INPLASY

Biofilm Composition Changes During Orthodontic Clear Aligners Compared To Multibracket Appliances: A Systematic Review

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ADMINISTRATIVE INFORMATION

Support - Any support.

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 22 April 2025 and was last updated on 22 April 2025.

INTRODUCTION

Review question / Objective The aim of this systematic review was to evaluate the variations in the oral mi-crobiota during the orthodontic treatment with clear aligners and compare it multi-bracket appliances microbiota.

Condition being studied Orthodontics has shown to produce oral biofilms alterations and it might affect to periodontal environment. Multibracket appliances are known to be more difficult to clean because of the fact of being adhered and the space between the archwire and teeth surfaces. The oral bacteria might affect to gastrointestinal microbioma and the primor aspect to evaluate is the proportion between Firmicutes and Bacteroidetes. Due to the increase of clear aligner treatments it should be studied the special roll of removable orthodontics in bacteria alterations in order to know if this treatment shoulb be better indicated in periodontal patients.

METHODS

Participant or population Studies which included patients who used clear aligners, whitout pharmaceutic treatment six months before the studied, whit no periodontal active problem, whit no smoking habits and no systemic diseases.

Intervention Biofilm extracted by subgingival sulculus or even the aligner analysed in laboratory by PCR or another bacteria detection methodology. The articles included quantitative and/or qualitative information related to bacteria.

Comparator Studies which compared patients who used multibracket fixed appliances.

Study designs to be included Randomized and not-randomized clinical studies.

Eligibility criteria The inclusion criteria were: in vivo and in vitro trials, observational and experimental trials, trials experimenting with clear

aligners, trials evaluating oral microbiome dur-ing aligner treatment. As exclusion criteria we discarded: systematic reviews and meta-analysis, trials using fluoride or remineralizing coating agents on clear aligners and in vitro tirals. Pregnant patients, children, patients with smoking or drinking habits and systemic diseases.

Information sources Electronic databases (PubMed Medline, Cochrane, Web of Science, Scopus).

Main outcome(s) Oral biofilm changes are produced with orthodontic treatment even with clear aligners particularly in Fusobacterium spp and these alterations started to be produced in the third month of treatment.

Quality assessment / Risk of bias analysis It was used JADAD scale as quality assesment.

Strategy of data synthesis Data was taken from the clinical trials by two authors and compared later. These data was syntetized in Excel sheeds and analysed by other two authors.

Subgroup analysis Multibracket appliances microbiome.

Sensitivity analysis Not performed.

Language restriction No.

Country(ies) involved Spain.

Keywords brackets; clear aligners; biofilm; microbiome; periodontitis, bacteria.

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