



The importance of oil pulling and traditional medicines in oral health maintenance – A review

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Abstract

Dental diseases have detrimental effects on the functionality and quality of life of individuals. In addition, a strong relationship has been established between various oral and systemic diseases. The prevention and treatment of dental caries and periodontal disease have been shown to reduce the risk of diabetes and heart disease significantly. This goes beyond the role of oral health as a means to identify early manifestations of systemic diseases in the oral cavity. It highlights the necessity of maintaining optimal oral hygiene to significantly modify the risk factors for serious systemic diseases. This article provides an overview of the concept of oil pulling or oil swishing, which highlights the role of oil pulling in specific oral diseases.

The goal of this review is to highlight the ancient procedure that has the potential to be used as an adjunct to conventional chemical means of dental plaque control, such as mouth rinses. Incorporating oil swishing as a component of daily oral hygiene can significantly improve oral and general health, specifically in lower socioeconomic groups and rural communities that may have interrupted access to healthcare services and dental products such as dentifrices and mouthwashes due to various factors; availability and affordability being the most important.

Keywords: Traditional medicines, periodontal, dental diseases, oil pulling

Introduction

There is a widespread perception that good oral health is a prerequisite for overall health. This suggests that a person's overall health and well-being are greatly impacted by their oral health. Numerous studies conducted in the last few years have unmistakably shown that systemic and oral diseases are strongly related. It is thought that there is a connection between these conditions because they share similar risk factors. Dental caries and periodontal diseases (such as gingivitis and periodontitis) are the most prevalent types of oral diseases [1].

Various studies have identified periodontal disease as a risk factor for the etiology of coronary heart disease. Similarly, a thorough examination of the gingival tissue can point toward a significant Vitamin C deficiency and other nutritional deficiencies [1]. Dental caries, which is also one of the most common forms of infectious diseases globally, has been found to significantly affect the systemic health and quality of life of individuals.

The fields of medicine and dentistry have witnessed major technological advancements in recent years. Despite this fact, on a larger public health scale basic protocols of patient care continue to focus on and highlight the importance of simple, preventive, and behavioral modification strategies. Recently, various forms of alternative or traditional medicinal treatments, such as Ayurveda have started to gain popularity, due to their natural origin, cost-effectiveness, negligible side effects, and improved patient compliance.

Originating in the Indian subcontinent, Ayurveda is a traditional holistic medical system. According to reports, it has been practiced in the area for between three and five millennia. It has become more well-known as complementary medicine in other regions of the world recently. This review seeks to define the potential

applications of oil-pulling therapy as a preventative measure for different oral diseases as well as to highlight its use as a supplement to traditional oral hygiene products.

Oil pulling

Oil pulling or oil swishing, as the name suggests involves vigorous swishing of oil in the oral cavity to achieve local and systemic benefits, similar to the modern-day use of mouthwashes and oral rinses. It has been used for centuries for the treatment and prevention of various oral and systemic diseases, using edible oils derived from either sunflower, sesame, or coconut. The process of oil swishing is believed to cure or control 30 different types of systemic diseases including headaches, migraine, and chronic diseases such as asthma and diabetes mellitus. [2] The effects of oil pulling on oral health, as an adjunct to conventional oral hygiene measures have been exemplary. Scientific evidence suggests that oil-pulling therapy may reduce the total oral bacterial count and reduce plaque and gingival scores

Table 1: presents various properties of oil pulling in comparison to mouthwashes [3].

Attributes	Mouthwashes	Oil Pulling
Natural	No	Yes
Side effects	Yes	No
Bacterial resistance	Yes	No
Cost-effective	No	Yes
Easily available	No	Yes
Prescription needed	Yes	No
Contraindicated in pregnancy	May be	No
Availability in rural areas	No/maybe	Yes
Unpleasant taste	Yes	No
Time-consuming	No	Yes
Contraindicated in other diseases	Yes	No

Chemical composition of commonly used oils for oil pulling

Sesame oil

Sesame oil contains three lignans (sesamin, sesamol, and sesaminol). These lignans contain Vitamin E and polyunsaturated fatty acids. In addition, linoleic acid and oleic acid are also major components of sesame oil. The components of sesame oil possess antioxidative properties that reduce lipid peroxidation by diminishing the free radical injury to oral tissues.

