

Supplementary Table 1. Search strategy used in electronic databases

COCHRANE	("impacted tooth" OR "impacted teeth" OR "impacted" OR "unerupted tooth" OR "unerupted teeth" OR "ectopic Tooth eruption" OR "ectopic") AND ("traction" OR "tractioned" OR "orthodontic traction")
LILACS	("impacted tooth" OR "dente impactado" OR "diente impactado" OR "impacted teeth" OR "dentes impactados" OR "dientes impactados" OR "impacted" OR "impactado" OR "unerupted tooth" OR "dente não eruptado" OR "diente sin erupción" OR "unerupted teeth" OR "dentes não eruptados" OR "dientes sin erupción" OR "ectopic Tooth eruption" OR "erupção dentária ectópica" OR "erupción dental ectópica" OR "ectopic" OR "ectópica") AND ("traction" OR "tração" OR "tracción" OR "tractioned" OR "traccionado" OR "tracionado" OR "orthodontic traction" OR "tracionamento ortodôntico" OR "tracción ortodoncia")
PUBMED	<ol style="list-style-type: none"> 1. "Tooth, Impacted"[mesh terms] OR "impacted"[All Fields] OR "tooth, unerupted"[MeSH Terms] OR "unerupted"[All Fields] OR "Tooth eruption, ectopic"[MeSH Terms] OR "ectopic tooth eruption"[All Fields] OR "ectopic"[All Fields] 2. "traction"[All Fields] OR "tractioned"[All Fields] OR "orthodontic traction"[All Fields] 3. #1 AND #2
EMBASE	('impacted tooth':ti,ab OR 'impacted teeth':ti,ab OR 'impacted':ti,ab OR 'unerupted tooth':ti,ab OR 'unerupted teeth':ti,ab OR 'ectopic tooth eruption':ti,ab OR 'ectopic':ti,ab) AND ('traction':ti,ab OR 'tractioned':ti,ab OR 'orthodontic traction':ti,ab)
SCOPUS	("impacted tooth" OR "impacted teeth" OR "impacted" OR "unerupted tooth" OR "unerupted teeth" OR "ectopic Tooth eruption" OR "ectopic") AND ("traction" OR "tractioned" OR "orthodontic traction")
WEB OF SCIENCE	<ol style="list-style-type: none"> 1. TS=("impacted tooth" OR "impacted teeth" OR "impacted" OR "unerupted tooth" OR "unerupted teeth" OR "ectopic Tooth eruption" OR "ectopic") 2. TS=("traction" OR "tractioned" OR "orthodontic traction") 3. #1 AND #2
GOOGLE SCHOLAR	"impacted teeth" AND "traction"
OPENGREY	"impacted teeth"
PROQUEST	"impacted teeth" AND "traction"

Supplementary Table 2. Excluded articles and reasons for exclusion (n = 30)

Author, Year	Reason for exclusion
Albiol and Garcia, ¹ 2007	4
Azeem et al., ² 2018	3
Bado-Silveira and Recoing, ³ 2005	4
Bariani et al., ⁴ 2017	4
Bassigni and Knoche, ⁵ 1975	4
Birn and Andersen, ⁶ 1971	4
Carnero, ⁷ 1976	4
Carnero, ⁸ 1977	4
Consolaro, ⁹ 2010	4
Cozzani et al., ¹⁰ 2003	4
Dagg, ¹¹ 1973	4
Dijkiewicz et al., ¹² 2004	4
Diliberti, ¹³ 2000	4
Ericson and Kurol, ¹⁴ 1988	4
Fingerroth et al., ¹⁵ 1979	4
Giancotti et al., ¹⁶ 2009	4
Helmore, ¹⁷ 1967	4
Hunt, ¹⁸ 1977	4
Kurol, ¹⁹ 2002	4
Mydlová et al., ²⁰ 2015	4
Migliorati et al., ²¹ 2012	3
Sajnani and King, ²² 2015	3
Schmidt and Kokich, ²³ 2007	3
Shino et al., ²⁴ 2012	4
Soroka-Letkiewicz et al., ²⁵ 2008	3
Spencer et al., ²⁶ 2010	3
Vaid et al., ²⁷ 2014	4
Vieira et al., ²⁸ 2013	4
Wang et al., ²⁹ 2008	3
Wang et al., ³⁰ 2012	4

1, studies in animals; 2, studies including participants with craniofacial deformity or syndromic subjects; 3, studies in which none of the variables of interest were evaluated; 4, reviews, letters, conference abstracts, personal opinions, case reports, and case series.

