

# Nuances of Profile Management: The Radix

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## KEYWORDS

• Nuance • Profile • Management • Radix • Rhinoplasty

As rhinoplasty has evolved from its reductive origins, the notion of nasal augmentation has become a fundamental principle within primary and secondary procedures. Modern rhinoplasty surgeons have the skills to perform effective nasal augmentation, which may be combined with or used in lieu of reductive techniques. These surgical skills represent advancement in surgical techniques and have been aided by a philosophic shift in the approach to rhinoplasty. Using these tools, a more balanced and natural-appearing outcome may be achieved.

Profile refinement is one of the most common reasons patients seek consultation for rhinoplasty. Emphasis on creating a natural-appearing nasal dorsum demands a methodic nasal and facial analysis. Areas of dorsal excess and deficiency are identified, quantitated, and considered when determining surgical goals. The radix is an essential component of the profile and is carefully assessed from the standpoint of projection and position. Radix position profoundly impacts the appearance of the nasal profile by influencing dorsal length, contour, angulation, and height. When the radix is ideal in position and projection, rhinoplasty requires that the dorsal line be adjusted in relation to the radix. This adjustment may require modification of the remaining dorsal line using reduction, augmentation, or a combination of these procedures. The goal of this modification is to create a straight profile or one with an appropriate supratip break, depending on the patient's desire. Theoretically, it may be preferable to establish an ideal projection of the nasal tip and radix and then modify the remaining dorsum; however, the senior author finds it more practical to establish an ideal height of the bony and cartilaginous

dorsum and then adjust tip and radix projection. To achieve ideal nasal tip projection, augmentation of the alar cartilages may be necessary using struts or grafts, depending on the necessary degree of increased projection. In contrast, to reduce tip projection, the length of the alar cartilages may require shortening when a less invasive procedure is inadequate.

Similar to adjusting tip projection, the surgeon should also adjust the position and projection of the radix when it is not ideal. An overprojected radix is deepened using an osteotome or an electric-powered drill system. In these situations, the bony dorsum is always overprojected, so for practical reasons, the bony dorsum is lowered first or concomitantly with lowering of the radix. A caudally positioned radix is usually associated with an underprojected dorsum. In these circumstances, the entire dorsum is augmented using a bone or cartilage graft sufficient to provide proper height to the nasal bridge and to position the nasofrontal angle cephalically. A deep underprojected radix is corrected with a radix graft. Similar to an overprojected radix, when the bony dorsum requires reduction, it is preferable to reduce the dorsum before grafting the radix. Adjusting the nasal profile to a well-positioned radix leads to a natural and attractive nasal profile.

## ANALYSIS OF THE NASAL PROFILE

The nasal profile consists of the osseocartilaginous dorsum and the nasal tip and their interface with the glabella and subnasale. The profile is defined by its contour, height, length, and interfacing angles. These individual characteristics are not only used to describe the appearance of the profile

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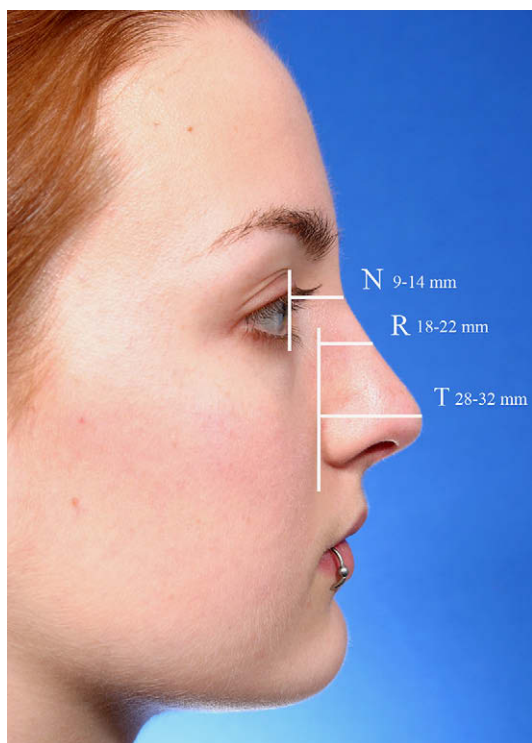
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as a whole but also have a profound impact on each other.

