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Review Article

Tradition meets trend: A comprehensive overview of oil pulling in oral and systemic health

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ABSTRACT

Objective: The oral cavity, often regarded as the mirror of systemic health, hosts numerous microorganisms that can cause both oral and systemic diseases such as gingivitis, periodontitis, dental caries, cardiovascular, and gastrointestinal disorders. Maintaining oral hygiene is paramount for overall health. In recent times, particularly post-COVID-19, there has been a growing preference for Ayurvedic treatments to avoid the side effects associated with allopathic medicines. Oil pulling, a traditional Ayurvedic technique, has gained renewed attention for its efficacy in maintaining oral hygiene and preventing diseases. This review aims to emphasize the significance of oil pulling, an ancient Ayurvedic oral hygiene technique, in reducing plaque deposition and supporting oral health, while highlighting its advantages as a natural and side-effect-free alternative to modern medicine.

Methods: The terms “oil pulling,” “alternative medicine in dentistry,” “ayurvedic medicine,” and “antibacterial in dentistry” were used in a digital search of the PubMed database, which focused on peer-reviewed publications till November 2024. The results were 157, 9097, 57, and 14035 items, respectively. Following a careful examination, pertinent material was also added from other electronic sources.

Results: The oil-pulling technique, using sunflower, sesame, coconut, or olive oils, was found to be effective in reducing microbial load in the oral cavity. These oils, rich in antibacterial, antiviral, and antifungal properties, interact with the cell membranes of microorganisms, leading to a significant reduction in plaque deposition. Regular use demonstrated improvements in oral hygiene and minimized adverse effects commonly associated with synthetic medications.

Conclusion: Oil pulling is a safe, cost-effective, and efficient traditional technique for maintaining oral health and reducing plaque deposition. Its natural properties and minimal side effects make it a promising alternative in contemporary dentistry for promoting oral hygiene and overall health. Emphasizing its adoption can contribute to a holistic approach to oral care in the future.

Keywords: Alternative medicine in dentistry, Antibacterial in dentistry, Ayurvedic medicine, Oil pulling, Oral hygiene

INTRODUCTION

The oral cavity serves as a reflective indicator of overall systemic health, offering valuable insights into the body's general well-being. The oral environment harbors a diverse microbiome, comprising both beneficial and harmful bacteria, which play critical roles in maintaining oral health or contributing to disease.^[1] These tiny organisms can affect not only just our teeth and gums but also our overall health. For instance, the same bacteria that cause gum disease can

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travel through our bloodstream and contribute to more serious problems such as diabetes and heart disease. This connection means that maintaining oral health is important for keeping our entire body healthy.^[2]

Modern medicines can be very effective, but they sometimes come with side effects and risks. Antibiotics, for example, can help fight infections, but overusing them can lead to antibiotic resistance.^[3] This makes it harder to treat infections in the future because the bacteria become stronger and the medicines stop working (resistance). Furthermore, some people experience negative reactions to medications, which can be unpleasant or even harmful.^[4]

Thus, due to concerns about the side effects and limitations of conventional treatments, researchers are increasingly investigating natural products and alternative therapies to enhance overall health.^[5] This field, known as Complementary and Alternative Medicine (CAM), encompasses a broad spectrum of practices and products that are not usually integrated into standard medical care but can be used in conjunction with it. CAM includes modalities such as herbal remedies, acupuncture, probiotics, and other holistic approaches.^[6] The COVID-19 pandemic has further highlighted the importance of immune system resilience, as the virus has been shown to compromise immune function, prompting a renewed interest in strategies to bolster immunity through natural and complementary means.

Natural products, including herbs and essential oils, have a long history of use in traditional medicine, and modern researchers are increasingly examining their mechanisms, safety, and efficacy. Some of these substances exhibit antibacterial properties that could provide alternative treatments for oral infections, potentially reducing the reliance on conventional antibiotics and mitigating the risk of antibiotic resistance. By exploring these natural alternatives, scientists aim to discover methods to enhance dental and overall health with fewer side effects and risks. This approach aligns with a growing interest in more holistic and natural health maintenance options, offering promising avenues for comprehensive care.^[7]

METHOD OF DATA COLLECTION

A digital search was conducted using the PubMed database, focusing on peer-reviewed articles up to November 2024 using keyword “oil pulling,” “alternative medicine in dentistry,” “ayurvedic medicine,” and “antibacterial in dentistry” resulting in 157, 9097, 57, and 14035 items, respectively. Articles pertinent to our objectives were chosen and similar abstracts were removed from the study, along with 5 original studies were included which support the technique, apart from reviewed articles.

