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**Efficacy of oil pulling therapy with coconut oil on four-day supragingival  
plaque growth: A randomized crossover clinical trial**

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## Article summary

Yasemin Sezgina, Betul Memis Ozgulb, Nilgun Ozlem Alptekin conducted a randomized crossover clinical trial in the efficacy of oil pulling therapy with coconut oil on a four-day supragingival growth. The crossover study took place at Baskent University and was published in the journal of *Complementary Therapies in Medicine* in September of 2019 (<https://pubmed.ncbi.nlm.nih.gov/31780023/>). Forty-two patients were referred, and twenty-nine patients were enrolled at the Baskent University Faculty of Dentistry, Department of Periodontology from February 2019 to April 2019 for this 4-day plaque regrowth study between coconut oil and chlorhexidine. This crossover research study was conducted in full accordance with the Helsinki Declaration of 1975 and approved by the Institutional Review Board and Ethics Committee of the Baskent University. Based on the findings, coconut oil pulling performed its full mouth plaque regrowth just as well as the chlorhexidine gluconate mouth rinse. In addition to its plaque inhibiting effects, oil pulling also had a smaller amount of tooth staining compared to chlorhexidine. Due to the time difference compared to chlorhexidine and coconut oil pulling there was a dilemma regarding the results. The authors concluded that even though the results showed promising results regarding oil pulling, further studies are needed to fully replace chlorhexidine.

## Article information

The title of the article is *Efficacy of oil pulling therapy with coconut oil on four-day supragingival plaque growth: A randomized crossover clinical trial* conducted by Yasemin Sezgina, Betul Memis Ozgulb, Nilgun Ozlem Alptekin. This article was published in the journal of *Complementary Therapies in Medicine* on September 4, 2019. The Baskent University Research Fund, Turkey supported this research.

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## **Study analysis**

The article being reviewed was a randomized crossover clinical trial conducted at the Baskent university around February to April 2019. The authors conducted this study to investigate new research to find other ways to reduce antiplaque activity with minimal side effects. Since chlorhexidine rinse causes disturbance of taste, supragingival calculus accumulation, extrinsic staining on tooth and tongue, the authors wanted to evaluate the plaque inhibiting effects of oil pulling using a 4-day plaque regrowth study model.

This research consisted of 29 participants all who were screened and checked in accordance with their research protocols. Patients were to have no systemic disease, at least 22 natural teeth, and no removable appliances. Too add on, a history of antibiotic and anti-inflammatory drug use in previous 6 months, presence of an allergy to any ingredient used in the study, smokers, pregnant or lactating females, history of mouth rinses, gels or chewing gums use that contains antimicrobial agents in the preceding 3 months, having teeth with probing depth more than 4mm, signs of gingival inflammation, and the presence of gingival recession that measures more than 2mm were also considered for protocol. Before conducting the research, all participants received a thorough scaling and polishing of the teeth by both hand and ultrasonic instruments. This was to ensure that all participants had a starting plaque index score of 0. Participants were randomly selected by a closed envelope system and bottles were identical but differentiated by code according to the mouth rinse. Participants were instructed to use 0.2% chlorhexidine mouth rinse 10 mL, twice daily for 30 seconds, or coconut oil 10 mL twice daily for 15–20 minutes depending on what rinse they were given. In addition, participants were to refrain from all other forms of tooth cleaning, and the use of any other rinse, or gel for the 4 days they were conducting this research. On day 5, participants received a thorough oral tissue examination and were scored for staining using the Lobene stain index. Stain and plaque index was recorded from the buccal and lingual surfaces of all erupted permanent teeth excluding third molars. The gingival index and probing depths were recorded from six sites of each tooth. To ensure fair results, clinical examinations were performed by a single clinician who was masked to the study. Since this study was a crossover trial there was a 14 day wash out period and participants received another scaling and polishing to remove any plaque or tooth staining if present. During this wash out period participants were instructed to return to normal oral hygiene

methods. After each interval, participants were asked to complete a questionnaire to evaluate their feelings and regards to the product used. Questions regarding the flavor of the mouth rinse, taste alterations, staining the mouth rinse caused, their perception of plaque reduction, feeling of nausea, and their preference of the product were all asked in the questionnaire. In addition, at the end of each interval conformity of the subjects were controlled by measuring the remaining mouth rinses in the bottles. The data analysis regarding this research was performed on individual plaque and stain index, gingival index, and bleeding on probing scores. The analysis of data was performed using SPSS for Windows, version 21 (SPSS Inc., Chicago, IL, United States). The data were analyzed for consistency of distribution with the Shapiro-Wilk test. Due to the results not being distributed normally, the Mann-Whitney U test was used to determine the differences between two groups. A p-value less than 0.05 was considered statistically significant in all tests.

From the experiment it was found that there was no significant difference between chlorhexidine and oil pulling in terms of full mouth plaque index, gingival index, and bleeding on probing scores. However, the stain index was statistically higher in chlorhexidine groups compared to the oil pulling group. The plaque score for the anterior surface was 1.57 and 1.87 for the chlorhexidine group and 1.91 and 1.99 for the oil pulling group for the buccal surface of both upper and lower arches. These differences were statistically significant for buccal surfaces compared to the lingual surfaces which did not differ significantly. Regarding the taste of the two products, the oil pulling had higher scores compared to the chlorhexidine group. In addition, oil pulling also had higher scores regarding alterations in taste perceptions compared to chlorhexidine. As for the staining and evaluation of nausea experience the mouth rinse did not differ significantly between the two groups. In addition, 14 out of 29 patients reported that if they must use a mouth rinse, they would prefer chlorhexidine, while 15 patients reported that they would prefer oil pulling. Although the taste of the chlorhexidine rinse was worse, 5 participants preferred this way because of the short duration time.

Based on the findings, the authors concluded that oil pulling performed just as well as the chlorhexidine rinse when comparing the full mouth plaque regrowth. Presently ayurvedic drugs are replacing chemicals like chlorhexidine for treatment of various diseases including periodontal disease. It has been used for years without scientific evidence as a traditional Indian

folk remedy as it is speculated the viscosity of oil inhibits bacterial adhesion and plaque aggregation. It is believed that oil pulling therapy has both oral and general health benefits involving the swishing of oil. The advantages with oil pulling are the non-staining of teeth, and allergies associated with long term use of chlorhexidine rinse. However, research related to oil pulling and dental health is scarce. Although the study showed that the results were similar, chlorhexidine achieved these results in a shorter duration of time due to its chemical content. Although using a natural content compared to a chemical agent may be more beneficial, it may lead to a disadvantage regarding patient motivation due to the longer rinsing period. Even though oil pulling showed favorable results, it also has its limitations and would not be able to replace chlorhexidine gluconate just yet. The authors suggest that further studies are needed to find a better natural replacement for the gold standard chlorhexidine gluconate.

This research study is important for the field of dental hygiene since there may be occurrences where a patient may have questions regarding oil pulling. Since oil pulling is important in some cultures, it is imperative we are educated on different home remedies, so we are able to accurately provide patients with helpful knowledge and tips. It is important as dental hygienists to have other options readily available for patients that may have different risk factors and ideals. An example of this can be if a patient is allergic to chlorhexidine rinse or is unfond of the staining that may happen with the continued use of this rinse to have other alternatives and options for the patient to choose from. Although oil pulling and chlorhexidine showed similar results, the duration of time is difficult for motivating patients. After reading this article I am interested in researching if there are other natural remedies that may be able to replace chlorhexidine that does not require you to rinse for 15 minutes.