

Review Article

Title-

Oil pulling: A Natural Cure to Oral Diseases

ABSTRACT

PURPOSE: To highlight the procedure and importance of oil pulling technique in oral diseases.

METHOD: Oil is sipped, swished, pulled and forced all around the oral cavity for 15-20 minutes till it changes its viscosity and turns milky white with thin consistency and is spat out.

RESULT: Oil pulling is an effective therapy for bringing significant improvement in oral health and preventing certain oral diseases.

CONCLUSION: Oil pulling technique is simple to use and is very cost effective. Incorporating this technique as a component of daily oral hygiene will help to improve oral and general health.

Keywords: { Ayurvedic, oil pulling, oral hygiene, sesame oil. }

1. INTRODUCTION

"It is a common belief that oral health serves as a gateway to general health. This implies that oral health significantly impacts the general health and wellbeing of an individual"¹. "Oral health harbors a variety of microorganisms which are responsible for maintaining the health of an individual. There exists a relationship between oral and general health. Many general disease conditions also have oral manifestations that increase the risk of oral disease which, in turn, is a risk factor for a number of general health conditions"². Hence, maintaining a good oral hygiene plays a very important role in maintaining the general well being of an individual.

"Oil pulling is claimed to improve oral health. It came into lime light and popularity by Dr F Karach"^{3,4}.

It is an ancient ayurvedic technique known to improve dental health. This concept is also known as gandoosha or kavala in ayurvedic text "Charaka Samhita"

The term "oil pulling" stems from the holistic belief that swishing the oil for a period of time within the oral cavity will activate enzymes and draw or "pull" toxins from the teeth, saliva, and blood. "Since the oral mucosa is not a semipermeable membrane, it is unlikely that toxins can be drawn out of the blood. Many edible oils, such as sesame seed, sunflower seed, or coconut oil, can be used for the oil-pulling process. Sesame oil is extracted from seeds of the plant *Sesamum indicum* by pressing the seeds"⁵.

This oil pulling technique is known to prevent many oral diseases such as gingivitis, halitosis, oral ulcers, dental caries, oral thrush and many more. The review analyses the importance of oil pulling technique in prevention of various oral diseases.

2. METHOD OF OIL PULLING

To perform oil pulling person is asked to sit comfortably in erect posture with chin upright and one tablespoon (approximately 10 ml) of oil is sipped on an empty stomach in the early morning, before breakfast. The oil is then swished, pulled and forced all around the oral cavity and between all the teeth respectively for around 15-20 mins., till it changes its viscosity and turns milky white with thin consistency and is spat out. This should be followed by warm saline water or tap water oral rinses, conventional tooth brushing and flossing. If the person feels any uneasiness or pain in the jaw, then the procedure can be done for around 5-10 mins.

Swallowing of oil during oil pulling should be avoided as the oil contains bacteria and toxins.⁶ Though there is no contraindication of oil pulling, still it is not advisable for children below 5 years of age.^{5,7} Care should be taken not to swallow oil as it is harmful to general health of practitioner. In case of oral ulcers, fever, vomiting tendency, asthma and in conditions where brushing is difficult and sometimes contraindicated, oil pulling can be advantageously used to maintain oral hygiene.⁸ For better results and to cure any acute disease it can be performed 3 times daily.

3. MECHANISM OF ACTION

Drug which is generally taken through oral cavity undergoes first pass metabolism and absorbed in the bloodstream, whereas in other ways (parenteral route e.g., s.c, i.v.) it bypasses the first pass metabolism and directly absorbed into bloodstream which result in rapid onset of drug effect. Oil pulling is another form of drug administration in which it directly enters into blood stream having both local and systemic effects. Although there is no such evidence based hypothesis which can claim mechanism of oil pulling, but according to some authors it is believed that microbes are fat soluble in nature due to presence of lipid in its cell membrane, even toxins are also fat soluble which makes both of them to get dissolved in oil and flushed out of the body. There are different theories proposed by different authors one of them which is most acceptable is 'Saponification Theory', according to which fat present in oil undergoes emulsification into bicarbonate which is present in saliva through the alkali hydrolysis process which are potent cleansing agents, causing increase in surface tension resulting in better cleansing of teeth. **The process of emulsification of oil begins upon 5 mins. of oil pulling⁹.**

Another theory hypothesize that due to the presence of viscous nature of oil it inhibits bacterial adhesion to the tooth surface.

Third theory, hypothesize that due to the antioxidants present in oil, lipid oxidation is prevented resulting in an antibiotic like effect.