The osseocartilagenous dorsum extends cephalad to the tip-defining point, ending at the nasion. The contour of the dorsal profile should be relatively straight and 1 to 2 mm below a line drawn from the nasion to the tip. This contour imparts the presence of a subtle break in the supratip region. Contour variations may exist based on aesthetic taste, sex, ethnicity, and race. Generally, the ideal male nasal profile may be slightly convex at the rhinion, whereas a slight concavity is desirable in female patients.

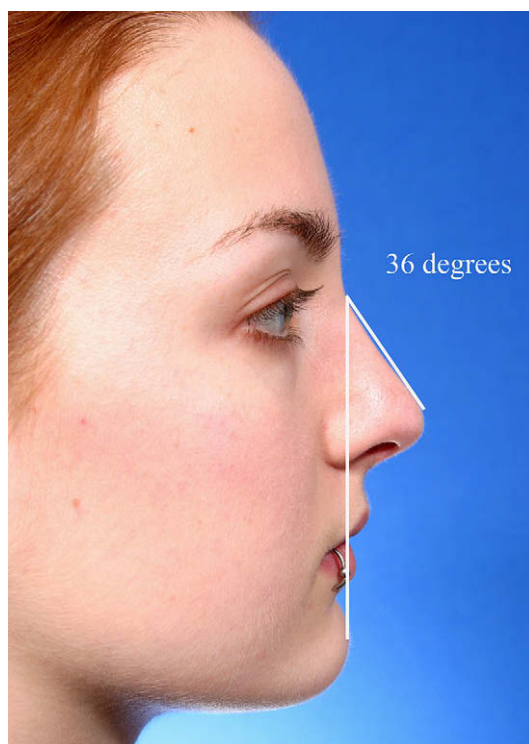
The authors use the terms *dorsal height* and *dorsal projection* interchangeably. The terms refer to the overall height of the dorsal nasal profile line from nasion to the tip-defining point. Projection or height of the profile is assessed at the nasion, the rhinion, and the tip-defining point, measured in the Frankfort horizontal plane (**Fig. 1**). The height at the nasion is measured from the anterior corneal plane. Ideal height of the nasion is between 9 mm and 14 mm.<sup>1</sup> The vertical alar plane is used as



**Fig. 1.** Measuring nasal height. Nasal height is measured at the nasion (N), rhinion (R), and tip-defining point (T) (pronasalae). The reference of origin for the nasion begins at the anterior corneal plane, whereas the vertical alar plane is referenced when measuring rhinion height and tip projection. Standard averages for each region are shown.

a reference for measure of dorsal height/projection at the rhinion and nasal tip. This plane runs tangentially through the alar facial sulcus, perpendicular to the Frankfort horizontal. As measured from this line, ideal dorsal height at the rhinion is between 18 mm and 22 mm, whereas ideal nasal tip projection is between 28 mm and 32 mm.<sup>2</sup> As a rule of thumb, the senior author uses the rule of 10-20-30:<sup>2</sup> 10 mm at the nasion, 20 mm at the rhinion, and 30 mm at the tip.

Important angles to consider when assessing the nasal profile include the nasofacial, nasofrontal, and the nasolabial angles. The nasofacial angle defines nasal projection from the face. It is formed by the intersection of two lines. One line is drawn from the nasion to the pronasalae (tip-defining point) and the other is drawn from the nasion to the pogonion (**Fig. 2**).<sup>3</sup> Ideally, the angle formed by these two lines is 36°. A more acute angle bestows the appearance of increased nasal length, whereas more obtuse angles contribute to the appearance of a shorter, more projected nose. The nasofrontal angle is the obtuse angle between a line tangent to the glabella and a line tangent to the pronasalae, with both lines originating at



**Fig. 2.** Nasofacial angle. The nasofacial angle is formed by the intersection of two lines. One line is drawn from nasion to pronasalae and the other is drawn from nasion to pogonion. Ideally, this angle approximates 36°.

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