Coconut Oil

Coconut oil is composed of 92% saturated acids, with lauric acid making up for 50% of these saturated acids. Monolaurin and monoglycerides of lauric acid have been identified to have antimicrobial activity against a range of microorganisms [4].

These include *Helicobacter pylori*, *Staphylococcus aureus*, *Escherichia vulneris*, *Enterobacter*, and *Candida* species, including *Candida glabrata*, *Candida albicans*, *Candida stellatoidea*, *Candida parapsilosis*, *Candida tropicalis*, and *Candida krusei* and various viruses [4].

Effects of oil pulling on oral health

Dental caries

The oral cavity is always covered with a biofilm. The chemical and mechanical removal of the oral biofilm is important in maintaining the ecological equilibrium of the oral cavity and preventing the initiation of the carious process. An estimated 700 different species of bacteria are found in the oral microbiome, inhabiting the oral biofilm. Of these, bacitracin-producing *Streptococcus mutans* and lactic acid-producing *Lactobacilli* are the most common pathogens that cause dental caries. The demineralization process starts after the pH of plaque drops below the "critical value" (5.5 for hydroxyapatite, 4.5 for fluorapatite, and 6.7 for cementum), causing disintegration of the calcium phosphate ions in the hydroxyapatite crystals. The demineralized form of enamel is known as dental caries [5].

Oil pulling is shown to have antibacterial activity against *C. albicans* and *S. mutans* using coconut oil, while sesame oil also has similar activity against *S. mutans* and *Lactobacilli*. Following a 40-day regimen of oil pulling, an average reduction of 20% was observed in the total microbial count in the oral cavity [5]. Similarly, another study testing the susceptibility to dental caries before and after oil pulling showed that in 50% of the subjects the susceptibility was reduced from "marked" to "slight." Whereas, in the other 50% of the subjects the susceptibility reduced from "marked" to "moderate."

Plaque-Induced Gingivitis

Plaque-induced gingivitis is one of the most common types of gingival disease caused due to the interaction of microorganisms in the plaque biofilm with the inflammatory cells of the host. A recent randomized controlled trial showed a significant decrease in modified gingival index scores and plaque scores following oil-pulling therapy when compared to the chlorhexidine group. Another study also showed a reduction in plaque scores following 45 days of oil-pulling therapy with sunflower oil. The plaque scores reduced by 18-30%, whereas gingivitis decreased by 52-

60%. Furthermore, evidence from both clinical and biological assessments showed that oil pulling was effective against plaque-induced gingivitis [6].

Halitosis

Bad breath, or halitosis, is a common issue that frequently results in social embarrassment. The malodor is a result of the proteolytic breakdown of peptides found in food debris, saliva, plaque, and desquamated epithelial cells. These compounds, particularly dimethyl sulfide, hydrogen sulfide, and methyl mercaptan, are volatile sulfur compounds. It is also known that the gram-negative proteolytic bacteria that cause gingivitis and periodontitis also produce sulphide compounds.

Sesame oil -oil pulling therapy was found to be just as effective as the gold standard chlorhexidine rinses in combating halitosis and related pathogens [7]. In addition, oil pulling is less expensive than chlorhexidine and doesn't have any negative side effects, such as allergic reactions or mucosal staining after extended use [6].

Oral Thrush

Candida species are the cause of oral candidiasis, also known as oral thrush, a non-contagious fungal infection. It is frequently observed in patients taking drugs that may, over time, change the oral microbiota. Oral candidiasis is apparently more common in denture wearers, patients receiving long-term antibiotic treatment, patients using inhaled corticosteroids for asthma, and patients receiving chemotherapy or radiation therapy [8]. Research indicates that oil pulling treatment reduces oral thrush symptoms in two ways. During oil swishing, it first traps or draws toxins and other pathogens, which helps to mechanically remove the pathogens from the oral cavity. Secondly, the antifungal characteristics of the oils utilized, especially coconut oil, eliminate the yeast present in the oral cavity.