HISTORICAL BACKGROUND

Oil pulling is an ancient Ayurvedic practice known for promoting oral hygiene and overall dental health. It is mentioned in Ayurvedic texts such as Charak Samhita and Sushruta Samhita, where it is referred to as Kavala Graha and Kavala Gandoosha. Kavala Graha involves swishing a small amount of oil, while Kavala Gandoosha requires filling the mouth completely with oil for thorough cleansing.^[8-11]

Although this practice has existed for centuries, it gained modern recognition in the 1990s when Dr. F. Karach highlighted its numerous health benefits. Since then, oil pulling has become popular as a natural oral care method. Swishing oils like sesame or coconut oil for several min is believed to remove toxins and bacteria, helping to prevent cavities, reduce bad breath, and improve gum health. As a complementary oral hygiene approach, oil pulling offers a natural alternative to conventional dental care, potentially minimizing the need for pharmaceutical treatments.^[6,7,12]

PROCEDURE

Oil pulling is an ancient Ayurvedic practice known for promoting oral and overall health. It is most effective when performed in the morning on an empty stomach. The recommended amount for adults is one tablespoon (approximately 10 mL) of sesame oil.

The process involves placing the oil in the mouth and swishing it around the teeth and gums for 15-20 min. During this time, the oil becomes thinner and changes to a milky white color, indicating that it has mixed with saliva and absorbed bacteria, plaque, and other unwanted substances. After swishing, the oil must be spat out carefully without swallowing, as it contains harmful bacteria and toxins. The mouth should then be rinsed thoroughly with water, followed by brushing to ensure the removal of any remaining oil and bacteria.

Oil pulling is considered safe for most individuals, with no specific contraindications. However, it is not recommended for children under the age of five, as they may struggle to swish the oil properly and risk swallowing it, which could be harmful due to the presence of toxins and bacteria. This traditional practice is widely regarded as a beneficial supplementary oral hygiene method.^[3,13-16]

MECHANISM OF ACTION

Saponification theory

This theory suggests that the fats in oils, such as sesame or coconut oil, undergo alkali hydrolysis in the presence

of bicarbonate ions in saliva. This process, similar to soap formation, results in the emulsification of fats into soap-like substances. These emulsified fats enhance the cleaning action of oil, increasing its surface area and accelerating the removal of bacteria and debris from the oral cavity. Essentially, the oil acts like a natural cleanser, effectively maintaining oral hygiene.

Viscosity theory

The high viscosity of oils plays a crucial role in their effectiveness. The thick, sticky nature of the oil prevents bacteria from adhering to each other and forming dental plaque. By inhibiting bacterial adhesion, oil pulling reduces plaque buildup, which is a key contributor to cavities and gum disease. The physical properties of the oil disrupt bacterial colonies, making it easier to eliminate them during swishing.

Antioxidant theory

Oils such as sesame and coconut are rich in antioxidants, which help prevent lipid peroxidation – a process where free radicals damage cell membranes. This antioxidant activity has an antibiotic-like effect, detoxifying the mouth and eliminating harmful bacteria. In addition, it enhances the effects of vitamin E present in the oil, which protects oral tissues from oxidative stress and supports immune function.

Together, these theories explain the potential benefits of oil pulling in promoting oral health, reducing plaque, and preventing bacterial infections.^[17-19]

Table 1 provides a list of selected original studies that have been included in this review.