Supplementary Table 2 References

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Supplementary Table 3. Characteristics of the included studies (n = 24)

Study, Author/Year (Country)	Sample (sex, dental group)	Age (median or mean \pm SD)	Surgical technique	Results	Conclusions
Becker et al., 2002 (Israel)	21 patients (6 M, 15 F / upper central incisor)	17.5	Closed	PI and GI without statistical significance. There was a statistical difference between the means of PD of LC and contralateral ($p = 0.002$) and without statistical significance between LI and contralateral. Significantly higher PD was observed on the distobuccal and lingual surfaces when compared to the teeth alone.	It concludes a good long-term aesthetic result from the treatment of incisors impacted by traction in technique, even reporting statistical difference in some periodontal parameters.
Becker et al., 1983 (Israel)	23 patients (9 M, 14 F / upper canine)	12.48 \pm 2.21	Closed	PI without statistical significance. There was statistical significance in GI and PD, greater in treated canine.	It is concluded that the parameter that clearly needs more attention is the loss of greater bone support in the treated region, assessed radiographically.
Bollero et al., 2017 (Italy)	28 patients (14 canines impacted palatally - 6 M, 8 F / 14 canines impacted buccally - 7 M, 7 F)	13.5 \pm 1.4	Closed	Canines impacted palatally with PD significantly higher in the mesiopalatine. No statistical significance in KMW, PI, GBI and GR. In canines impacted buccally there was a significant increase in KMW. No statistical difference for PD, PI, GBI and GR. The palatal impacted canines showed significantly higher PD in the mid-vestibular region and in all the palatal regions compared to the buccal	It was concluded that after ortho-surgical treatment, there was no statistical periodontal difference after treatment in palatal impacted canines. Canines impacted palatally showed greater probing depth in the lingual regions than those impacted buccally. Despite the statistical significance in some parameters, they did not show great clinical significance.

				impacted canines. No statistical difference for KMW, PI and GBI and GR.	
Caminiti et al., 1998 (Canada)	54 patients (82 canines, 60 impacted palatally and 22 impacted buccally / 23 M, 31 F)	14 years	Open/Closed	Three canines with PD greater than 3 mm. The cases presented with approximately 3 mm of KMW, only two canines impacted buccally presented 1 mm of KMW. They evaluated the prevalence of cases, without analyzing the data statistically.	No conclusions about periodontal parameters, no quantitative data collected.
Caprioglio et al., 2013 (Italy)	33 patients (9 M, 24 F / upper canine impacted palatally)	16.3 ± 3.9	Closed	There was no clinical statistical difference for PD, only on the buccal aspect of the lateral incisor and the mesiopalatal aspect of the first premolar.	It was concluded that the use of a conservative surgical technique with light orthodontic force contributes to an adequate final periodontal state.
Cercadillo-Ibauguren et al., 2011 (Spain)	15 patients (5 M, 10 F / 12 UC, 2LC, 1UP)	16.8	Open	No statistical difference for PI, GI, GBI and KMW parameters. Significantly higher values for PD teeth in the palate ($p = 0.031$) and lower values for GR ($p = 0.005$).	It was concluded that it is possible to maintain periodontal health using the apically positioned flap technique to expose the impacted tooth.

