

Updates in Nasal Reconstructive Surgery

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ABSTRACT

The primary cause of rhinoplasty's difficulty is the fact that every move made during the procedure has both planned and unforeseen consequences. This report's objective is to examine the research and provide an update on rhinoplasty dynamics. Surgeons doing rhinoplasty operations need to keep reevaluating the dynamics of different movements as the procedure's procedures advance.

KEYWORDS: Rhinoplasty, Update, Reconstructive surgery.

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INTRODUCTION

With 213,780 done in 2018, rhinoplasty is the third most popular cosmetic operation carried out by plastic surgeons. Due in large part to the fact that each surgical maneuver has a unique yet overlapping effect on the patient's nasal airway and appearance, it is also regarded as one of the most

challenging procedures. The operation's success depends on having a thorough understanding of these dynamics. Although the senior author has previously explained the dynamics of rhinoplasty, an update is required in light of new methods and tools¹⁻³.



Figure 1. Most popular cosmetic operations in usa

RADIX

Radix reduction can provide the appearance of a shorter or longer nose, depending on where the depth occurs. It appears that the nose may be made shorter by radix reduction caudal to the medial canthus, and it can be made longer by increased cephalad depth. By transposing the deepest portion of the

dorsum caudally and elevating the nasal beginning point, radix augmentation seems to shorten the intercanthal gap and lengthen the nose^{4,5}.

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DORSAL HUMP REDUCTION

Dorsal hump reduction appears to expand the nose and increase the intercanthal distance while lowering the dorsal nose projection (range 0.8–4.4 mm, median 2.2 mm). Moreover, the nose may seem shorter and show signs of a cephalic rotation at the tip. Tip deprojection may occur if the caudal nasal dorsum is removed. Dorsal hump removal

improves both the smoothness and symmetry of the dorsal aesthetic line. Changes in keystone area width, however, were less predictable. Patients with a dorsal hump reduction of more than 5 mm showed a higher prevalence of keystone area expansion than patients with a reduction of less than 5 mm⁶.

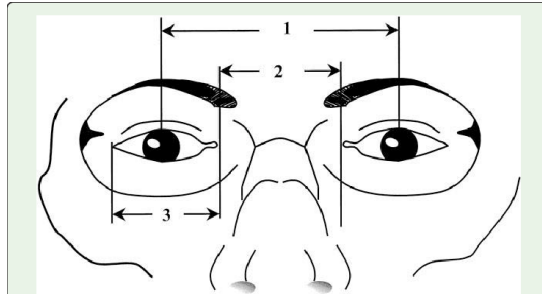


Figure 2. Anatomical relationships. dorsal hump reduction appears to expand the nose and increase the intercanthal distance while lowering the dorsal nose projection

ANTERIOR NASAL SPINE

In general, the ANS is essential for forming the soft tissue of the nose and sustaining the lowest part of the nasal pyramid. The ANS is augmented to cause the subnasale to move caudally, which shortens the upper lip, increases tip projection, and widens the nasolabial angle. It is true that ANS resection will have the opposite consequences^{7,8}.

COLUMELLAR STRUT

By extending the subnasale, a columellar strut can be placed to promote tip projection, straighten a twisted columella, adjust the nasolabial tilt, and lessen incisor show. The strategic implantation of a columellar strut reinforces the medial crura location, so averting tip deprojection. However, the implantation of a columellar strut can be harmful in individuals without clear projection loss portends, perhaps resulting in increased columellar stiffness^{9,10}.

KEYPOINTS

Grafts are frequently used to raise the protrusion of the tip. In addition to increasing lobule volume, narrowing the tip, and widening the columella and lip angle, onlay grafts can improve tip projection by up to 3 mm. The infratip graft, which is positioned inferior to the domal angle, aids in derotting the tip, defining the infratip lobule, and increasing tip projection. In addition to producing counterrotation and improving lobule definition, the buttress graft is positioned beneath the infratip lobule graft^{11,12}.

