

# INPLASY

## Effect of Orthodontic Premolar Extraction on the Dimension of the Upper Airway: A systematic Review

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### ADMINISTRATIVE INFORMATION

**Support** - None.

**Review Stage at time of this submission** - Data extraction.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY2023120099

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 25 December 2023 and was last updated on 25 December 2023.

### INTRODUCTION

**Review question / Objective** Review Question: Does orthodontic extraction of the 4 premolars affect the dimension of the upper airways?

**Condition being studied** Orthodontic extractions of premolars are very frequent in orthodontics. The objective of our work is to study the impact of these extractions on the upper airway dimension because the main concern regarding the impaired pharyngeal dimension caused by orthodontic extraction is the quality of sleep of patients. Constriction of upper airway (UA) can lead to respiratory disorders, such as snoring and obstructive sleep apnea (OSA), which can significantly degrade patients' quality of life. OSA, is a chronic sleep-related respiratory dysfunction, which is defined as stopping airflow with persistent

respiratory effort due to the collapse of VAS. Recently, there has been increasing evidence that patients with OSA have dentofacial morphological characteristics associated with narrowing of the upper respiratory tract.

### METHODS

**Participant or population** Participants: Patient with malocclusion requiring extractions of 4 premolars for orthodontic purposes.

**Intervention** Intervention: Orthodontic treatment with extraction of 4 premolars regardless of the orthodontic mechanics used (Maximum/ reciprocal/ minimal/ absolute anchoring by minivis), the type of device, the technique used and the duration of the treatment were not restricted.

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**Comparator** Comparison: Patients before treatment, treated without extractions or untreated.

**Study designs to be included** Study: Retrospective study, cohort study, case-control study, Randomised controlled trials (RCT).

**Eligibility criteria** Articles published between 2015 and 2023.

**Information sources** The databases selected for our literature search are: Medline, Science Direct, Scopus and Cochrane Library.

**Main outcome(s)** Identification of changes in the size of the upper airway (total volume, and/or volume of the rhinopharynx, oropharynx and hypopharynx).

**Quality assessment / Risk of bias analysis** All the studies selected were observational studies, the quality evaluation of these studies is carried out by STROBE («STrengthening the Reporting of Observational studies in Epidemiology»).

**Strategy of data synthesis** A table was used to classify the data collected from the selected articles. The following data were extracted from the included studies: Title and Name of authors; Year of publication; Types of studies; Sample; Diagnostic; Means of measurement; Conclusion.

**Subgroup analysis** In process.

**Sensitivity analysis** In process.

**Country(ies) involved** Morocco.

**Keywords** • Orthodontic treatment • Premolar's extractions • Upper airways.

#### **Contributions of each author**

Author 1 - Mokhtar Qaderi.

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Author 3 - Farid El Quars.