Chaushu et al., 2003 (Israel)	11 patients (4 M, 8 F / upper central incisor)	22	Open	Statistical difference in the parameters PI, GI, PD ($p = 0.01$) mesiobuccal ($p = 0.005$), with higher values in tractioned incisors.	It was concluded that orthodontic alignment of LC impacted by open technique is accepted in orthodontic resolution. Negative aesthetic and periodontal effects on the treated tooth must be considered. Long-term stability and post-treatment periodontal health should be monitored.
Chaushu et al., 2009 (Israel)	22 patients (open technique group 11 patients 4 M, 7 F / closed technique group 11 patients 3 M, 8 F / upper central incisor)	21.5	Open/Closed	No statistical difference in the parameters of interest.	It was concluded that comparing the two surgical exposure techniques, the closed technique produces a superior result in terms of periodontal prognosis and final appearance.
Crescini et al., 1994 (Italy)	15 patients (upper canine, tractioned group - 7 impacted buccally and 8 impacted palatally - and group of canines not tracted / 4 M, 11 F)	14.8 ± 1.6	Open	T1: significantly higher KMW and PD also in 3 regions (MV, DV, DP) in the pulled canines. T2: PS significantly lower in canines pulled only in the MV region. No statistical difference for KMW. Comparing T1 and t2: There was a significant decrease in PD and KMW in both groups, more pronounced in the traction group (3 regions in the control group did not give statistical significance MV, DV, DP). Assessing the mean created by the decrease in the parameters of the two groups, there was a	It was concluded that after the canine traction procedure - impacted both buccally and palatally - using the repositioned flap and tunnel-type traction, no change in insertion levels, no GR and adequate amount of gingiva can be obtained and maintained in teeth treated for at least 3 years after treatment. Although they showed statistical differences in the PD and KMW parameters, they are clinically insignificant (< 1 mm).

				<p>statistical difference in PD in the MV and DV regions in the KMW.</p>	
<p>Crescini et al., 2007 (Italy)</p>	<p>125 patients (31 M, 94 F) 58 patients on follow-up (23 M, 35 F / upper canine)</p>	<p>16.9 ± 5.9</p>	<p>Open</p>	<p>T1: PD with statistical difference considering the side of the tooth in the pulled canine and with higher values in the interproximal ones ($p < 0.0001$). There was a statistical difference in the KMW, greater in the pulled canines ($p = 0.0028$).</p> <p>T2: statistically significant difference in the group under traction in the PD, with higher values in the interproximal ones ($p < 0.0001$). There was a statistical difference in the KMW, being higher in the traction group ($p = 0.0002$).</p>	<p>It was concluded that the combined surgical-orthodontic technique (flap approach associated with direct orthodontic traction towards the center of the alveolar crest) favorably resulted in a correct alignment of the repositioned canine in the dental arch associated with an adequate amount of gingiva and probing depth physiological.</p>
<p>Crescini et al., 2007 (Italy)</p>	<p>168 patients (118 UC impacted palatally and 50 UC impacted buccally / 40 M, 128 F)</p>	<p>17.2 ± 6</p>	<p>Open</p>	<p>PD significantly higher in canines impacted in the palate than that impacted buccally ($p = 0.04$). There was no statistical difference in KMW values.</p>	<p>It was concluded that the pretreatment radiographic characteristics assessed on panoramic radiographs are useful indicators for the duration of orthodontic traction, however, they are not valid predictors of the final periodontal</p>

					status of impacted canines that have been orthodontically repositioned.
Crescini et al., 2007 (Italy)	168 patients (155 UC impacted palatally and 56 UP impacted buccally / 40 M, 128 F)	17.39 ± 6.04	Open	PD significantly higher in interproximals ($p < 0.0001$). KMW significantly higher in cases of impaction in the palate than buccally ($p = 0.0149$).	It was concluded that pretreatment radiographic characteristics aimed at defining the position of the canine on a panoramic X-ray are not valid predictors of the final periodontal status of impacted canines treated by the surgical-orthodontic approach.
Evren et al., 2014 (Turkey)	30 patients (upper canine 15 impacted palatally and 15 impacted buccally / 9 M, 21 F)	11.3 ± 1.45	Closed	In canines impacted palatally (treated by the closed technique), PD was significantly higher compared to untreated contralateral ones ($p < 0.01$). In the buccally impacted canines (treated with conventional orthodontic techniques), there was an increase in PI ($p < 0.01$) ISG ($p < 0.01$) and PD compared to the control group ($p < 0.05$).	It was concluded that periodontal changes in palatal ectopic canines were in the form of increased probing depth. The buccal ectopic canines, on the other hand, pointed to an increase in the index of plaque and gingival bleeding and greater pocket depths.
Kohavi et al., 1984 (Israel)	29 patients (13 unilateral UC impacted buccally and 16 bilateral upper canine impacted buccally / 12 M, 17 F)	CS unilateral 12.72 ± 1.6 / CS bilateral 12.78 ± 1.47	Closed	In unilateral cases, there was no statistical difference in PI, GI and PD compared to their contralateral ones. In bilateral cases, there was no statistical difference in PI. There was statistical	It was concluded that the orthodontist is advised to be alert to the possibility, although apparently rare, of concluding the case and finding compromised periodontal support.