Subdomal graft placement improves tip definition and somewhat increases tip projection. Subdomal grafts limit the interdomal distance, prevent excessive narrowing (which can arise from tip suturing), enhance dome symmetry in the anteroposterior and cephalocaudal dimensions, and prevent excessive constriction of the domal arch by enlarging the medial genu angle. Additionally, a subdomal graft widens the

nostrils and prevents the lower lateral cartilages' lateral crura from concaving¹³.

The lateral crura rotates somewhat caudally, the columella narrows significantly, and the lobule protrudes caudally due to the medial crura suture. In contrast, the middle crura suture approximates the domes and offers more support for the tip. Similarly, only if there is little variation in the domes' heights would interdomal suture approximate the domes and equalize asymmetric domes. Transdomal sutures can worsen the concavity of the alar rim while simultaneously increasing tip projection. By using lateral crura sutures, one can expand the lateral crura concavity and cause the tip to rotate caudally. In contrast, the medial crura-septal suture retracts the columella and rotates the tip cephalically. Maneuvers to change the tip can occasionally negatively impact the domes because of the close link between the nasal tip and dome. For instance, sutures used to shrink a large, boxy tip may cause the domes to narrow or even overlap. Guyuron used subdomal grafts to counteract this iatrogenic aftereffect^{14,15}.

To prevent more tip deprojection, dorsal hump reduction, cephalic trim, caudal hump removal, and transfixion incision may need the implantation of a columellar strut or a tip graft. Deprojection of the tip can cause the columella to translate caudally, the dorsum to protrude, the external nasal valves to weaken, and the alar base to widen. To lessen tip projection and rotate the tip cephalically, the lateral or medial crura of the lower lateral cartilages might be removed. Guyuron notes that resecting the alar domes, which widens the alar base, is the most reliable method of reducing tip projection. But because of its great destructiveness, this treatment should only be used on patients whose tips are very broad and over-projected. They can be resected to provide more minimum tip deprojection if the cephalic half of the lateral crura is the most projecting portion of the nose. The medial crura tuck-up,

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which avoids resection, is an even more cautious technique for tip deprojection ¹⁶.



Figure 3. Example of Nasal Reconstruction



Figure 4. Example of Nasal Reconstruction

CONCLUSION

We are unlikely to have discovered every potential rhinoplasty dynamic, especially considering the multitude of differences in procedures, materials, and surgeon preferences that exist for each procedure. Nonetheless, the established, conventional methods provide useful standards for further research and the creation of new methods. A few overarching observations on every manoeuvre are covered above: The greatest noticeable effects on total nasal length and perceived intercanthal distance will come from manipulation of the radix and dorsum. Because the dorsum, together with the nasal tip and alar crease, is a component of tip projection, modifications to it have a distinct effect. However, optimizing nasal aesthetic angles requires taking into account both the radix and dorsum. It's possible that more methods have been devised to modify tip projection, width, and rotating position than for any other nasal component. Several extensively researched methods enable very precise modifications to be applied to tip parameters and organically to other nose tissues. It is important to realize that there is no way to employ the methods for increasing tip projection alternately. When there is insufficient tip lobule volume, a tip graft is utilized. When the columella is short, a columella strut is utilized. For a patient with a short columella and insufficient lobule volume, however, a combination of these techniques could be required. The footplates of the medial crura can be approximated, either with or without resection, in order to manipulate them. The most pronounced influence on the columella appears to be caused by manipulation of the footplate, regardless of the technique used; however, the degree of change in tip projection is mostly dependent upon the technique used. To prevent excessive fullness in the columella base, it could be required to remove the soft tissues between the footplates before approximating the footplates when the footplates are divergent and the columella base has

an optimum caudal projection. Patients who are at risk for postoperative ala deformities can benefit from the preventative advantages of the classic alar rim graft, which has well-defined dynamics. Several variants of the traditional alar rim graft exist, which were not included in our research and might be linked to distinct dynamics.

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