Systemic Effects

Oil pulling can be used for the prevention and treatment of more than 30 different diseases, which vary from headaches, migraines, thrombosis, and eczema; to fatal diseases such as diabetes and asthma [10].

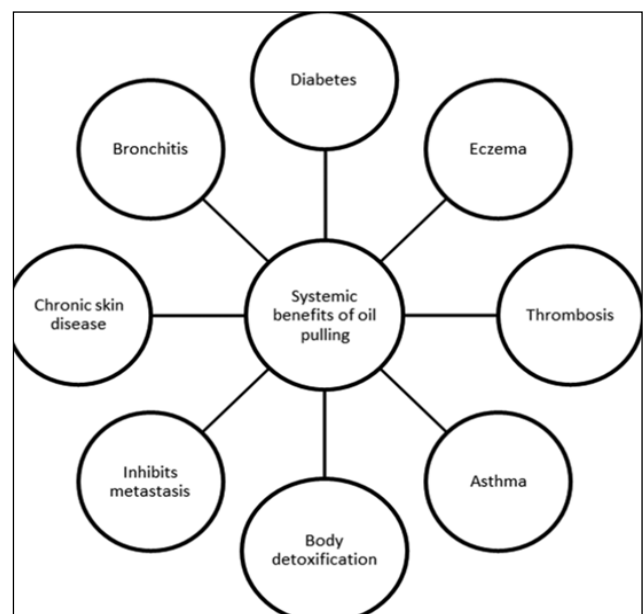


Fig 1

Discussion

Literature related to oil pulling and dental health is sparse. Oil pulling has roots back to ancient Hindu texts and scriptures. Oil pulling and other such alternative healing approaches deserve appropriate scientific interest as there are few studies to date evaluating the oral health benefits. In addition, oil pulling has been reported to improve oral hygiene remarkably^[6, 3].

Oil pulling therapy is a simple and cost-effective method to improve and maintain good oral health with no strict precautions required to follow the regimen. Compared to other forms of detox methods, it is effortless, simple and harmless^[2]. In addition, most of the oils used in this form of therapy have no side effects, lingering after taste or associated allergies. Moreover, it does not require any specialized oil and any household oil (such as sunflower or any other vegetable oil) can be used. Hence, the additional benefits are an ease of practice at home and cost-effectiveness (the cost of refined oil ranges 1-2 USD/L); the cost of oil pulling per rinse is significantly less than other commercially available remedies. Furthermore, it is not associated with any alteration of taste perception and sensation.

Chlorhexidine mouthwashes are used as an adjunct to the clinical management of caries and periodontal diseases. However, it is associated with slightly lower compliance due to its unpleasant taste and unwanted effects (staining). In addition, the stannous within this oral rinse is associated with extrinsic staining of teeth, while the zinc and stannous salts have organoleptic properties, limiting its use to only concentrations. Using oil-pulling techniques has not been associated with any such side effects.

At present, there is a lack of clinical guidelines as alternative forms of oral hygiene measures such as oil pulling are under-researched. In general, however, it is not recommended for children <5 years of age, as there is a chance of swallowing. Similarly, for individuals who suffer from various allergies should be cautious regarding the origin of the oil as they may be processed in facilities that produce oils from nuts and seeds. A few cases of lipoid pneumonia have been reported in individuals who readily practiced oil pulling. These cases have been associated with the unintentional aspiration of small amounts of oil, which generally should not pose any risk to the general health since it is readily excreted through faeces^[6].

Conclusion

Oil-pulling therapy is a form of ayurvedic procedure that promotes good oral and systemic health by incorporating the use of oil-based oral rinses in the daily oral hygiene routine. For modern-day practices, oil pulling can be suggested for adjunct use, with tooth brushing and flossing, to maintain standard oral health care. In developing countries and rural communities, access to oral care is minimal, and the use of toothbrushes, toothpaste, and mouthwash are still not accessible in all cases, therefore oil pulling can serve as an affordable option and improve oral health outcomes.

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