



Review Article

OIL PULLING AND ITS EFFECTS ON ORAL HEALTH-A FACT OR FAD - A SYSTEMATIC REVIEW

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ABSTRACT

Oral health serves as a gateway to general health. Dental diseases have a detrimental effect on the quality of life. A strong relationship exists between various oral and systemic diseases. Thus, prevention and timely treatment of oral diseases like dental caries and periodontal diseases have been shown to reduce the risk of systemic diseases like cardiovascular diseases and diabetes. It reminds the necessity of maintaining an optimal oral hygiene. This can be achieved by regular oral hygiene measures including some Ayurvedic techniques like *Dant Dhvani* (cleansing or washing the teeth), *Jivha Lekhna* (tongue scraping) and *Kavala Gandoosha* (also known as oil pulling) etc. The use of oil pulling can be frequently found in the ancient text on medicine and recent studies have shown tremendous results on the benefits of the technique. This review article provides an insight about the concept of oil pulling or oil swishing, its method of usage, its mechanism of action and its role on preventing various oral diseases. This article also throws light on the link or relationship between dental and Ayurvedic science and the wise usage of Ayurvedic preparations for the maintenance of oral health and the cure of certain oral diseases which had been proven to be effective in the long run.

INTRODUCTION

What is oil pulling?

Oil pulling or oil swishing is a traditional remedy originated in ancient India that involves vigorous swishing or gargling of oil in the oral cavity allowing the oil to shuttle between the teeth which benefits the body in different ways including both oral health and systemic wellness.^[1] It is also an ancient way of oral preventive health care which includes swishing of edible oil derived from sunflower, coconut or sesame.

Oil pulling is an effective method to kill mouth bacteria, including those associated with gingivitis and halitosis. It is recommended to be a good supplement or adjunct to practices like tooth brushing, flossing and regular dental visits.^[2]

However, oil pulling is not a treatment strategy for the cure of any oral diseases like dental caries or gum diseases. It is more of a preventive therapy that should be executed along with the regular oral care routine. If done properly, the effects of oil pulling are huge.^[3]

Origin

Oil pulling is a time tested Ayurvedic practice. Its effectiveness relates to seeing the body as a whole unit. Ayurveda started flourishing in India about 3000 years ago. Oral health matters a lot in Ayurveda as a healthy oral cavity promotes a healthy body. Oil pulling originated thousands of years ago and was practiced by mankind for a long time.

MATERIALS AND METHODS

Literature search has been conducted and 56 articles have been reviewed. 17 articles were excluded on the language and content basis. A systematic review and meta-analysis among the selected 39 articles have been done. The following keywords have been used: "Oil Pulling", "Oil Swishing", "Oral Effects of Oil Pulling" in PubMed, Ayushdhara, Embase healthcare journals.

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DISCUSSION

Procedure

Oil pulling is performed preferably in the morning on an empty stomach. About 10ml of any edible oil is the adult recommended dose. It is swished between the teeth for the duration of about 20 minutes and then spat out. Swishing of the oil for the recommended duration in the mouth changes the viscosity of the oil, which turns milky white with a thin consistency.^[4] Swallowing the oil is avoided as it may have toxins that are harmful to the gut. This is followed by rinsing, conventional tooth brushing and flossing. There are barely any contraindications but oil pulling is not advised for children below 5 years of age.

Different types of Oil pulling

In Ayurveda, there are mainly two types of oil pulling.^[5] They are:

- *Kavala Graha*, wherein you keep a comfortable amount of oil in your mouth and then spit it out.
- *Kavala Gandoosha*, wherein you fill your mouth with oil, waits three to five minutes, and then spit.

Mechanism of Action

There are numerous theories explaining the mechanism of action of oil pulling but the exact mechanism is unclear. There are mainly three theories that stand in the prime position.

- Saponification theory, the soap making process or the mechanism that involves the alkali hydrolysis of fat that emulsifies fat into bicarbonate ions which is a normal constituent of the saliva.^[2] Soaps which are effective cleaning agents blend in the oil, hence increasing the surface area of the oil and in turn increase the cleansing action.
- Plaque inhibition theory which suggests that the viscous nature of the oils inhibits the accumulation of plaque and thereby prevents the adhesion of bacteria.
- Antioxidant theory suggests that the antioxidants present in the oils cause detoxification by preventing lipid peroxidation, resulting in an antibiotic-like effect. It thus helps in the destruction of microorganisms and potentiating the action of tocopherol in the oral cavity.

Chemical composition of commonly used oils for oil pulling

Coconut oil

Coconut oil is the most commonly used oil for oil swishing. It is composed of 92% of saturated acids of which 50% is lauric acid which is known to have antimicrobial properties.^[6] It is said to have antibacterial properties against a range of microorganisms including *Helicobacter pylori*, *Staphylococcus aureus*, *Escherichia vulneris*, *Enterobacter* and many *Candida* species.

Sesame oil

Sesame oil contains three different types of lignans including sesamin, sesamol and sesaminol. These contain vitamin E and polyunsaturated fatty acids. In addition to this, oleic acid and linoleic acid are also present in sesame oil which possess anti-oxidative properties that reduce the peroxidation of the lipids and also diminishes the free radical injury to the tissues.