				difference in GI and PD, with higher values in the traction group compared to the control group ($p < 0.05$).	
Landim et al., 2010 (Brazil)	17 patients (ND, canines)	ND	ND	Prediction for females, left side and maxilla in relation to impacted canines. Four patients (23.5% of the sample) had GR associated with hypersensitivity.	It was concluded that orthodontic traction in the studied sample appears to be an effective, safe and reproducible procedure.
Lee et al., 2019 (Korea)	54 patients (21 M, 33 F / canines impacted buccally)	12.85 ± 3.5	Closed	There was a statistical difference in the variable KMW, smaller in the pulled canine ($p = 0.04$). PD with statistical difference only in DP with higher value in the pulled canine ($p = 0.04$).	It was concluded that the closed eruption technique exhibited slightly worse periodontal conditions in relation to the alveolar bone and gingiva in the pulled canine.
Odenrick and Modéer, 1978 (Sweden)	22 patients (11 patients group open technique, 11 patients group closed technique / ND / incisors and upper canines)	13.6	Open/Closed	Attachment loss, evaluated by the PAL parameter, presented 1 case in the open technique group and 7 in the closed technique group. One patient out of 11 in the closed technique group and 7 out of 11 in the open technique group had GR. In the open technique group, 3 teeth presented on the buccal face and were positioned buccally, 3 on the lingual face of 5 that were positioned lingually. Of 3 cases positioned centrally, 1 presented GR. In the closed technique group, the only case that	It was concluded that the surgical flap technique in combination with orthodontic treatment creates several possible advantages. Most impacted teeth from the open technique group had loss of attachment. However, more studies are needed. to assess the effect of the surgical technique on the soft tissue reaction after the alignment of impacted teeth.

				presented GR had a vestibular position.	
Quiryne et al., 2000 (Belgium)	38 patients (ND / 29 UC, 5 UI, 2 LC, 2 LP)	17–51	Open/Closed	There was no statistical significance in the parameters of interest comparing all teeth pulled with the control group of the contralateral side. Comparing only unilateral upper canines (n = 26), there was a statistical difference in the KMW, which was lower in the traction group ($p = 0.006$).	It can be concluded that the closed eruption technique with conservative periodontal surgery and careful orthodontics is a treatment with excellent long-term results. It should be recommended as the treatment of choice for impacted teeth, at least when its position and absence of ankylosis allow eruption to occur.
Smailiene et al., 2013 (Lithuania)	43 patients (upper canines impacted palatally, 22 in the open technique group with spontaneous eruption and 21 closed technique group / 8 M, 35 F)	15.81 ± 3.04	Open with spontaneous eruption/closed	PD with statistical difference in the traction group compared to the control in the MV region ($p < 0.05$), but no difference between the techniques. No statistical difference between groups and contralateral groups regarding GR.	The post-treatment status of palatal impacted canines after surgical-orthodontic treatment did not differ significantly between the groups treated with 2 different surgical methods, and may be considered acceptable techniques for treatment.

Smailiene et al., 2013 (Lithuania)	43 patients (upper canines impacted palatally, 22 group open technique with spontaneous eruption and 21 closed technique group / 8 M, 35 F)	15.81 ± 3.04	Open with spontaneous eruption/closed	Significant PD comparing the tractioned side with the contralateral in the MV region ($p < 0.05$), but without statistical significance comparing the techniques. There was no statistical difference between groups and contralaterals in the parameters GR, KMW, GI and GBI.	After surgical-orthodontic treatment of canines impacted in the palate, by open surgery with spontaneous or closed eruption, there were no significant differences in periodontal status. Both treatments are acceptable even though the average time of exposure to the rash.
Caprioglio et al., 2019 (Italy)	271 patients (293 canines impacted palatally, ND)	13.8 ± 1.2	Closed	There was no comparison to untreated canines. Significantly higher prevalence of PD less than 2 mm (normal) compared to groups with PD greater than or equal to 2 mm, or presence of GR. Low prevalence and non-significant SBI.	Little significant values of periodontal changes in the evaluated parameters. They should be limited to canines impacted by the palate, since the vestibular displacement can involve different results as well as treatment options and success rate.
Parkin et al., 2013 (United Kingdom)	62 patients (upper canines, 33 open technique and 29 closed technique, ND)	ND	Open/Closed	No statistical difference in PAL and GR parameters between open and closed groups ($p < 0.05$). Statistical difference in PAL parameters with greater attachment loss in treated canines ($p > 0.05$) and RG, with greater prevalence in treated canines on MV and MP faces.	The exposure and alignment of palatally impacted canines had a small impact on periodontal health. This impact was not influenced by the type of technique and is so small and clinically irrelevant to influence tooth prognosis.
Zasciurinskiene et al., 2008 (Lithuania)	32 patients (10 M, 22 F, upper canine impacted palatally)	18.2 ± 5.1	Closed	PD significantly higher on the MV face of treated canines ($p < 0.05$). No statistical difference between groups in the RG parameter, prevalence	Combined orthodontic-surgical treatment of impacted maxillary canines produces a clinically acceptable periodontal condition.

