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Short-term effect of olive oil as a complementary treatment to non-surgical periodontal therapy: systematic review and meta-analysis of randomized clinical trials

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ADMINISTRATIVE INFORMATION

Support - None.

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

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2025100065

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 18 October 2025 and was last updated on 18 October 2025.

INTRODUCTION

Review question / Objective Is Olive oil/ Ozono-olive oil treatment effective as a single or complementary therapy for the treatment of gingivitis/periodontitis in adult patients?

Condition being studied Periodontal diseases (gingivitis and periodontitis).

METHODS

Participant or population Adult subjects with gingivitis or periodontitis.

Intervention Olive oil/Ozono-olive oil as a single treatment or adjuvant.

Comparator Conventional treatment, placebo, or no treatment.

Study designs to be included Randomized clinical trials.

Eligibility criteria The original research studies were selected according to the following inclusion criteria: (i) randomized clinical trials (single or double blind) with more than 10 participants ($n \geq 10$) aged 18 years or over; (ii) that treated periodontal diseases; (iii) that provided data on clinical parameters indicative of periodontal disease; (iv) that used statistical methods, including means and standard deviations, together with units of measurement of mediator levels; (v) without language restriction.

Information sources PubMed through the Medline, Embase, Scopus, and Cochrane Central databases, as well as the Web of Science (WOS). Grey literature was consulted (Teseo, SciELO, ProQuest, and Google Scholar, focusing on the first 250 results of this search engine).

Main outcome(s) Observe the effects on periodontal clinical parameters (Δ PI; Δ BI; Δ GI; Δ PPD; Δ CAL; Δ BoP). PI, Plaque Index; GI, Gingival Index; BI, Bleeding Index; PPD, Pocket Probing Depth; CAL, Clinical Attachment Level; Δ , Variable alteration.

Quality assessment / Risk of bias analysis Cochrane Risk of Bias Tool (RoB2, version of August 22, 2019).
The certainty of the evidence using the GRADE approach.

Strategy of data synthesis All analyses were based on the mean difference (MD) and standard deviation (SD) to estimate continuous data, and on 95% confidence intervals (CI) to evaluate categorical data between treatment and controls, using the random effects model for continuous outcomes of BoP, PPD reduction, and CAL gain. The results were presented in the form of forest plots, and heterogeneity between studies was assessed using the I² statistic (I² $\geq$ 50% indicates substantial heterogeneity). The threshold for statistical significance was set at $p < 0.05$. Due to the heterogeneity of the results, a random effects meta-analysis was performed. All statistical analyses were performed using Review Manager software (RevMan Software. Version 5.4.1; The Cochrane Collaboration, Copenhagen, Denmark; 2020).

Subgroup analysis Gingivitis (PI; BI; GI); BoP reduction; PPD reduction; CAL gain.

Sensitivity analysis PI; GI; BI.

Language restriction None.

Country(ies) involved India; Italy; Spain.

Keywords olive oil; gingivitis; periodontitis; periodontal treatment; randomized clinical trials; systematic review; meta-analysis.

Contributions of each author

Author 1 - Nansi López-Valverde - Conceptualization; methodology; software; validation; formal analysis.

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Author 2 - Antonio López-Valverde - Conceptualization.; validation.

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