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Effect Of Oil Pulling In Plaque Induced Gingivitis: A Review.

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ABSTRACT

Oil pulling or oil swishing is a traditional folk remedy that involves the practice of swishing and spitting out of an edible oil like gingelly oil, coconut oil, olive oil or sesame seed oil etc., for detoxification of toxins and expelling microorganisms out of the body. Various oils such as sesame seed oil, gingelly oil, coconut oil, sunflower oil, olive oil have been used for oil pulling. There are many uses for oil pulling such as improving oral health, skin health, treating migraines, relieving relief from asthma, boosting the immune system, aids in weight loss, correcting hormonal imbalance and promotes better sleep. Here in this article, the effect of oil pulling in reduction of plaque and gingival inflammation has been reviewed.

Keywords: Oil pulling, swishing, plaque, gingivitis, detoxification

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INTRODUCTION

Oil pulling is a traditional folk remedy that involves the swishing of an edible oil (kavala graham) or holding in the mouth (snigda gandoosha) and then spitting it out. The history of oil pulling dates back to a very long period before when the practice of Ayurveda had emerged. The benefits and effects of oil pulling had been mentioned in ancient ayurvedic book Charaka Samhita. (1) The practice of oil pulling was then popularized in 1990s in Russia by the works of Dr. F. Karach, a Ukrainian Physician who had experimented and derived the health benefits of oil pulling with sunflower oil. (2)

Mechanism of oil pulling therapy

The mechanism of action of this oil pulling therapy is by a process of detoxification and emulsification. According to the ayurvedic concept, it is believed that the tongue has important connections with the vital organs of the body such as heart, lungs, kidneys, small intestine and even the spine. The process of detoxification that is the excretion of heavy metals and other toxins are believed to be eliminated through saliva when oil pulling is done. Hence according to this concept the salivary enzymes absorb the chemical toxins, bacterial toxins and environmental toxins from the blood and are eliminated from the body via the tongue. Oil pulling also generates antioxidants which cause damage to the cell wall of the microorganism. When oil pulling is done, the oil layer attracts the bacterial cell lipid layer and the process of emulsification occurs and there is an increase in the surface area of the oil layer. The oil coats the teeth and the gingival and thus prevents bacterial coaggregation and plaque formation. (3)

Various oils used in oil pulling

The most commonly used oils for oil pulling include sesame seed oil or gingelly oil which contains sesamol, sesamin, phytic acid which are important antioxidants, tocopherol, phenols which prevent the degeneration of blood vessels and reduce cholesterol. It also has 40% linoleic acid which is a good anti-inflammatory agent and also boosts the vitamin E level in the body. The viscosity of the oil can be one of the reasons for the inhibition of bacterial adhesion and aggregation. (4) Coconut oil can also be used for oil pulling. It has a high saponification index and contains lauric acid which reacts with alkalis such as sodium hydroxide and bicarbonates present in the saliva forming a sodium-laureate soap-like substance which reduces plaque adhesion, colonization and promotes a cleansing action. Coconut oil has antimicrobial and antiseptic action and is effective against *Streptococcus mutans* and *Candida albicans*. Olive oil which contains 70% monounsaturated fatty acids, oleic acid, plant phenolic compounds such as squalen, phytosterols, vitamin A, E, K and is effective in reducing halitosis. A study conducted at Ireland in 2012 on coconut oil pulling therapy indicated that coconut oil had been partially digested (or enzyme modified) by saliva was more effective as an antifungal and antibacterial, than natural coconut oil. (5) Sunflower oil contains lecithin, carotenoids, tocopherols, vitamins A, D, E so it has proven to deliver nutrients also. (6) Ozonized version of sunflower oil (oleozon) has antimicrobial activity against *S. aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Enterococcus faecalis*, *Mycobacterium* spp., *Streptococcus pyogenes* and *C. albicans*. (7) Other oils such as cod liver, avocado, cedar nut, canola, walnut, castor, black cumin seed, and safflower oil can also be used. (8)

Method of oil pulling therapy

Oil pulling therapy is best and beneficial to do in an empty stomach. A tablespoon of an edible oil such as gingelly or sesame seed oil, coconut oil, olive oil is taken and swished in the mouth, pulled between the teeth across the gingiva for about 15-20 minutes and then spit out. If oil pulling is done properly, the oil would be less viscous and turns milky white in colour when spit after 20 minutes. The oil should not be swallowed as it may contain bacteria. Following oil pulling, a proper rinsing of the mouth is done. Rinsing of the mouth can also be done with warm saline water as it will add onto a soothing effect apart from an antimicrobial effect. (9) The effects of oil pulling are beneficial if it is done for 2-3 times/day over a long period of time. (10)