				of 18.75% over the sample.	
Crescini et al., 2007 (Italy)	25 patients (9 M, 16 F, upper canine / 13 impacted buccally and 12 palatally)	15.2 ± 2.1	Closed	Statistical difference in PD and KMW parameters, lower at follow-up than at the end of treatment ($p < 0.05$). There was no RG in any of the samples observed.	The tunnel-type technique can be considered safe and effective in the treatment of impacted canines. The application of this technique can result in optimal dental alignment and healthy periodontium.

M, male; F, female; UI, upper incisor; CI, central incisor; LI, lateral incisor; UC, upper canine; LC, lower canine; UP, upper premolar; LP, lower premolar; GI, gingival index; PI, plaque index; GBI, gingival bleeding index; KMW, keratinized mucosa width; PAL, periodontal attachment level; PD, probing depth; GR, gingival recession; DV, dysto vestibular; DP, dysto palatine; MV, middle vestibular; ND, not described.

Supplementary Table 4. Risk of bias of studies included in the qualitative and quantitative analyses assessed using the a) Cochrane Collaboration tool for assessing the risk of bias; b) Meta-Analysis of Statistics Assessment and Review Instrument (MASTARI)

a) Cochrane Collaboration tool for Assessing the Risk of Bias

Author, year	Questions	Support for judgement	Risk of bias
Caminiti et al., 1998	Random sequence generation (selection bias)	The sample was not randomized	HIGH RISK
	Allocation concealment (selection bias)	There was no randomization of the sample	HIGH RISK
	Blinding of participants and personnel (performance bias)	Not applicable	UNCLEAR RISK
	Blinding of outcome assessment (detection bias)	Not applicable	UNCLEAR RISK
	Incomplete outcome data (attrition bias)	Qualitative assessment, no statistical analysis was applied, no control group	LOW RISK
	Selective reporting (reporting bias)		LOW RISK
	Random sequence generation (selection bias)	The sample was not randomized	HIGH RISK
Caprioglio et al., 2013	Allocation concealment (selection bias)	There was no randomization of the sample	HIGH RISK
	Blinding of participants and personnel (performance bias)	Not applicable	HIGH RISK

	Blinding of outcome assessment (detection bias)	Not applicable	HIGH RISK
	Incomplete outcome data (attrition bias)	No missing outcome data	LOW RISK
	Selective reporting (reporting bias)	The study include all expected outcomes	LOW RISK
	Random sequence generation (selection bias)	Simple randomization	LOW RISK
	Allocation concealment (selection bias)	Randomized allocation, but does not make clear the secrecy	UNCLEAR RISK
	Blinding of participants and personnel (performance bias)	Article does not report on blinding, only that the steps were not performed by the same operator	UNCLEAR RISK
	Blinding of outcome assessment (detection bias)	Article does not report on blinding, only that the evaluator is an expert and has been calibrated	UNCLEAR RISK
	Incomplete outcome data (attrition bias)	No missing outcome data	LOW RISK
	Selective reporting (reporting bias)	The study include all expected outcomes	LOW RISK
	Random sequence generation (selection bias)	Simple randomization	LOW RISK
	Allocation concealment (selection bias)	Randomized allocation, but does not make clear the secrecy	UNCLEAR RISK
	Blinding of participants and personnel (performance bias)	Article does not report on blinding, only that the steps were not performed by the same operator	UNCLEAR RISK
	Blinding of outcome assessment (detection bias)	Article does not report on blinding, only that the evaluator is an expert and has been calibrated	UNCLEAR RISK
	Incomplete outcome data (attrition bias)	No missing outcome data	LOW RISK
Smailiene et al., 2013			
Smailiene et al., 2013			

b) Meta-Analysis of Statistics Assessment and Review Instrument (MASTARI)

Cross-sectional. Descriptive Studies.

