

# Chlorhexidine gluconates role in the treatment of periodontal disease



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## Chlorhexidine Gluconates Role in the Treatment of Periodontal Disease: There's a Better Answer

### Abstract

This paper explores the negative effects of chlorhexidine including tooth staining, oral irritation, and increased calculus formation. Chlorhexidine produces a bitter or altered taste experience for some patients which can affect the level of compliance with this prescription. This drug has been prescribed for the treatment of more advanced oral conditions outside of its intended use and there is a lack of research showing its efficacy against these conditions in which it is being prescribed for. The FDA has made a safety announcement about chlorhexidine causing serious skin reactions and even anaphylaxis. Chlorhexidine has the potential to disrupt cells and eliminate beneficial bacteria. Chlorhexidine gluconate being used as an oral rinse to treat periodontal disease should not be the first method of treatment. There are other studies that show that less harmful products can be just as effective and provide a more safe and comfortable experience for the patient.

Chlorhexidine gluconate is a commonly prescribed antiseptic to aid in the treatment of periodontal disease. This prescription comes with a list of potential side effects which has been found to reduce patient compliance, it has been shown to cause damage to cells and good bacteria in the mouth, and other rinses have proven to be just as effective as chlorhexidine rinse. Therefore, chlorhexidine gluconate should not be used in the treatment of periodontal disease.

Chlorhexidine gluconate is a prescription antiseptic used commonly in dentistry to fight bacteria found in the oral cavity that contributes to gum disease. The most common form this antiseptic comes in is oral rinses, but it can also be available in gels or small chips inserted into the gingival sulcus. Patients are most often prescribed chlorhexidine gluconate rinse after receiving treatment for their periodontal disease. The antiseptic properties help combat redness, swelling, and bleeding of the gums. Chlorhexidine is often one of the first methods dentists turn to when their patients need an alternate route to treat their disease state, but at what cost to the patient? In a study published in the Journal of Applied Oral Science staining and calculus formation was an apparent side effect after the use of a 0.12% chlorhexidine rinse (Zanatta, 2010, 1). Staining was also seen in a double-blind study published in the Journal of Indian Society of Periodontology to measure the efficacy of a curcumin mouth rinse against chlorhexidine. The results show that staining developed on the lingual of the lower anteriors and that curcumin was efficaciously similar to chlorhexidine (Chatterjee, 2017, 132). There is science that suggests other alternatives are explored due to a study published in the Journal of Applied Oral Science that uncovered chlorhexidine's ability to kill bad as well as good bacteria in the oral environment and the discovery of chlorhexidine's toxicity to beneficial cells (Lessa, 2010, 57). Other options besides chlorhexidine have been found to be just as beneficial such as a study done that compared probiotic mouth rinses to a chlorhexidine rinse and found that probiotics can be on the same level as chlorhexidine with more positive benefits rather than fearing the known unwanted side effects of chlorhexidine rinse (Harini, 2010, 1).

Subsequent studies have been done to test for other therapeutic agents that <https://assignbuster.com/chlorhexidine-gluconates-role-in-the-treatment-of-periodontal-disease/>

may be just as similar to chlorhexidine and from that there has been research from the Journal of Pakistan Medical Association that proposes a rinse by Oral- B to be comparable in the elimination of *Streptococcus mutans* and *Escherichia coli* (Ghapanchi, 2015, 350).

When prescribed chlorhexidine patient compliance and the anticipated side effects is always a point to consider. Chlorhexidine has been shown to have a bitter taste and to alter the patients taste perception by acting on the taste buds responsible for the bitter or salty taste. In a study done regarding taste alteration from chlorhexidine rinses, there was a drastic change in the salty taste that a human perceives (Gokul, 1995, 913). Taste alterations can last up to 4 hours and can make patient compliance with chlorhexidine a problem. Chlorhexidine binds to the surfaces inside the mouth including teeth and soft tissue. Chlorhexidine's ability to bind gives the rinse an increased ability to cause stain which is a common side effect among chlorhexidine users. Other common side effects include oral irritation, dry mouth, and increased calculus formation. In a study published in the Journal of Applied Oral Science, they looked at the staining and calculus formation of 0. 12% chlorhexidine gluconate and found that chlorhexidine comes with a list of side effects with the most common being staining and calculus formation (Zanatta, 2010).

The increased calculus formation is a major problem because calculus holds onto endotoxins which can potentially make the patients oral disease worsen. In 2017 a safety announcement was released by the FDA about the increasing amounts of anaphylactic and skin reactions occurring from the use of chlorhexidine gluconate (U. S Food and Drug Administration, 2017). “<https://assignbuster.com/chlorhexidine-gluconates-role-in-the-treatment-of-periodontal-disease/>

There is not enough evidence to show that chlorhexidine is effective on more advanced cases of periodontal disease such as periodontitis” (Worthington, 2017, 33). The FDA has not approved chlorhexidine for the use of periodontitis which narrows down the target population of this drug, but chlorhexidine is still commonly prescribed to patients with periodontitis regardless of the recommendations which show that this drug is being overprescribed which is a constant problem among the healthcare industry.

Chlorhexidine is commonly used in hospitals as a disinfectant on wounds and before or after surgeries. The mouth is more sensitive than skin and the mouth is also one of the fastest healing parts of the human body. An article published by Colgate and backed by the ADA states that the mouth does, in fact, heal faster than skin. There is research being done on proteins found in the mouth that accelerate the healing process (“ Study explores why,” n. d.). Therefore, there is no need to use such a harsh product in the oral environment. It can throw the healthy oral floral out of balance like an antibiotic in the body which damages all bacteria in its path, good and bad. In a study published in the Journal of Applied Oral Science, they measured the cytotoxic effects of chlorhexidine rinse on odontoblastic cells and found that no matter the exposure time the odontoblastic cells received damage and did not recover from the damage done by the rinse. (Lessa, 2010, 8). Odontoblastic cells are responsible for forming dentin and are found on the surface of pulp.