Systemic health benefits of oil pulling

A survey conducted by the Indian Daily newspaper in the early 1996 to know the systemic benefits of doing oil pulling reported that heart diseases, diabetes, diseases of the digestive system, skin problems, allergy and respiratory problems, physical pains and diseases of the female reproductive system were cured if oil

pulling had been practiced for a long period of time.(11) It is believed that oil pulling promotes the lymphatic system of the body to remain in a good health This is because the harmful bacteria ,toxins are eliminated from the body and the beneficial microflora are given a healthy environment to flourish. Because of this holistic perspective, oil pulling has is in practice from a long period of time. (12)

Effectiveness of oil pulling in plaque induced gingivitis

Gingivitis is the inflammation of the gingival tissues. Dental plaque is a structured, resilient substance that adheres to intraoral hard surfaces and is composed of bacteria in a matrix of salivary glycoprotein and extracellular polysaccharides. Plaque induced gingivitis occurs due to the interaction between plaque and gingival tissues and as a result of inflammatory response from the host. The use of topical antibacterial agents can help in reducing the bacterial plaque in the prevention and treatment of gingivitis in some patients.(13)The use of essential herbs such as neem, clove oil, tulsi, pomegranate, guava, cranberry has served to be essential herbal remedy for treating plaque induced gingivitis.(14)Oil pulling is a relatively safe, easy approach for improving the general oral hygiene and has proven to be effective in reducing plaque and gingival inflammation in plaque induced gingivitis. Coconut oil has got a high saponification index ,contains lauric acid and forms a soap like substance through an emulsification process when it reacts with alkalis such as sodium hydroxide and bicarbonates present in the saliva. Thus a cleansing action contributes to the removal of plaque from the tooth substrate. In a prospective interventional study done by Faizal et al. on the efficacy of coconut oil in plaque induced gingivitis in 2015 in 60 age matched adolescent boys and girl of 16-18 yrs of age over a one month period, it was found that a statistically significant decrease in the plaque and gingival index scores were found from the 7th day of the study period and it was found to progressively decrease towards the end of the study period. (15) Coconut oil was found to be effective against *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 (16) In another in vivo study done by the same author to compare the antibacterial efficacy of coconut oil versus chlorhexidine on *Streptococcus mutans*,it was done on a total of 52 female children of age group 8-12 years of age, equally and randomly distributed to the test group(coconut oil) and control group(chlorhexidine) over a period of one month.It was found that a statistically significant decrease in *S. mutans*. count from coconut oil as well as chlorhexidine group from baseline to 30 days was observed. The study also showed that in comparison of coconut oil and chlorhexidine there was no statistically significant change regarding the antibacterial efficacy which was conclusive that coconut oil was found to be as effective as chlorhexidine in the reduction of *S.mutans*.(17)Sesame seed oil or gingelly oil has three lignans - sesamin, sesamol, and sesaminol - that have antioxidant properties and also enhances Vitamin E action. Sesame oil has polyunsaturated fatty acids and the lipid peroxidation is reduced thereby reducing free radical injury to the tissues. In a randomized, controlled triple blind study done by Asokan et al. in 2008 on the effect of oil pulling in plaque induced gingivitis, a total of 20 age matched adolescent boys were divided equally and randomly into Group 1(Gingelly oil pulling group)and Group 2(Chlorhexidine or control group). Plaque index and modified gingival index scores were recorded for all the subjects and baseline plaque samples were also collected to identify the microorganisms and for measuring the total colony count of the aerobic microorganisms present.. Reassessment of the index scores and collection of plaque for measuring the colony count of the aerobic microorganisms was done after 10 days. At the end of the study period, it was found that there was a statistically significant reduction in the pre and post values of the plaque values and modified gingival scores in both the study as well as the control group. There was also a significant reduction in the total colony count of aerobic microorganisms present in both the groups which concluded that use of sesame seed or gingelly oil showed a reduction in the plaque index, modified gingival scores, and total colony count of aerobic microorganisms in the plaque of adolescents with plaque-induced gingivitis.(18)

CONCLUSION

Although oil pulling has proven to have increased health benefits such as improving the general oral health, skin health, boosting the immune system, balances hormonal changes, effective in relieving migraine and asthma, bad breath, dry face, dull senses, exhaustion, anorexia, loss of taste, impaired vision, sore throat it has be done for a long period of time for obtaining the health benefits.(19) Since the practice of oil pulling has been in use since the ancient times with not much reported adverse effects with very few literature studies that say lipid pneumonia being reported in few subjects who had practiced long term oil pulling therapy(20)the benefits of oil pulling therapy outweigh the adverse effect and the practice of oil pulling should

be combined with proper oral hygiene measures such as toothbrushing, flossing and other interdental oral hygiene aids for a proper oral as well as general health.

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