Question	Answer															
	Becker et al., 2002	Becker et al., 1983	Bolloero et al., 2017	Caprioglio et al., 2019	Cercadillo-Ibauguren et al., 2011	Chashu et al., 2003	Chashu et al., 2009	Crescini et al., 2007	Crescini et al., 2007	Eyren et al., 2014	Kohavi et al., 1984	Landim et al., 2010	Lee et al., 2010	Odenrick and Moder, 1978	Quinyen et al., 2000	Zasutinskienė et al., 2008
1. Was the study based on a random or pseudorandom sample?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
2. Were the criteria for inclusion in the sample clearly defined?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U	Y	Y
3. Were confounding factors identified and strategies to deal with them stated?	U	U	U	Y	U	U	U	U	U	U	U	U	U	U	N	N
4. Were outcomes assessed using objective criteria?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U	U	Y	Y
5. If comparisons are being made, was there sufficient description of the groups?	Y	Y	Y	Y	Y	Y	Y	NA	NA	Y	Y	N	Y	U	Y	Y
6. Was the follow up carried out over a sufficient time period?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	U	U	Y
7. Were the outcomes of people who withdrew described and included in the analysis?	U	U	Y	U	Y	Y	N	Y	Y	Y	N	Y	N	N	N	U
8. Were the outcomes measured in a reliable way?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U	Y	Y
9. Was an appropriate statistical analysis used?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	U	Y	Y
% yes/risk	66.6% Moderate	66.6% Moderate	77.7% Low	77.7% Low	77.7% Low	77.7% Low	66.6% Low	75% Low	75% Low	77.7% Low	66.6% Moderate	22.2% High	66.6% Moderate	0% High	55.5% Moderate	66.6% Low

Y, yes; N, no; U, unclear; NA, not applicable.

Cohort Study/case-controlled studies.

Question	Crescini et al., 1994	Crescini et al., 2007	Crescini et al., 2007
1. Was the sample representative of patients in the population as a whole?	Y	Y	N
2. Were the patients at a similar point in the course of their condition/illness?	Y	Y	Y
3. Had bias been minimized in relation to selection of cases and of controls?	Y	Y	Y
4. Were confounding factors identified and strategies to deal with them stated?	N	N	N
5. Were the outcomes assessed using objective criteria?	Y	Y	Y
6. Was follow-up carried out over a sufficient time period?	Y	Y	Y
7. Were the outcomes of people who withdrew described and included in the analysis?	N	Y	Y

Y, yes; N, no.

Supplementary Table 4 References

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Supplementary Table 5. GRADE summary of findings table for the different periodontal parameters evaluated

Outcomes	№. of participants (studies) follow up	Certainty of the evidence (GRADE)	Anticipated absolute effects
			Periodontal aspects in impacted teeth
Plaque index	347 (11 observational studies)	⊕⊕○○ LOW	MD 0.07 lower (0.27 lower to 0.14 higher)
Gingival index	295 (10 observational studies)	⊕⊕○○ LOW	MD 0.25 higher (0.1 higher to 0.4 higher)
Probing pocket depth	887 (17 observational studies)	⊕⊕○○ LOW	MD 0.14 higher (0.07 higher to 0.2 higher)
Width of keratinized tissue (mm)	534 (8 observational studies)	⊕○○○ VERY LOW ^a	MD 0.23 higher (0.21 lower to 0.66 higher)

*The risk in the intervention group (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI, confidence interval; MD, mean difference.

GRADE Working Group grades of evidence

High certainty: We are very confident that the true effect lies close to that of the estimate of the effect

Moderate certainty: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different

Low certainty: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect

Very low certainty: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

Explanations

^aSource of heterogeneity was not detected, persisting even after subgroup analysis.

Supplementary Figure 1. Funnel plot to assess the existence of publication bias for the following outcomes. **A**, Plaque index. **B**, Gingival index. **C**, Periodontal probing depth.

