

INPLASY

The Effect of Premolar Extractions on Airway and Cephalometric Changes: A Meta-Analytical Review

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ADMINISTRATIVE INFORMATION

Support - King Khalid University.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 January 2024 and was last updated on 19 January 2024.

INTRODUCTION

Review question / Objective The impact of premolar extractions on airway and cephalometric measurements.

Rationale The significance of studying airway and cephalometric changes following premolar extraction lies in several key aspects. First, understanding how these orthodontic interventions affect the airway can help identify the potential risks or benefits to patient health. Alterations in airway dimensions or soft tissue structures may influence breathing patterns, sleep quality, and overall respiratory function.

Condition being studied Monitoring and managing potential airway-related complications during and after premolar extraction.

METHODS

Search strategy Publications were searched in PubMed, WOS, Cochrane Library, and Clinical trials by forming one OR, AND two keywords formulated from the PICO format, and jointly using the two Booleans (OR, AND).

Participant or population Adolescents, adults, and individuals with specific malocclusions.

Intervention Included 1st premolar extractions, 2nd premolar extractions, or extraction group.

Comparator Included patients who did or did not receive different interventions.

Study designs to be included We took into account both descriptive (case control and cohort)

and interventional (trials) based research that was written in English for this review.

Eligibility criteria Randomized Control Design, Retrospective, Prospective and Clinical trial.

Information sources Scientific studies were taken from several reliable sources, including Google Scholar, Pub-Med via MEDLINE, Springer, and Scopus, EBSCO host (Dentistry & Oral Sciences Source database), Science Direct, and Web of Science.

Main outcome(s) The results showed a statistically significant difference in airway space between patients in the extraction group and those in the non-extraction group.

Data management Data was processed in Microsoft Excel (Excel 365; Microsoft Corp., Redmond, WA, USA). For export and data manipulation, Google Sheets (Alphabet Inc., Mountain View, CA, USA) were also used. This is an online spreadsheet program included as part of the free, web-based Google Docs Editors suite offered by Google.

Quality assessment / Risk of bias analysis Two researchers independently assessed the risk of bias of the included articles using —JBI critical appraisal tools. The potential risk of bias was categorized as low if a study provided detailed information pertaining to 70% or more of the applicable parameters . Moderate risk was considered if a study provided information corresponding to less than 70% to 50% of the applicable parameters, whereas if a study showed missing information regarding more than 50% of the applicable parameters, the study was categorized as exhibiting a high risk of bias.

Strategy of data synthesis Two review authors (RS and AK) used the studies to help select studies and document their decisions. This was done in two stages, with the first stage consisting of a title and abstract screening of all studies against the inclusion criteria, and the second stage being a full text assessment of papers that were deemed potentially relevant based on the initial screening [. RS and AK, the review's authors, discussed and settled their differences by consensus after consulting the procedure.

Subgroup analysis The data was compiled from a variety of articles:

- Author(s), year of publication, country, study design.

- Total number of patients/datasets.
- Training/ validation datasets \
- Test datasets
- Aim of the stud.

Sensitivity analysis NA.

Language restriction Articles only in English were Selected.

Country(ies) involved Saudi Arabia.

Keywords cephalometric, airway, orthodontics, premolars.

Dissemination plans All the data and the article will be share after the publication.

Contributions of each author

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