAS and the skin should stay to support the skin irrigation. b The subcutaneous bridge to be preserved.
Fig. 36.51. a Vertical SMAS incision with radiowaves. b Gradual sub-SMAS preparation with gentle pushing and spreading of a rhino-speculum in a horizontal and an oblique downward direction. c Removal of the speculum – there is no bleeding at all. d After horizontal and vertical SMAS division, parotis fascia is visible at the bottom and skin vascularization has been well provided for.

Fig. 36.52. a Heavy smoker: preoperative look. b Dermographic markings. c Her appearance after 4 weeks: "monoveolar face-lift"