

SDC 1

SUMMARY OF PREVIOUS SYSTEMATIC REVIEWS

SDC1: Key findings of previous reviews assessing the effect of piezoelectric osteotomy in rhinoplasty on various clinical outcomes

	Databases and dates of search	Inclusion criteria	Studies included (patients included)	Outcomes studied	Key findings
Kim et al.	PubMed, Embase, SCOPUS, the Web of Science, the Cochrane library and Google Scholar, from inception to January 2019, and handsearch of reference lists of identified studies.	Randomized controlled trials that studied adult patients undergoing rhinoplasty and any type of osteotomy which compared the effect of piezoelectric osteotomy on intraoperative and postoperative morbidities with conventional osteotomy.	6 (348)	Operative time, mucosal injury, oedema, ecchymosis and postoperative pain	Intraoperative mucosal injury was significantly lower in the piezoelectric osteotomy group vs the control group, but operative time was longer Eyelid oedema and ecchymosis in the first seven days postoperatively were statistically decreased in the piezoelectric osteotomy group vs the control group. Pain in the first three days postoperatively was statistically decreased in the treatment group Subgroup analysis found no significant difference in oedema and ecchymosis between treatment and osteotomy under direct vision

Mirza et al.	PubMed, EMBASE, and Cochrane Central Register of Controlled Trials (CENTRAL) from inception to January 2019	Randomized controlled trials that studied the differences between piezoelectric osteotomy and conventional technique on human subjects, either by internal or external approaches, and reported one of the following outcomes: orbital edema, ecchymosis and postoperatively pain.	7 included in qualitative synthesis (368); 5 included in quantitative synthesis (281)	Oedema, ecchymosis, postoperative pain	Piezosurgery demonstrated significant lower edema (SMD = -0.75; 95% CI, -1.26, -0.24) and ecchymosis scores (SMD = -0.85; 95% CI, -1.49, -0.20) on postoperative days 2 or 3 and lower oedema (SMD = -0.64; 95% CI, -1.21, -0.06) and ecchymosis scores (SMD = 0.64; 95% CI, -1.14, -0.14) on postoperatively day 7 than conventional surgery.. Patients experienced lesser pain after piezosurgery than conventional surgery (SMD = -0.73; 95% CI, -1.06, -0.39)
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Tsikopoulos et al.	PubMed, Cochrane Central Register of Controlled Trials (CENTRAL), and Web of Science from 2005 to 17 August 2019	Randomized controlled trials investigating the intraoperative and postoperative morbidities of lateral osteotomy in rhinoplasty using either a piezoelectric device or a conventional osteotome.	7 included in qualitative synthesis (368); 5 included in quantitative synthesis (281)	Mucosal injury, eyelid oedema, periorbital ecchymosis and postoperative pain	Piezoelectric osteotomy had statistically significant decreased eyelid edema and periorbital ecchymosis within the first 3 postoperative days (SMD = -0.65; 95% CI = -1.18, -0.12, p = 0.02 and SMD = -0.85; 95% CI = -1.42, -0.28; p = 0.004 respectively); and on postoperative day 7 (SMD = -0.69; 95% CI = -1.47, -0.09; p = 0.08, and SMD = -0.52; 95% CI = -0.79, -0.24; p = 0.000 respectively) compared to conventional surgery. Reduced intraoperative mucosal injury (OR = 0.06; 95% CI, 0.01, 0.53; p = 0.01) in piezoelectric osteotomy group than conventional group. Less postoperative pain (SMD = -0.99; 95% CI = -1.78, -0.11; p = 0.01) in piezoelectric osteotomy group than conventional group.
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McGuire et al.	MEDLINE, PubMed, Embase, and Google Scholar from inception to 7 July 2020.	Comparative and single-arm , in vitro and animal studies reporting on outcomes (bone healing, edema, ecchymosis, distruption of surround structues, surgical coplications and surgical time) in adult and paediatric patients undergoing any craniofacial surgery procedures performed using piezosurgical instruments.	39	Sensory disturbances, operative time, osteotomy time, blood loss	<p>Piezosurgery had a lower postoperative incidence of sensory disturbance, principally in mandibular procedures (OR, 0.29; 95% CI, 0.11 to 0.77; p = 0.01) and pain at postoperative day 3 (SMD = -0.86; 95% CI, -1.20 to -0.53; p < 0.01).</p> <p>No statistically significant difference in operating room time or osteotomy time with piezosurgery.</p>
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