



## The Bonding between Ortho and Perio: A Review

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### Abstract

Ortho-perio interrelationship is crucial to the success of dental treatment. This can be seen from the fact that orthodontic treatment can affect periodontal health, and periodontal disease can also impact the success of orthodontic treatment. By understanding and addressing the interrelationship between orthodontics and periodontics, dentists can improve patient outcomes and overall oral health. Therefore, a comprehensive approach that considers both specialties is necessary for effective dental treatment. In conclusion, the ortho perio interrelationship plays a significant role in ensuring optimal dental health for patients. Orthodontics helps address crowding and alignment problems in the teeth, allowing for proper oral hygiene and reducing the risk of periodontal disease. Additionally, periodontal disease management is crucial during orthodontic treatment to prevent complications and achieve long-term success. Dentists must understand and prioritize this interrelationship to provide comprehensive oral health care and ensure the best possible outcomes for their patients.

**Keywords:** Orthodontics; Periodontics; Gingivitis; Periodontitis

### Introduction

Orthodontics and periodontics have a significant interrelationship in the field of dentistry. Orthodontic treatment can lead to changes in the periodontal tissues, and periodontal diseases can influence orthodontic treatment outcomes.<sup>1</sup> The orthodontic treatment evaluation should include an assessment of the periodontal health and the potential for future periodontal disease. In turn, the periodontal treatment plan should consider the orthodontic needs of the patient. Therefore, it is critical to consider the interrelationship between orthodontics and periodontics when developing a comprehensive diagnosis and treatment plan for patients.

### Definition of ortho perio interrelationship

The ortho-period interrelationship refers to the connection between the orthodontic and periodontic fields in dentistry. Orthodontics deals with the alignment of teeth and jaws, while periodontics focuses on the health of the supporting structures of the teeth. The ortho perio interrelationship recognizes that the successful treatment of malocclusion and other orthodontic issues can be influenced by the presence of periodontal disease and vice versa.<sup>2</sup> Understanding this connection is crucial for providing optimal treatment outcomes for dental patients.

### The relationship between orthodontics and periodontics

The relationship between orthodontics and periodontics is a critical aspect of dentistry that involves the management of occlusal discrepancies and the concurrent periodontal problems. Orthodontic treatment can improve the overall alignment of the teeth and occlusion, which can contribute to the reduction of periodontal pockets, inflammation, and gingival recession. Furthermore, periodontal treatment can provide a stable periodontal foundation for orthodontic treatment by addressing periodontal sources of inflammation and reducing potential periodontic complications that may arise from orthodontic treatment. Overall, orthodontics and periodontics are interconnected disciplines that require coordination and collaboration to achieve optimal treatment outcomes [1,2].

### Effects of orthodontics on periodontal diseases

Misaligned teeth or malocclusion can increase the likelihood of gingival diseases, including gingivitis and periodontitis. Orthodontic treatment can straighten teeth and improve occlusion, reducing the risk of periodontal diseases. However, braces can also make it more difficult to brush and floss effectively, potentially leading to

gingivitis and other oral health issues. Thus, orthodontic treatment should ideally be accompanied by proper oral hygiene practices to prevent periodontal diseases from developing [3,4].

### Orthodontic appliances and plaque accumulation

Orthodontic appliances and plaque accumulation are closely related. The brackets and wires in traditional braces create many small spaces, which can make it difficult to clean teeth thoroughly. As a result, plaque can easily build up on teeth, leading to tooth decay and gingival disease.<sup>5</sup> Patients with orthodontic appliances should pay extra attention to their oral hygiene routine, including brushing and flossing regularly and using a mouth rinse to help eliminate bacteria. Frequent dental checkups and cleanings can also help prevent plaque buildup and maintain good oral health.

### Orthodontic appliances and gingival inflammation

Orthodontic appliances, such as traditional braces and clear aligners, can cause gingival inflammation in patients. The pressure and friction from the appliances against the gingival tissue can cause irritation and redness. Additionally, inadequate oral hygiene can lead to plaque accumulation around the orthodontic brackets and wires, resulting in gingivitis [3]. Therefore, it is essential for patients to maintain proper oral hygiene and attend regular dental check-ups to prevent and manage gingival inflammation during orthodontic treatment.

