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Closed versus open rhinoplasty: structural, functional, and aesthetic considerations

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Abstract

Background Rhinoplasty is a highly individualized procedure, and the choice of approach—closed (endonasal) or open (external)—has significant implications for nasal structure, function, healing, and aesthetic outcomes. This article presents an academic comparison between the two techniques based on anatomical, physiological, and surgical principles.

Results The closed technique preserves the columella and maintains the three-dimensional integrity of the lower third of the nose. It utilizes internal incisions to access and modify nasal structures while preserving their natural support and function. The open approach, on the other hand, requires external incisions, detachment of key anatomical supports, and often depends on structural grafts for reconstruction. It is associated with longer healing, graft-related complications, and visible scarring.

Conclusions Closed and open rhinoplasty are not merely alternative access routes but are two fundamentally different procedures with different goals. Closed rhinoplasty emphasizes preservation of native anatomy and function, while the open approach is better suited for revision or reconstructive cases requiring extensive modification.

Introduction/background

Rhinoplasty, one of the most complex facial aesthetic surgeries, has evolved significantly over the past century. Traditionally, surgeons viewed closed (endonasal) and open (external) rhinoplasty as interchangeable access methods for similar surgical goals.

However, a detailed academic and anatomical evaluation reveals that these are distinct techniques, suited to different indications and based on different principles. The closed technique is conservative and preservative, while the open technique is invasive and reconstructive.

Understanding the anatomy of the lower third of the nose—including the columella, lower lateral cartilages, membranous septum, and vascular supply—is essential to appreciate the differences in impact and outcomes between the two approaches.

Methods

This manuscript is based on anatomical, surgical, and academic insights derived from clinical experience and literature, particularly Innovations in Rhinoplasty. It systematically compares the closed and open rhinoplasty techniques in terms of their:

- Surgical access and incisions
- Effects on nasal support and three-dimensional structure
- Use of grafts and reconstructive requirements
- Aesthetic outcomes
- Healing process and complications

Additionally, it highlights the anatomical principles behind preservation versus reconstruction and includes a comparative table summarizing the differences between the two approaches.

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Skin Grip on columellar medial crurae

Dismantled columella

Fig. 1 **a** Skin grip on columellar medial crurae. **b** Dismantled columella

Results

Closed rhinoplasty

- Uses internal incisions (intercartilaginous, and if necessary marginal and caudal septum) without violating the columella [1].
- Preserves the natural connections between skin, cartilage, and soft tissue.
- Maintains nasal tip support via intact columella and connective tissue.
- Allows reshaping of nasal tip and dorsum while preserving physiology and facial expressions.
- Associated with faster healing, no external scarring, and soft natural aesthetic outcomes.

Open rhinoplasty

Begins with a transcolumellar incision that detaches the external columellar and vestibular skin attachments [1].

Dismantles the lower third nasal support structure.

Requires multiple grafts: columellar struts, septal extension, tip grafts, spreader grafts and soft tissue camouflage grafts. The nose loses its soft consistency and feels hard. Nasal movement and function may be impaired.

Increases risk of vascular compromise, tip ischemia, infection, and prolonged edema.

Frequently leaves a visible scar.

Discussion

Open rhinoplasty has gained popularity since the late twentieth century due to its improved access to the nasal tip. However, this access comes at the cost of violating structural and vascular integrity, particularly in the lower third of the nose. Dissection and degloving of the columella result in loosening the tight skin grip on the medial crurae. This grip is a mimic of a holding hand to a bunch of flowers. This leads to the collapse of the three-dimensional framework, requiring graft-based reconstruction that may yield inconsistent or unnatural results (Fig. 1) [2, 3].

In contrast, closed rhinoplasty benefits from modern anatomical understanding, allowing precise modifications while preserving native structures. It avoids columellar incisions and maintains nasal dynamics and aesthetic identity. The skin–cartilage relationship remains undisturbed, enabling natural movement, faster recovery, and more predictable outcomes.

While open rhinoplasty remains indispensable in revision or severe deformity cases, it should not be routinely applied in primary aesthetic procedures without clear indication. The paradigm shift towards preservation aligns with modern trends in facial surgery, emphasizing minimally invasive, functionally sound techniques [2, 3].

Conclusions

Closed and open rhinoplasty are not variations of the same operation. They are two distinct approaches rooted in different surgical philosophies. Closed rhinoplasty is conservative, preserving the integrity of the nose's

Table 1 Comparative table: closed vs open rhinoplasty

Parameter	Closed rhinoplasty (CR)	Open rhinoplasty (OR)
Incision	Endonasal incisions	External transcollellar incision
Structural integrity	Preserved	Dismantled and reconstructed
Collellar skin grip	Preserved	Dissected and dismantled
Tip support	Maintained	Lost and reconstructed with grafts
Graft dependency	Rare	High (struts, tip, spreader, alar grafts, etc.)
Vascular supply	Preserved collellar arteries	Collellar arteries are severed
Defatting of tip	Completely achieved	Risk of Ischemia
Healing time	Short, rapid resolution	Prolonged swelling and fibrosis
Scar	None	Possible visible scar
Aesthetic outcome	Natural, soft and dynamic	Structured, rigid and less dynamic
Recommended indications	Primary aesthetic rhinoplasty	Revisions, severe deformity

structure and function. Open rhinoplasty, though useful in complex reconstructive cases, poses significant risks due to its invasive nature. Careful patient selection and anatomical consideration should guide the choice of approach (Table 1).

Abbreviations

CR Closed rhinoplasty
OR Open rhinoplasty
IVB Inferior vestibular band

Authors' contributions

Contribution for this manuscript was drive from the Innovations in Rhinoplasty book which was published by the author, Motaz H.A. Shafy, through Springer Nature in 2022. Other sources were clinical cases of Rhinoplasty books Vol. 1 and Vol. 2 published by the author, through Springer Nature in 2023.

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