

Comparing both Open and Closed Techniques in Rhinoplasty

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ABSTRACT

Rhinoplasty is a surgical technique used to restore and modify nasal tissues for both functional and aesthetic reasons. There are two primary methods for doing a rhinoplasty: open and closed. While both methods change the bone and cartilage, there are variations in the ways that the nasal components are reached. Both open and closed rhinoplasty have changed significantly over the past 20 years due to the introduction of various cartilage transplants, sutures, and improvements in surgical technology. Rhinoplasty is a very difficult procedure that calls for a high level of expertise and training from physicians. Because of the lifelong learning curve, the surgeon's skill set—rather than their technique—determines the best possible patient outcomes.

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INTRODUCTION

Rhinoplasty is a surgical technique used to restore and modify nasal tissues for both functional and aesthetic reasons^{1,2}. A deviated septum from natural development or damage, restricted nasal airways, or nasal turbinates causing blockage or infection are among the reasons why many patients choose functional rhinoplasty³⁻⁵. Furthermore, certain individuals need revision rhinoplasty to address congenital conditions including cleft lip and palate or craniosynostosis⁶. In nonetheless, patients frequently want cosmetic rhinoplasty to correct a crooked septum, misaligned nostrils, or an exaggerated dorsal hump⁷. Furthermore, the most prevalent plastic surgery operation performed in the United States in 2020 was estimated to be cosmetic rhinoplasties, performed by board-certified plastic surgeons on 352,555 patients⁸.

There are two primary methods for doing a rhinoplasty: open and closed. While both methods change the bone and cartilage, there are variations in the ways that the nasal components are reached^{1,9,10}. To link the two internal incisions made during an open rhinoplasty, a transcolumellar incision across the columella is necessary in addition to two incisions made within the nose. A transcolumellar incision distinguishes between an open and closed rhinoplasty by enabling surgeons to elevate the nose's skin to view the pertinent anatomy. Open rhinoplasty benefits patients in a number of ways. Surgeons can evaluate nasal asymmetry or structural problems more thoroughly and with more precision when the underlying nasal anatomy is revealed. Nonetheless, a transcolumellar incision during an open rhinoplasty may result in scarring, according to some research. Furthermore,

there have been instances of increased edema, which might result in surgical mistakes and necessitate a second procedure. Overall, open rhinoplasty has proven to be beneficial for patients who need considerable modifications to the size and form of their nose, dorsal hump removal, or correction after a previous rhinoplasty^{1,9}.

Closed rhinoplasty, on the other hand, takes less time to do and leaves less outward scars than open rhinoplasty. Furthermore, research has shown that closed rhinoplasty recovery takes much less time than open rhinoplasty recovery. Closed rhinoplasty, however, has restricted surgical access and sight, which makes exact alterations more difficult to do and may raise the risk of complications. People who want to make little changes to the size and form of their nose or who just need modest adjustments to their nasal bridge have found that closed rhinoplasty is a popular procedure¹¹. Rhinoplasty carries a number of typical complications, including periorbital hematomas, skin discoloration, and edema, regardless of the technique used. According to some research, individuals may have experienced olfactory sensibility deficiencies; nevertheless, sensitivity usually returns a few days after surgery. It has been observed that a small number of people suffer transient rhinitis that results in nasal discharge, rhinitis sicca, and breathing difficulties that are alleviated by topical medications. Finally, infections are extremely uncommon and are typically observed in individuals with a history of severe nasal trauma or previous nasopulmonary infections¹².

Both open and closed rhinoplasty have changed significantly over the past 20 years due to the introduction of various

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cartilage transplants, sutures, and improvements in surgical technology. The research currently in publication indicates that plastic surgeons and otolaryngologists cannot agree on whether procedure is better in terms of aesthetic outcome, complications, and patient satisfaction. Depending on the training and desire of the physician, any procedure may be used. This study aims to assess and summarize existing material in order to provide suggestions for the appropriate times to use a certain technique in order to get the best possible outcomes for patients¹³.

OPEN vs CLOSED TECHNIQUES

We are unable to determine whether patients who undergo closed or open rhinoplasty get better functional or cosmetic results. An extended incisional approach and the use of a cephalic dome septal rotation suture for open rhinoplasty may result in more consistent and improved patient outcomes in terms of nasal tip projection and depression, according to studies examining the cosmetic outcomes of open and closed rhinoplasty. Furthermore, it was shown that patients with both open and closed rhinoplasty frequently complained of decreased nasal feeling, whereas patients with decreased columellar sensation were only found to belong to the open rhinoplasty category. Finally, compared to open rhinoplasty, closed rhinoplasty appears to result in less scarring from a cosmetic standpoint. This may be attributed to the fact that intranasal incisions are done rather than transcolumellar incisions^{1, 9, 10}.

Most research examining the functional component of open and closed rhinoplasty concluded that there was no significant difference in the kind of operation carried out¹⁴. But when compared to closed rhinoplasty, an investigation by Kim et al. found that open rhinoplasty had superior functional outcomes and was more accurate¹⁵. The differences in the structures and architecture altered during open vs closed rhinoplasty may help to explain this outcome. While nasal bone and cartilage are altered in both open and closed rhinoplasty procedures, the real distinction lies in the transcolumellar incision used in open rhinoplasty. When doing closed rhinoplasty, it is challenging for surgeons to adequately examine and evaluate the nasal anatomy due to the transcolumellar incision's ability to elevate the nose's skin. Last but not least, in addition to improving nasal anatomy visualization, the open approach technique enables surgeons to precisely and properly put intricate cartilage transplants. With complete vision and access to the nasal components, open rhinoplasty would enable surgeons to address structural problems and nasal architecture at the moment of first repair^{9, 10}.

There aren't many research that compared the functional and esthetic outcomes of open and closed rhinoplasty and could conclude which method was better¹⁴. Rather, the majority of the research found that there could be signals for whether to favor one strategy over another. Kiliç et al., for example, discovered that closed rhinoplasty need to be employed in

situations where edema and ecchymosis need to be avoided. Finally, it is challenging to get an agreement about the best strategy to use for patient outcomes due to variations in clinical criteria for repair or surgery, surgeon technique, expertise, and postoperative evaluation and problems^{14, 15}.



Figure 1. Open technique

Comparing both Open and Closed Techniques in Rhinoplasty

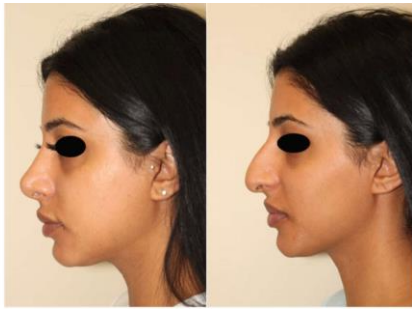


Figure 2. Closed technique.

CONCLUSION

Rhinoplasty is a very difficult procedure that calls for a high level of expertise and training from physicians. Because of the lifelong learning curve, the surgeon's skill set—rather than their technique—determines the best possible patient outcomes. Additionally, authors should consider using the NOSE scale and the ROE to improve the consistency and reliability of outcome reporting across studies. The goal of this research is to provide a new benchmark for comparing the advantages of open vs closed rhinoplasty using NOSE and ROE analyses.

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