There is no question that a chlorhexidine rinse is effective as there have been countless studies showing its efficacy but with the complications that come with its use such as increased calculus formation, staining, and <https://assignbuster.com/chlorhexidine-gluconates-role-in-the-treatment-of-periodontal-disease/>

mucosal irritation to name a few it is in the patient's best interest to seek out other alternatives that can be safer than chlorhexidine with fewer complications. Various alternatives have been found to be comparable such as curcumin, probiotics, and over the counter mouth rinses. Probiotic rinses help introduce more good bacteria into the microbiome which can have several positive effects including improving breath and reducing the number of periodontal pathogens present increasing the mouth's ability to fight off more damaging bacteria and preventing disease (Harini, 2010). Curcumin is an extract of turmeric that helps increase antioxidants found in the body and is a potent anti-inflammatory. In a study conducted between chlorhexidine and curcumin mouth rinse the curcumin was found to be just as effective as chlorhexidine. The FDA also states curcumin as "generally safe" (Chatterjee, 2017, 137). The evidence from a study done between chlorhexidine and a few other mouth rinses, one being an Oral B brand, showed that the Oral B rinse was effective against *Streptococcus mutans* and *Escherichia coli* (Ghapanchi, 2015, 350). This has a benefit as an alternate option to a patient because it is an over the counter rinse that a patient can acquire with little hassle. The Oral B rinse's ability to kill *Streptococcus mutans* is important because these mutans have a large contribution to tooth decay.

In conclusion, chlorhexidine gluconate should not be the first option when treatments for periodontal disease are considered. Chlorhexidine has side effects including but not limited to staining and calculus formation, has a cytotoxic effect on helpful cells including killing beneficial bacteria and is being found to be comparable to other safer options with less detrimental effects. Throughout the research and studies collected the two areas that

claimed there needed to be further research conducted include the effectiveness of chlorhexidine against moderate to severe gingivitis and the use of probiotics when being compared to the efficacy of chlorhexidine. The arguments presented are the more commonly known negatives that come with the use of chlorhexidine gluconate. Choosing the most commonly known downfalls is beneficial because further investigation as to why these certain reactions occur and what other interventions can be substituted is important.

## References

- Chatterjee, A., Debnath, K., Rao, N. (2017). A comparative evaluation of the efficacy of curcumin and chlorhexidine mouthrinses on clinical inflammatory parameters of gingivitis: A double-blinded randomized controlled clinical study, *Journal of Indian Society of Periodontology*, 21, 132-137. doi: 10. 4103/jisp. jisp\_136\_17
- Colgate. (n. d). Study explores why mouth wounds heal faster than skin cuts. Retrieved from <https://www.colgate.com/en-us/oral-health/basics/mouth-and-teeth-anatomy/why-mouth-wounds-heal-faster-than-skin>
- Ghapanchi, J., Lavaee, F., Moattari, A., Shakib, M. (2015). The antibacterial effect of four mouthwashes against streptococcus mutans and Escherichia coli. *Journal of Pakistan Medical Association*, 65, 350. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/25976564>
- Gokul, G., Lakshmanan, R. (2016). Effect of chlorhexidine mouthwash on taste alteration. *Asian Journal of Pharmaceutical and Clinical*

Research, 9, 102-104. Retrieved from <https://innovareacademics.in/journals/index.php/ajpcr/article/download/12343/6383>

- Harini, P., Aneundi, R. (2010). Efficacy of a probiotic and chlorhexidine mouth rinses: A short term clinical study, *Journal of Indian Society of Pedodontics and Preventive Dentistry*, 28, 179-182. doi: 10.4103/0970-4388.73799
- James, P., Worthington, H., Parnell, C., Harding, M., Lamont, T., Cheung, A., Whelton, H., Riley, P. (2017). Chlorhexidine mouthrinse as an adjunctive treatment for gingival health, *Cochrane Database of Systematic Reviews*, 3, 1-251. doi: 10.1002/14651858.CD008676.pub2.
- Lessa, F., Aranha, A., Nogueira, I., Giro, E., Hebling, J., Costa, A. (2010). Toxicity of chlorhexidine on odontoblast-like cells. *Journal of Applied Oral Science*, 18, 1-9. Retrieved from [https://www.side-effects-site.com/support-files/toxicity\\_chlorhexidine-odonoblasts.pdf](https://www.side-effects-site.com/support-files/toxicity_chlorhexidine-odonoblasts.pdf)
- U. S Food and Drug Administration. (2017). FDA warns about rare but serious allergic reactions with the skin antiseptic chlorhexidine gluconate. Retrieved from <https://www.fda.gov/downloads/Drugs/DrugSafety/UCM539059.pdf>
- Zanatta, F., Antoniazzi, R., Rosing, C. (2010). Staining and calculus formation after 0.12% chlorhexidine rinses in a plaque free and plaque covered surfaces, *Journal of Applied Oral Science*, 18, 1-7. Retrieved from [http://www.scielo.br/scielo.php?pid=S1678-77572010000500015&script=sci\\_arttext&tlng=es](http://www.scielo.br/scielo.php?pid=S1678-77572010000500015&script=sci_arttext&tlng=es)