Table 1: A list of selected original studies that have been included in this review.						
Year	Topic	Type of study	Author	Publication	Key words	Result
2009	Effect of oil pulling on plaque-induced gingivitis: A randomized, controlled, triple-blind study	Randomized controlled trial	Asokan <i>et al.</i> ^[15]	Indian J Dent Res	Oil pulling, plaque-induced gingivitis, sesame oil	Both study and control groups showed statistically significant reductions in plaque and gingival index scores, along with a notable decrease in aerobic microorganism colony counts
2013	Effect of Oil Pulling with Sesame Oil on Plaque-induced Gingivitis: A Microbiological Study	Randomized controlled trial	Saravanan <i>et al.</i> ^[20]	Journal of Orofacia Research	Oil pulling, Plaque index, Gingival index	Group A showed no improvement or slight increases in plaque, gingival index, and microbial colonies, while Group B showed significant reductions in all these parameters after 45 days of oil pulling.
2014	Effect of oil gum massage therapy on common pathogenic oral microorganisms – A randomized controlled trial	Randomized controlled trial	Singla <i>et al.</i> ^[21]	Journal of Indian Society of Periodontology	Chlorhexidine gel, gum massage, oils, oral microorganisms, randomized clinical trial	All four groups showed significant reductions in bacterial counts, plaque, and gingival scores, but no significant differences were observed between the groups.
2014	Comparative Efficacy of Oil Pulling and Chlorhexidine on Oral Malodor: A Randomized Controlled Trial	Randomized controlled trial	Sood <i>et al.</i> ^[22]	Journal of Clinical and Diagnostic Research	Chlorhexidine, Malodor, Oil pulling, Randomized trial, Sesame oil	Sesame oil and chlorhexidine groups showed significant reductions in all parameters, with notable differences in organoleptic scores compared to placebo, but no significant difference between each other.
2024	To Evaluate the Efficacy of Oil Pulling on Caries Activity of <i>Streptococcus mutans</i> : An <i>in vivo</i> study	Original research- <i>in vivo</i> Study	Gosavi <i>et al.</i> ^[23]	International Journal of Clinical Pediatric Dentistry	Coconut oil, Oil pulling, <i>Streptococcus mutans</i> .	This study found that both oil pulling and fluoride mouthwash significantly reduced <i>S. mutans</i> colony counts in children, with oil pulling proving as effective as fluoride

IN ORAL HEALTH

Periodontal benefits

Oil pulling supports periodontal health by effectively reducing plaque and managing plaque-induced gingivitis. The act of swishing oil helps remove harmful microorganisms from the oral cavity, while compounds like chlorosesanone in sesame oil offer antifungal properties that target oral infections. Regular oil pulling also promotes gum health by decreasing inflammation and bleeding, contributing to stronger, healthier gums overall.

Cariostatic benefits

The cariostatic effects of oil-pulling stem from its ability to eliminate harmful bacteria, viruses, and fungi from the mouth. The antioxidant properties of oils such as sesame and sunflower help damage bacterial cell membranes, causing bacteria to adhere to the oil and be expelled when spat out. This mechanism helps reduce the presence of *Streptococcus mutans* and other cariogenic bacteria, thereby lowering the risk of dental caries.

Other benefits

Beyond its periodontal and cariostatic effects, oil pulling offers several additional oral health advantages. It hydrates the mouth, which can relieve dry lips and throat discomfort. Regular practice may contribute to whiter teeth when combined with proper dental hygiene and can lead to fresher breath by removing odor-causing bacteria. Moreover, the physical act of swishing oil helps strengthen the oral muscles and jaw, enhancing overall oral function.^[24-29]

SYSTEMIC BENEFITS

According to traditional Indian Ayurvedic texts, it can help treat and prevent over 30 different ailments. These include skin conditions like eczema and serious health issues such as thrombosis (blood clots), migraines, headaches, asthma,

and diabetes. By removing toxins and harmful bacteria from the mouth, oil pulling may support the body's overall detoxification processes, potentially alleviating various health problems [Table 2].^[24-32] This holistic approach emphasizes the connection between oral hygiene and general well-being, suggesting that maintaining a clean and healthy mouth can positively impact the entire body.^[14,30-32]

CONCLUSION

While oil-pulling therapy with edible oils is not yet a fully established therapeutic treatment, it shows significant promise as an at-home preventive measure. To thoroughly evaluate its effectiveness, extensive studies with larger sample sizes, long-term follow-ups, and varying durations are necessary as they could provide valuable insights. By exploring and understanding the potential benefits of oil-pulling, it may become a viable, cost-effective adjunct to conventional dental care, especially in regions with limited access to professional dental services.

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Table 2: The systemic effects and oral benefits of oil pulling.	
Benefits	
Oral benefits	Systemic benefits
Removing germs and toxins	Diabetes
Fighting plaque and gingivitis	Eczema
Antioxidant action	Thrombosis
Healthier gums	Asthma
Hydration	Body detoxification
Whiter teeth	Inhibits metastasis
Fresher breath	Chronic skin diseases
Stronger oral muscles	Bronchitis

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