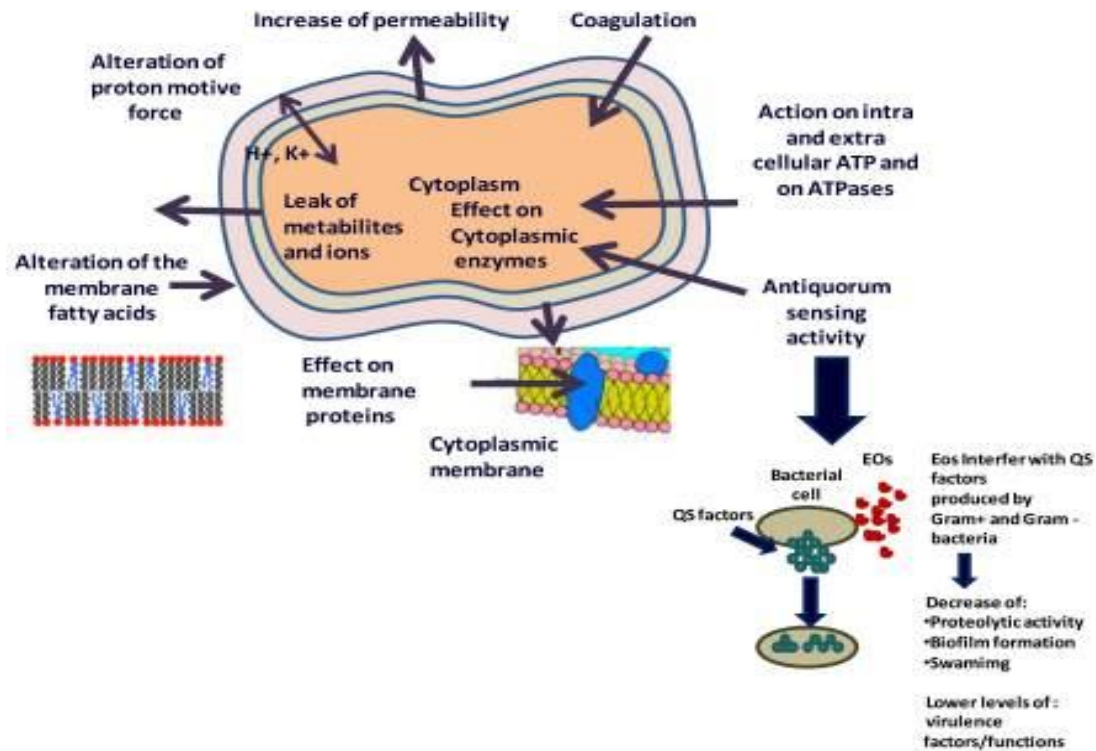


Figure 1: Mechanism of action of essential oil (EOs) on microbial cell

4. CHEMICAL COMPOSITION OF COMMONLY USED OILS

Traditionally sesame oil is the most recommended oil for oil pulling but , as per studies oil pulling can be done using olive oil, milk, extracts of gooseberry and mangoes is also documented².

4.1 Sesame oil

"It has 3 lignans: sesamin,sesamolin,sesaminol which has antioxidant properties and potentiates Vitamin E action. It also have PUFA (polyunsaturated fatty acids) which decrease lipid peroxidation resulting in reduced free radical injury to tissues. Roots of sesame (*Sesamum indicum*) has chlorosesame which has antifungal activity"¹⁰.

4.2 Olive oil

"It contains plant phenolic compounds, squalene, phytosterols, vitamin A,E,K which have immunomodulatory and antioxidative effect"¹¹.

4.3 Coconut oil

"It has high saponification index. It contains 92% saturated acids and -lauric acid making up for 50% of these saturated acids"¹⁰, which react with alkalis present in saliva such as sodium hydroxide and bicarbonates to form sodium laurate like substances thus functioning as antimicrobial and anti inflammatory". "Monolaurin and monoglycerides are effective against microorganisms such as *Staphylococcus aureus*, *Candida spp.*, *Helicobacter pylori*,

Escherichia vulneris and Enterobacter spp. It is hypothesized that monolaurin causes bacterial death by altering bacterial cell wall, penetrating and disrupting cell membranes and inhibiting enzymes related to energy production and nutrient transfer¹¹. "Monolaurin also has virucidal activity by dissolving lipids and phospholipids in the viral envelope; leading to disintegration of virus"¹².