Effects of oil pulling on oral health

Charaka Samhita^[7] quotes the act of oil pulling as "It is beneficial for the strength of the jaws, depth of voice, flabbiness of face, improving gustatory sensation and good taste for food. One used to this practice, never gets sore throat nor cracked lips, his teeth will never be carious and will be deep rooted; he will not have any tooth ache nor will his teeth set on edge by sour intake; his teeth can chew even the hardest eatables.

Dental caries

The oral cavity is covered with a biofilm. The chemical and the mechanical removal of the biofilm is important in maintaining the ecological equilibrium of the oral cavity and in turn prevent the initiation of the carious process.

Coconut oil shown more activity on *Candida* species and sesame oil showed more anti-bacterial activity on species like *Streptococcus mutans* and *Lactobacillus*.^[4] A study also revealed that a 40-day regimen of oil pulling caused an average reduction of 20% of the total oral microbial count and a 50% reduction in the caries initiation.

Plaque-induced Gingivitis

Plaque-induced gingivitis is one of the common gingival diseases caused due to the interaction of the microorganisms in the plaque biofilm with the immune cells of the host.^[8] A recent randomized control study showed a significant decrease in the gingival index scores and plaque scores following oil pulling therapy as compared to the chlorhexidine or the mouthwash group.^[6]

Comparison between oil pulling and chlorhexidine mouthwashes

Attributes	Mouthwashes	Oil pulling
Natural	No	Yes
Side effects	Yes	No
Cost effective	No	Yes
Unpleasant taste	Yes	No
Time consuming	No	Yes
Easily available	No	Yes
Bacterial resistance	Yes	No

Halitosis

Halitosis or breath malodor is a common problem which is often associated with social embarrassment. It is caused due to the production of volatile sulfide compounds like methyl mercaptan, dimethyl sulfide, hydrogen sulfide et cetera originating from the proteolytic degradation of the peptides present in the food debris, saliva, plaque and desquamated epithelial cells.^[3] This helps in colonization of the gram negative bacteria causing periodontitis and gingivitis.

Oil pulling has been found effective against halitosis and associated pathogens when used as a preventive therapy along with other oral hygiene measures. Oil pulling is also more cost effective and has fewer side effects like allergic reactions and there are less chances of mucosal staining as in using chlorhexidine mouthwashes.

Oral thrush

Oral thrush or candidiasis occurs commonly in the ill and the debilitated and patients with underlying diseases or old age and poor oral hygiene. This fungal infection also occurs in denture wearing patients as denture stomatitis or patients under steroid therapy like in treatment of asthma or in patients undergoing chemotherapy or radiotherapy.^[2]

There are two ways in which oil pulling improves the symptoms of oral thrush:

- It traps or pulls the toxins and other pathogens during the oil swishing and aids in the mechanical removal of the pathogens in the oral cavity.
- The antifungal properties of the oils used, mainly coconut oil, kills the yeast in the oral cavity and therefore plays a role in eliminating the candida pathogens.

Whitens teeth

Swishing of the oil triggers an emulsification process, which has been shown to help enhance the oil's scrubbing or abrasive action which helps in removal of stains from the teeth.^[3]

Other effects^[9]

- Strong gums
- Decreased bleeding
- Fastening of the mobile tooth
- Improves strength of the lower jaw and chin
- Improves the quality of speech and voice
- Increases appetite
- Cures dry and chapped lips
- Improves the sense of taste
- Healthier and sound sleep
- Treating migraines and headache

Systemic effects

Oil pulling has known to reduce the chances of headaches, migraines, thrombosis, cardiovascular diseases, diabetes, asthma, eczema and some fatal diseases.^[10] It has also been known to decrease the chances of metastasis in Stage 1 cancer patients.

Side effects of oil pulling

1. Lipoid pneumonia occurs due to the inhalation or aspiration of oily substances.
2. Upset stomach and nausea caused due gargling large amounts of dense oils.
3. Heavy metal poisoning due to the traces of heavy metals in dense oils.
4. Allergic reaction
5. Tooth sensitivity and gum irritation

CONCLUSION

Oil pulling therapy is a preventive therapy that promotes good oral hygiene and prevention of dental caries. However, it is not a cure and it cannot reverse the damage already occurred. For instant a dental caries already occurred cannot be reversed to a healthy tooth. It is only of an adjunct use along with other oral hygiene measures. Numerous studies have been conducted recently supporting this technique and its health benefits. Oil pulling can be an adjunct to standard oral care like teeth brushing and flossing. In developing countries and rural communities, the access to oral care is minimal, and the use of toothbrushes, toothpaste and mouthwashes are still not accessible in all cases. Oil pulling is cost effective and oral friendly method. The Ministry of AYUSH has been promoting oil pulling as a preventive therapy especially during the COVID pandemic during which many patients presented with symptoms like burning sensation of the eyes, nose, throat, xerostomia and oral ulcers. Oil pulling was deemed as an effective method in treating the oral symptoms of COVID 19. Though some oil pulling experts say it can be used instead of tooth brushing, there is no evidence to support it can substitute tooth brushing although it can support our dental health.

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