

# Nonsurgical rhinoplasty with dermal fillers: an overview

## Abstract

Minimally invasive techniques have been widely applied to promote facial changes. Dermal fillers can potentially help persons who are concerned with the anesthetic risk, financial expense, or recovery time generated by a surgical procedure. Nonsurgical rhinoplasty refers to the adoption of injectable dermal fillers used to augment select regions of the nose trying to achieve improved function or appearance in select individuals. Recent developments in dermal fillers use along the nose have led to transform this technique in an attractive alternative for patients searching nasal improvement without surgery. This manuscript reviews nonsurgical rhinoplasty with dermal fillers techniques, describing its clinical indications, limitations, complications, and cautions necessary to perform this procedure successfully.

**Keywords:** rhinoplasty, dermal fillers, nose, dermatology, surgery, dermatologic, surgery, plastic, facial analysis

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**Abbreviations:** DF, dermal fillers; NSR, nonsurgical rhinoplasty; HA, hyaluronic acid; PMMA, polymethylmethacrylate; PDMS, polydimethylsiloxane; PLLA, poly L-lactic acid; CaHa, calcium hydroxyapatite

## Introduction

Millions of minimally invasive cosmetic procedures using dermal fillers (DF) along the face are performed each year. This volumization approach has received much attention over the last two decades, and therapies using DF are becoming more popular nowadays.<sup>1</sup> Despite its shortcomings, this method has been widely applied to promote facial changes. DF can potentially help persons who are concerned with the anesthetic risk, financial expense, or recovery time generated by a surgical procedure.<sup>2</sup> The nose exerts a fundamental role on facial aesthetics balance. This anatomical structure can be defined as an intricate balance of volumes, angles and lengths.<sup>3</sup> Nonsurgical rhinoplasty (NSR) refers to the adoption of injectable DF used to augment select regions of the nose trying to achieve improved function or appearance in select individuals. Recent developments in DF use along the nose have led to transform this technique in an attractive alternative for patients searching nasal improvement without surgery.<sup>4</sup> The aim of this manuscript is to review NSR with DF techniques.

## Discussion

DF NSR is a simple and effective method producing outcomes similar to conventional surgical augmentation rhinoplasty. Usually it cannot be a surgery substitute, but when slight nasal deformities are present this technique can be applied instead of rhinoplasty. The use of DF for technical refinement during primary rhinoplasty or for camouflage trying to correct postrhinoplasty deformities represents an interesting therapy which allows to avoid, or sometimes to delay, surgery, because invasive procedures are often dreaded by the patients.<sup>5</sup>

DF NSR is better indicate to postoperatively simulate structural grafts typically used in rhinoplasty such as strut graft, umbrella graft, and spreader graft. In patients without previous rhinoplasty its

indications are limited to tip definition and correction of small dorsal humps. Proper DF selection is vital to provide satisfactory results. Several substances can be employed to perform NSR, amongst the most used are: hyaluronic acid (HA), polymethylmethacrylate (PMMA), polydimethylsiloxane (PDMS), poly L-lactic acid (PLLA) or calcium hydroxyapatite (CaHa).

Initially NSR were performed using permanent DF such as PMMA and PDMS. Unfortunately, several complications have been described with its use. The risks of procedure repetition associated with the short maintenance of results did not permitted the initial popularization of NSR with HA. With the advent of newer temporary DF with greater longevity and less immunogenicity such as PLLA and CaHa, NSR has become a viable and safe option to surgery.<sup>6</sup>

This apparently simple procedure must be performed attentively in order to avoid collateral effects that can sometimes be a serious problem. A thorough knowledge of nasal blood supply, innervations, and plane of injection is necessary to avoid complications. The analysis of the individual deformities, and recommended injection techniques is vital to obtain good outcomes and prevent complications.<sup>7</sup> There are different cleavage planes in the nose. The ideal plane for DF injection is superficial to the periosteum and perichondrium, at the deep fatty layer, because it is loose and wide and there are virtually no vascular structures that could be injured. In this plane is possible to avert the most devastating complication: vascular compromise causing tissue necrosis. Cannula use instead of needles can also help to prevent damage to the blood vessels. Restricting the use of DF to the sidewalls and nasal dorsum can minimize collateral effects because more complications occur after treatments along the nasal tip.<sup>8</sup>

Promote initially hypo correction, prefer repeated sections with small incremental boluses, and constant reassessment are the best option to avoid overcorrection, asymmetries, and irregularities. To perform NSR with DF the injector must perform a proper diagnostic before the procedure, apply the correct technique, recognize developing problems, and have a practical workflow for immediate reversal and treatment of potential complications.<sup>9</sup>

## Conclusion

This review provides elements to help physicians using DF NSR to better understand clinical indications, limitations and cautions necessary to perform this procedure successfully.

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## Conflict of interest

The author declares that they do not have any commercial associations or financial disclosures that might pose or create a conflict of interest with information presented in this submitted manuscript. There are no conflicts of interest in this research.

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