5. APPLICATION OF OIL PULLING

5.1 Dental benefits of oil pulling

- Prevent Dental caries
- Prevent Plaque-Induced gingivitis
- Cure Halitosis
- Improves symptoms of Oral thrush
- Relieving Xerostomia

5.2 Systemic benefits of oil pulling

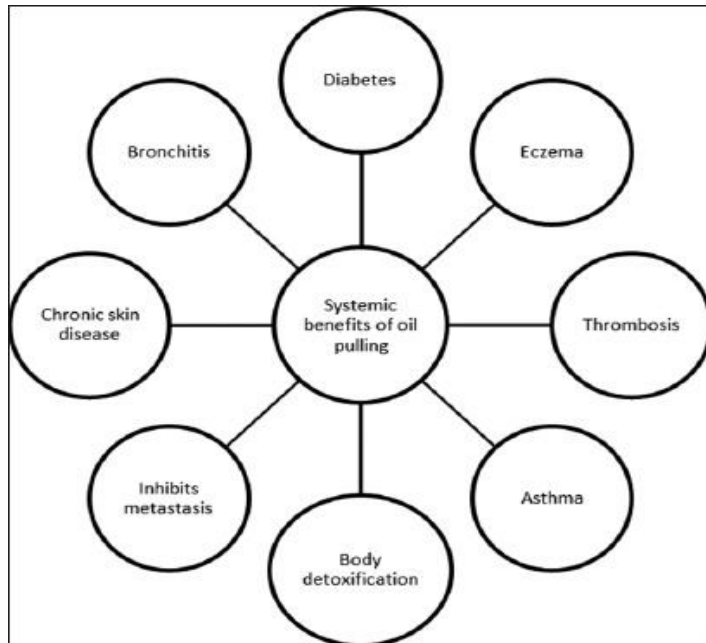


Figure 2: Systemic benefits of oil pulling¹⁰

6. DISCUSSION

"The Ayurvedic technique of oil pulling is an ancient technique used to prevent many oral diseases. Ayurveda can prove to be very fruitful in prevention and treatment of dental diseases. This oil pulling Ayurvedic technique has been reported to improve oral hygiene remarkably"^{2,13,14}.

The concept of oil pulling was familiarized by Dr. F. Karach in the 1990s in Russia. It is claimed to cure about 30 systemic diseases ranging from headache, migraine to diabetes and asthma¹⁵ when practiced regularly and as directed.

The main advantage of oil pulling technique is its cost effectiveness and ease of use. One has to simply swish oil in mouth. It is an effortless, harmless and simple technique. The only precaution that needs to be taken under consideration while performing this technique is not to swallow oil. It is found that oil such as sesame oil contains linoleic acid and oleic acid as its predominant constituent, which show significantly reduced *S. mutans* counts in plaque and saliva of adolescents within 1 week¹⁶.

"It helps to cure many oral diseases such as dental caries, plaque induced gingivitis, halitosis, oral thrush and lot more. On the contrary, some *in vitro* studies have demonstrated that a few types of edible oils have antibacterial activity"¹³. Thaweboon et al in 2011 reported that "sesame oil had antibacterial activity against *S. mutans*, whereas sunflower oil had antifungal activity against *C. albicans*"¹³. Apart from oral diseases, it is also useful in other systemic diseases which include bronchitis, chronic skin diseases, asthma, thrombosis etc. It also plays a key role in body detoxification.

However, it is found that according to study proposed by Hanning et al it is found that oil pulling done with essential oils like sesame oil shows remarkably reduction in the plaque index, modified gingival scores, and total colony count of aerobic microorganisms in the plaque were observed in a group of 20, age-matched adolescent boys attending a school in India¹⁷. "Whereas an *in vitro* study on the effect of selected edible oils, such as safflower, olive, and linseed on the early colonization of enamel surfaces by Hanning et al shows that there is no significant influence on the initial pattern and the quantity of bacterial colonization on enamel over an 8-hour period"¹⁸.

"Thus, oil pulling is a simple technique with no side effects and remarkable results. A study done by Nilufar Nekuzada et al showed that the use of *Sesamum indicum* in patients under chemotherapy has decreased the phlebitis incidence"¹⁹. "Only people who are allergic to specific oil can use other type of oil as an alternative. Also, in children one has to take care that they don't swallow it. However, if accidentally small amount of oil is swallowed, there is nothing to worry as the same is removed from body through feces"²⁰. "Even, Oil pulling is also supposed to increase the metabolism of the body, heal the cells, tissues and organs of the body and improve longevity in human beings"²¹.

