

The Impact of Clear Aligner Therapy on Periodontal Health Compared to Traditional Braces

Marielaina Perrone*

Family, Cosmetic, and Implant Dentist, Henderson, NV, United States

***Corresponding author:** Marielaina Perrone, Family, Cosmetic, and Implant Dentist, Henderson, NV, United States.

Citation: Perrone M. Comprehensive Overview of the Benefits of Implant-Supported Dentures. *Genesis J Dent Rep.* 1(1):1-4

Received: April 29, 2025 | **Published:** May 9, 2025

Copyright© 2025 genesis pub by Perrone M. CC BY-NC-ND 4.0 DEED. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives 4.0 International License. This allows others distribute, remix, tweak, and build upon the work, even commercially, as long as they credit the authors for the original creation.

Abstract

Clear aligner therapy (CAT) has become a popular alternative to traditional fixed orthodontic appliances (braces) due to its aesthetic appeal and convenience. However, its influence on periodontal health compared to conventional braces remains a subject of clinical interest. This article reviews and synthesizes available evidence on how CAT affects periodontal outcomes versus traditional fixed appliances, highlighting implications for clinical practice.

Keywords

Clear Aligner Therapy; Periodontal Health; Orthodontics; Traditional Braces; Oral Hygiene.

Introduction

Orthodontic treatment aims to improve both dental function and esthetics. However, fixed appliances have been associated with increased plaque accumulation, gingival inflammation, and periodontal complications [1]. Clear aligner therapy, exemplified by systems such as Invisalign, offers a removable and more hygienic alternative. Based on recent literature, this manuscript explores comparative periodontal outcomes between CAT and fixed braces, providing insights for optimizing patient care.

Materials and Methods

A narrative review was conducted utilizing PubMed, Google Scholar, and Scopus databases. Key terms included "clear aligners," "periodontal health," "fixed orthodontic appliances," and "orthodontic outcomes." Studies published between 2010 and 2024 were selected for relevance. Emphasis was placed on randomized controlled trials, meta-analyses, and systematic reviews.

Results

Plaque accumulation and gingival health

Multiple studies [2,3]. Have demonstrated that patients treated with clear aligners exhibit lower plaque indices and less gingival inflammation compared to those with traditional braces. The removability of aligners facilitates better oral hygiene practices, including brushing and flossing.

In a prospective clinical trial by Azaripour et al [2]. CAT patients showed significantly lower bleeding on probing and plaque accumulation after six months compared to patients with fixed appliances.

Periodontal pocket depth and attachment loss

Research indicates no significant difference in clinical attachment loss between clear aligners and traditional appliance groups [5,7]. However, because aligners exert intermittent forces and allow periodic removal, they may reduce sustained periodontal stress compared to fixed brackets and wires.

Microbial profile changes

Mummolo et al. [4] demonstrated that fixed appliances alter the oral microbial ecosystem by increasing pathogenic bacteria such as *Porphyromonas gingivalis*. Clear aligners showed less impact on pathogenic microbial shifts, potentially reducing the risk of periodontitis development.

Discussion

The evidence suggests that clear aligner therapy offers periodontal health advantages over traditional braces, primarily due to easier oral hygiene maintenance. However, patient compliance is critical—nonadherence to prescribed wear schedules or inadequate hygiene with aligners may negate these benefits.

Furthermore, while CAT reduces plaque retention and gingival inflammation, complex tooth movements may still necessitate fixed appliances, emphasizing individualized treatment planning.

Limitations in the existing literature include relatively short follow-up durations and a scarcity of randomized controlled trials with large sample sizes. Further longitudinal research is warranted to confirm these findings throughout orthodontic treatment and retention periods [6,8].

Conclusion

Clear aligner therapy positively impacts periodontal health compared to traditional braces by facilitating superior oral hygiene and minimizing periodontal inflammation. Clear aligners represent a compelling option for patients prioritizing periodontal wellness during orthodontic treatment. Nevertheless, comprehensive patient education on oral hygiene practices remains essential for both modalities.

Photo Attribution



Figure 1: Photo by Laura Villela Beauty Designer | Brasil: <https://www.pexels.com/photo/invisalign-28407748/>



Figure 2: Photo by Cottonbro studio: <https://www.pexels.com/photo/close-up-photo-of-dentist-examining-patient-s-teeth-6528867/>

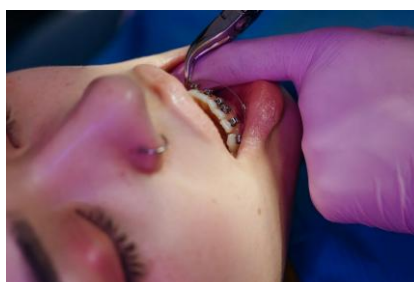


Figure 3: Photo by Cottonbro studio: <https://www.pexels.com/photo/close-up-photo-of-dentist-examining-patient-s-teeth-6528861/>

References

1. Alfuriji S, Alhazmi N, Alhamlan N, Al-Ehaideb A, Al-Angari S, et al. (2014) The effect of orthodontic therapy on periodontal health: a literature review. *Int J Dent*. 585048.
2. Azaripour A, Weusmann J, Mahmoodi B, Peppas D, Gerhold-Ay A, et al. (2015). Braces versus Invisalign®: gingival parameters and patients' satisfaction during treatment: a cross-sectional study. *BMC Oral Health*. 15(1):69.

3. Rossini G, Parrini S, Castroflorio T, Deregius A, Debernardi CL. (2015) Efficacy of clear aligners in controlling orthodontic tooth movement: a systematic review. *Angle Orthod.* 85(5):881-89.
4. Mummolo S, Marchetti E, Albani F, Campanella V, Pugliese F, et al. (2019) Oral microbiome changes in orthodontic patients: a systematic review. *J Clin Med.* 8(10): 1683.
5. Shalish M, Cooper-Kazaz R, Ivgi I, Canetti L, Tsur B, et al. (2012) Adult orthodontic patients' adjustment to orthodontic appliances and its impact on oral health-related quality of life. *Am J Orthod Dent Orthopedics.* 141(2):140-47.
6. Levrini L, Mangano A, Montanari P, Margherini S, Caprioglio A, et al. (2015) Periodontal health status in patients treated with the Invisalign® system and fixed orthodontic appliances: A 3 months clinical and microbiological evaluation. *Euro J Paed Dent.* 16(3): 231-36.
7. Guo Y, Yu M, Tang K, Chen L, Dai W, et al. (2020) Comparison of periodontal health between clear aligners and fixed orthodontic appliances: A meta-analysis. *Euro J Orthod.* 42(5): 559-68.
8. Castroflorio T, Sermier A, Farina D. (2013) A systematic review of upper airway space in subjects with different sagittal skeletal patterns. *Euro J Ortho.* 35(6), 773-81.