

EDITORIAL

Indirect Sinus Lift — The recent advancements.

The crestal (indirect) sinus lift has transformed from a traditional osteotome-driven procedure to a more refined, systemic, and guided process. It was introduced by Summers, the technique emphasized minimal invasiveness and simultaneous implant placement. At present there are various techniques ranging from drill-based kits to hydraulic lift and osseodensification (OD) approaches. The evolution of the overall process depicts the integration of clinician's skill and modern-day technology. The crestal sinus lift is the method of choice where residual bone height (RBH) is 5–8 mm, which will provide enough primary stability to the implant.¹ The conservative and minimal invasive approach cause less morbidity, faster healing, and lesser complications compared to the direct technique.^[1] Evidence based studies shows that indirect sinus lift can achieve a mean vertical bone gain of 3–4 mm with a survival rate of 94–100%.^[2,,3,4]

The various sinus lifts that are available are the traditional osteotome-based systems, Drill-Based Crestal Kits with Stoppers, OD Systems, Hydraulic and Hydrodynamic. Kits (CAS or Crestal Approach Sinus) Kits. The osteotome technique carries the legacy of indirect sinus lift. However, its reliance on malleting cause patient discomfort and operator variability. Despite all trouble shootings it still remains a predictable procedure with long-term success.^[3]

The Non-cutting / side-cutting drills with calibrated stoppers of the contemporary kits allow a controlled approach towards the Schneiderian membrane. This significantly reduces the risk of membrane perforation and ensure the long-term success.^[5]

The concept of compacting rather than removing bone has been a new revolution in crestal approach by improving implant stability. Literature proves that OD and conventional osteotome techniques produce comparable survival rates and bone gain, with potential advantages in primary stability and reduced trauma.^[6,7] Hydraulic systems elevate the sinus membrane with a controlled fluid pressure, distributing force evenly and minimizing localized stress. Clinical studies show survival rates up to 98% with minimal side effects, establishing their safety and predictability.^[3,8] Evidence based studies in various publications, be it a randomized trial or systematic reviews, supports the predictability of indirect sinus lift:

- Comparable fixture survival rates between osteotome, OD, and kit-based procedures⁶
- Reduced complication rates with a least invasive crestal techniques¹
- Higher long-term survival (about 98%) with hydrodynamic and injectable graft techniques³
- Viability of graft-less procedures in some cases^{2, 4}

However, the horror of membrane perforation haunts as because it is a blind technique. Innovations such as endoscopic assistance have shown reduced perforation rates (10% vs 33%), suggesting a future direction toward enhanced visualization¹.

The emergence of sinus lift kits reflects a paradigm shift:

- From blind elevation → controlled, measurable elevation
- From malleting force → hydraulic and biomechanical finesse
- From operator dependence → system-assisted reproducibility

Yet, technology cant totally eliminate biological short comings. Overextension of crestal approaches into severely resorbed cases may compromise outcomes, where lateral window techniques remain more appropriate.

Indirect sinus lift, augmented by modern kits, represents a convergence of minimal invasiveness and technological precision. Contemporary systems have expanded its indications, improved safety, and enhanced clinician confidence. However, clinical success still depends on case selection, surgical judgment, and prosthetic planning, not merely the choice of kit. The essence of the procedure remains unchanged—controlled elevation of the Schneiderian membrane within biological limits. The real advancement lies not in the functionality of the kit, but in the operator’s skills to integrate technology with sound surgical principles. The future of crestal sinus lift will not be defined by newer instruments alone, but by smarter, evidence-based application of existing ones.

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