### Orthodontic treatment in patients with periodontal diseases

Orthodontic treatment in patients with periodontal diseases requires a multi-disciplinary approach to achieve both functional and aesthetic goals. Periodontal diseases can compromise the success of orthodontic treatment, as crowded teeth are difficult to clean and can lead to further destruction of periodontal tissues. Before initiating treatment, periodontal therapy should be performed to control inflammation and stabilize periodontal attachment. Orthodontic forces should be carefully monitored, with frequent periodontal maintenance appointments to prevent further damage. Orthodontic treatment can improve periodontal health, as properly aligned teeth are easier to clean, reducing the risk for future periodontal disease [6].

### Effects of orthodontic treatment on periodontal health

On one hand, orthodontic treatment can improve periodontal health by reducing gingival inflammation and marginal recession caused by malocclusions. On the other hand, orthodontic treatment can also exacerbate pre-existing periodontal conditions by increasing plaque accumulation and persisting poor oral hygiene. Therefore, proper periodontal evaluation and management should be considered prior to initiating orthodontic treatment to minimize any potential negative effects and maximize positive outcomes for both orthodontic and periodontal health [7].

The following are typical ways that orthodontics contributes to periodontics [8,9].

- Because malocclusion is eradicated and properly formed dental arches are simple to maintain, good orthodontic treatment enables the patient to practice improved oral hygiene.
- It enables the long axis of the teeth to be paralleled.
- As a result, the dentition functions as a single, cohesive unit, distributing any given force evenly across the whole structure.
- It is possible to restore normal vertical dimension as well as prosthetic rehabilitation.
- In certain situations, forced tooth eruption results in an appropriate crown root ratio without further bone loss.
- Straightening the crooked teeth helps treat vertical bone abnormalities.
- It also benefits the teeth next to osseointegrated implants and pontic teeth in fixed partial prostheses.
- Because it lessens muscular discomfort and spasm during orthodontic therapy, it counteracts the effects of bruxism.
- It enables accurate and effective orthodontic treatment with minimal forces with thorough diagnosis and implementation of the treatment plan using all latest technology.

In the field of dentistry, the interrelationship between orthodontics and periodontics has become increasingly important. Orthodontic treatment can have a significant impact on the periodontium, particularly in relation to the alignment and positioning of teeth. Poor alignment can lead to periodontal disease, while proper alignment can help prevent it. Similarly, periodontic treatments can also impact orthodontic treatment outcomes, as healthy periodontal tissue is necessary for successful orthodontic movements. Therefore, it is essential for dentists to have a strong understanding of the interplay between these two areas of dentistry to ensure optimal treatment outcomes for their patients.

### Diagnosis and treatment planning

Diagnosis and treatment planning go hand in hand in the field of ortho-perio interrelationship in dentistry. A thorough diagnosis must be made before the formulation of an effective treatment plan. The diagnosis should not only evaluate the extent of the periodontal disease but also the degree of malocclusion, the severity of the recession, and the tooth loss. Once the diagnosis is made, the treatment plan should focus on halting the progression of the disease, stabilizing the periodontal condition, and reestablishing a healthy occlusal relationship. Proper diagnosis and treatment planning play a crucial role in achieving successful outcomes.

### Importance of diagnosis and treatment planning for ortho perio interrelationship

Proper diagnosis helps identify the condition accurately and enables the clinician to choose an appropriate treatment method.

Furthermore, treatment planning aids in determining the most effective solution for correcting any malocclusion or periodontal problem present to ensure stable outcomes and prevent recurrence. A comprehensive approach, therefore, entails careful consideration of all the factors involved in the interrelationship between orthodontic and periodontic treatments to provide optimal care and enhance patient outcomes [10].

### Diagnosis and treatment planning in orthodontics

In orthodontics, accurate diagnosis and comprehensive treatment planning are critical to achieving optimal outcomes. The process of diagnosis involves a thorough evaluation of the patient's dental and medical history, clinical examination, and radiographic analysis. Treatment planning in orthodontics involves developing a customized plan that addresses the patient's specific orthodontic needs. The orthodontist may use various appliances, such as braces, aligners, or space maintainers, to correct malocclusion. Additionally, patients may receive other dental treatments, such as extractions or restorations, to achieve the best possible results. Effective diagnosis and treatment planning allow for the successful correction of orthodontic problems and improve the patient's overall oral health.