7. CONCLUSION

Oil pulling is known to bring significant improvement in oral hygiene if practiced regularly and correctly. It is known to have promising results. It can be used as an adjunct to maintain good oral hygiene and prevention and cure of certain oral diseases. It is an affordable option with significant results.

REFERENCES

1. Scully C, Ettinger RL. Oral Health in America: A Report of the Surgeon General. Washington, DC, USA: Department of Health and Human Services, US Public Health Service; 2000
2. Amith HV, Ankola AV, Nagesh L. Effect of oil pulling on plaque and gingivitis. *J Oral Health Community Dent.* 2007 Jan; 1(1):12-8
3. Parolia A. Oil hygiene. *Br Dent J.* 2009;207:408.
4. Peedikayil FC, Sreenivasan P, Narayanan A. Effect of coconut oil in plaque related gingivitis e a preliminary report. *Niger Med J.* 2015;56:143e147.
5. Asokan S, Rathinasamy TK, Inbamani N, Menon T, Senthil Kumar S, Emmadi P, Raghuraman R. Mechanism of oil-pulling therapy – *in vitro* study. *Indian J Dent Res* 2011 Jan-Feb;22(1): 34-37.

6. Asokan S, Rathan J, Muthu MS, et al. Effect of oil pulling on Streptococcus mutans count in plaque and saliva using Dentocult SM Strip mutans test: a randomized, controlled, triple-blind study. *J Indian Soc Pedod Prev Dent.* 2008;26:12e17
7. Hebbar A, Keluskar V, Shetti A. Oil pulling-unraveling the path to mystic cure. *J Int Oral Health* 2010;2:11-5.
8. Singh A, Purohit B. Tooth brushing, oil pulling and tissue regeneration: a review of holistic approaches to oral health. *J Ayurveda Integr Med.* 2011;2: 64e68.
9. Bekeleski G.M., McCombs G., Melvin W.L. Oil pulling: an ancient practice for a modern time. *J Int Oral Health.* 2012;4:1–10.
10. Naseem M, Khiyani MF, Nauman H, Zafar MS, Shah AH, Khalil HS. Oil pulling and importance of traditional medicine in oral health maintenance. *Int J Health Sci (Qassim).* 2017 Sep-Oct;11(4):65-70. PMID: 29085271; PMCID: PMC5654187.
11. Shanbhag VK. Oil pulling for maintaining oral hygiene - A review. *J Tradit Complement Med.* 2016 Jun 6;7(1):106-109. doi: 10.1016/j.jtcme.2016.05.004. PMID: 28053895; PMCID: PMC5198813.
12. Thaweboon S, Nakaparksin J, Thaweboon B. Effect of oil-pulling on oral microorganisms in biofilm models. *Asia J Public Health.* 2011;2:62e66.
13. Shanbhag VK. Oil pulling for maintaining oral hygiene - A review. *J Tradit Complement Med* 2016;7:106-9.
14. Gbinigie O, Onakpoya I, Spencer E, McCall MacBain M, Heneghan C. Effect of oil pulling in promoting oro dental hygiene: A systematic review of randomized clinical trials. *Complement Ther Med* 2016;26:47-54.
15. Asokan S, Kumar RS, Emmadi P, Raghuraman R, Sivakumar N. Effect of oil pulling on halitosis and microorganisms causing halitosis: A randomized controlled pilot trial. *Journal of Indian Society of Pedodontics and Preventive Dentistry.* 2011 Apr 1;29(2):90.
16. Ciancio SG. Current status of indices of gingivitis. *Journal of Clinical Periodontology.* 1986 May;13(5):375-8.
17. Asokan S, Emmadi P, Chamundeswari R. Effect of oil pulling on plaque induced gingivitis: a randomized, controlled, triple-blind study. *Indian J Dent Res* 2009;20(1):47-51.
18. Hannig C, Kirsch J, Al-Ahmad A, Kensche A, Hannig M, Kümmerer K. Do edible oils reduce bacterial colonization of enamel in situ? *Clin Oral Investig* 2013 Mar;17(2):649-658.
19. Nekuzad N, Torab TA, Mojab F, Alavi-Majd H, Azadeh P, Ehtejab G. Effect of external use of sesame oil in the prevention of chemotherapy-induced phlebitis. *Iranian journal of pharmaceutical research: IJPR.* 2012;11(4):1065
20. Coleman M. *Oil Pulling Revolution: The Natural Approach to Dental Care, Whole-Body Detoxification and Disease Prevention.* Berkely, CA, USA: Ulysses Press; 2015.
21. Ballal V. Oil therapy. *Br Dent J.* 2009;207:193.