

## Supplementary file S3: GRADE assessment for the certainty of evidence of the second systematic review

Summary of findings:

### Computer Driven LA compared to Conventional LA for children and adolescents having routine dental treatment

**Patient or population:** children and adolescents having routine dental treatment

**Setting:** Dental clinic

**Intervention:** Computer Driven LA

**Comparison:** Conventional LA

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with Conventional LA	Risk with Computer Driven LA				
Intra-operative Pain	-	SMD 0.03 SD lower (0.33 lower to 0.27 higher)	-	607 (7 RCTs)	⊕⊕⊕○ Moderate	See footnotes

\*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; SMD: standardised 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

a. Certainty of the evidence downgraded by 1 level for high risk of bias.

Summary of findings:

**Intra-ligament LA compared to Conventional LA for relieving pain in children and adolescents having routine dental treatment**

**Patient or population:** relieving pain in children and adolescents having routine dental treatment

**Setting:** Dental clinic

**Intervention:** Intra-ligament LA

**Comparison:** Conventional LA

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with Conventional LA	Risk with Intra-ligament LA				
Intra-Operative Pain	-	SMD 1.79 SD lower (2.37 lower to 1.2 lower)	-	111 (2 RCTs)	⊕⊕○○ Low <sup>a,b</sup>	

\*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; SMD: standardised 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**

- a. Certainty of the evidence downgraded by 1 level for high risk of bias.
- b. Certainty of the evidence downgraded by 1 level for serious imprecision.

Summary of findings:

**Intra-osseous LA compared to Conventional LA for relieving pain in children and adolescents having routine dental treatment**

**Patient or population:** relieving pain in children and adolescents having routine dental treatment

**Setting:** Dental clinic

**Intervention:** Intra-osseous LA

**Comparison:** Conventional LA

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with Conventional LA	Risk with Intra-osseous LA				
Intra-Operative Pain	-	SMD 0.14 SD lower (0.52 lower to 0.24 higher)	-	188 (1 RCT)	⊕⊕○○ Low <sup>a,b</sup>	

\*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; SMD: standardised 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**

- a. Certainty of the evidence downgraded by 1 level for high risk of bias.
- b. Certainty of the evidence downgraded by 1 level for serious imprecision.

Summary of findings:

### 4% Articaine compared to 2% Lidocaine for LA for relieving pain in children and adolescents having routine dental treatment

**Patient or population:** LA for relieving pain in children and adolescents having routine dental treatment  
**Setting:** Dental clinic  
**Intervention:** 4% Articaine  
**Comparison:** 2% Lidocaine

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	N <sub>e</sub> of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with 2% Lidocaine	Risk with 4% Articaine				
Intra-Operative Pain	-	SMD 1.04 SD lower (2.18 lower to 0.1 higher)	-	204 (2 RCTs)	⊕⊕○○ Low <sup>a,b</sup>	

\*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; SMD: standardised 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

- a. Certainty of the evidence downgraded by 1 level for high risk of bias.
- b. Certainty of the evidence downgraded by 1 level for serious imprecision.

Summary of findings:

### Different methods of topical anaesthesia compared to Conventional topical anaesthesia for LA for relieving pain in children and adolescents having routine dental treatment

**Patient or population:** LA for relieving pain in children and adolescents having routine dental treatment  
**Setting:** Dental clinic  
**Intervention:** Different methods of topical anaesthesia  
**Comparison:** Conventional topical anaesthesia

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	N <sub>e</sub> of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with Conventional topical anaesthesia	Risk with Different methods of topical anaesthesia				
Intra-Operative Pain	-	SMD 0.64 SD lower (1.38 lower to 0.09 higher)	-	160 (2 RCTs)	⊕⊕○○ Low <sup>a,b</sup>	See footnotes

\*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; SMD: standardised 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

- a. Certainty of the evidence downgraded by 1 level for high risk of bias.
- b. Certainty of the evidence downgraded by 1 level for serious imprecision.

Summary of findings:

**Mechanoreceptor and thermal receptor stimulation compared to for relieving pain in children and adolescents having routine dental treatment**

**Patient or population:** for relieving pain in children and adolescents having routine dental treatment

**Setting:** Dental clinic

**Intervention:** mechanoreceptor and thermal receptor stimulation

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with	Risk with mechanoreceptor and thermal receptor stimulation				
Intra-Operative Pain	-	SMD 1.38 SD lower (2.02 lower to 0.73 lower)	-	930 (10 RCTs)	⊕⊕⊕○ Moderate <sup>a</sup>	See footnotes

\*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; SMD: standardised 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**

a. Certainty of the evidence downgraded by 1 level for high risk of bias.

## Summary of findings:

### Behavioural Interventions compared to for relieving pain and anxiety in children and adolescents having routine dental treatment

**Patient or population:** relieving pain and anxiety in children and adolescents having routine dental treatment

**Setting:** Dental clinic

**Intervention:** Behavioural Interventions

**Comparison:**

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with	Risk with Behavioural Interventions				
Intra-Operative pain	-	SMD 0.5 SD lower (0.83 lower to 0.18 lower)	-	1130 (13 RCTs)	⊕⊕⊕○ Moderate <sup>a</sup>	See footnotes
Anxiety	-	SMD 0.17 SD lower (0.45 lower to 0.11 higher)	-	178 (3 RCTs)	⊕⊕⊕○ Moderate <sup>b</sup>	See footnotes

\*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; SMD: standardised 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

a. Certainty of the evidence downgraded by 1 level for high risk of bias.

b. Certainty of the evidence downgraded by 1 level for high risk of bias.

Summary of findings:

**Pre-emptive oral analgesics compared to Oral placebo solution for relieving pain in children and adolescents having routine dental treatment**

**Patient or population:** relieving pain in children and adolescents having routine dental treatment

**Setting:** Dental clinic

**Intervention:** Pre-emptive oral analgesics

**Comparison:** Oral placebo solution

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with Oral placebo solution	Risk with Pre-emptive oral analgesics				
Post-Operative Pain	-	SMD 0.77 SD lower (1.21 lower to 0.33 lower)	-	208 (3 RCTs)	⊕⊕⊕○ Moderate <sup>a</sup>	

\*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; SMD: standardised 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**

a. Certainty of the evidence downgraded by 1 level for high risk of bias.