### Diagnosis and treatment planning in periodontics

Diagnosis and treatment planning are crucial components of periodontics. A comprehensive evaluation of the patient's medical history, clinical examination, and diagnostic tests must be conducted before making a definitive diagnosis. The findings of this evaluation determine the type and severity of the periodontal disease and the appropriate treatment plan that should be initiated. The standard treatment for periodontal disease is non-surgical, which involves a thorough scaling and root planing procedure. More severe cases may require surgery or other periodontal interventions. Effective diagnosis and treatment planning result in improved patient outcomes and the prevention of future periodontal disease. In the field of dentistry, there exists a close interrelationship between orthodontics and periodontics. Orthodontic treatment is often necessary to properly align teeth before periodontal procedures can be performed. Conversely, periodontal disease can lead to tooth movement and misalignment, which can then require orthodontic intervention. It is important for dental professionals to understand the interdependence of these two specialties in order to provide effective and comprehensive treatment for their patients.

Collaboration between orthodontists and periodontists can lead to improved patient outcomes and overall dental health [11,12].

### Importance of understanding the ortho perio interrelationship

Understanding the ortho perio interrelationship is paramount for dentists to effectively diagnose and treat patients with both periodontal and orthodontic issues. This relationship is complex,

and treatment of one condition can affect the other. As such, evaluating the periodontal condition is important before initiating orthodontic treatment. Orthodontic treatment can also have impacts on the periodontal tissues, including changes to the gingival margin and bone resorption.<sup>1,2</sup> Thus, proper care and management of the patient's periodontal health during orthodontic treatment are essential.

### Future implications of research in ortho perio interrelationship

The future implications of research in ortho perio interrelationship are vast and promising. With continued research in this area, dental professionals can more efficiently and effectively treat patients with malocclusion or periodontal disease. New technologies and methodologies may emerge that better address the interrelationship between orthodontics and periodontics. Furthermore, research in this area may help prevent future oral health problems in patients, ultimately leading to better overall health outcomes.

### Conclusion

In conclusion, the interdependence between orthodontics and periodontics in dentistry is evident. Orthodontists must work collaboratively with periodontal specialists to develop treatment plans that address the unique needs of each patient. By taking a multidisciplinary approach to patient care, dental professionals can ensure that their patients receive the most effective treatment possible. The success of ortho-perio interrelationship requires close attention to detail, effective communication, and a strong commitment to providing the highest quality care possible. By remaining vigilant, dental professionals can help their patients achieve optimal oral health outcomes.

### Bibliography

1. Ngom PI, et al. "Influence of orthodontic anomalies on periodontal condition". *Odonto-stomatologie Tropicale* 301.118 (2007): 9-16.
2. Gastel JV, et al. "The relationships between malocclusion, fixed orthodontic appliances and periodontal disease: A review of the literature". *Australasian Orthodontic Journal* 23.2 (2007): 121-30.
3. Ong MA and Wang HL. "Periodontic and orthodontic treatment in adults". *American Journal of Orthodontics and Dentofacial Orthopedics* 122.4 (2002): 420-428.
4. Kokich VG. "Esthetics: The orthodontic-periodontic restorative connection". *Seminars in Orthodontics* 2.1 (1996): 21-30.
5. Sanders NL. "Evidence-based care in orthodontics and periodontics: a review of the literature". *The Journal of the American Dental Association* 130.4 (1999): 521-528.

6. Panwar M and Jayan B. "Combined periodontal and orthodontic treatment of pathologic migration of anterior teeth". *Medical Journal Armed Forces India* 66.1 (2010): 67-76.
7. Vanarsdall RE. "Periodontal/orthodontic interrelationships" (2000): 801-839.
8. Mustilwar RG., et al. "Ortho-Perio interrelationship - A review". *IP International Journal of Periodontology and Implantology* 7.4 (2022): 150-153.
9. Brown IS and Brown S. "The effect of orthodontic therapy on certain types of periodontal defects (I). Clinical findings". *Journal of Periodontology* 44.12 (1973): 742-756.
10. Santo MD. "Periodontium and Orthodontic Implications: Clinical Applications". *International Journal of Stomatological Research* 122.4 (2002): 17-23.
11. Kraal JH., et al. "Periodontal conditions in patients after molar up righting". *Journal of Prosthetic Dentistry* 43.2 (1980): 156-162.
12. Ingber JS. "Forced eruption. Part I. A method of treating isolated one and two wall infrabony osseous defects - rationale and case report". *Journal of Periodontology* 45.4 (1974): 199-206.