

Gingival health in individuals receiving retention orthodontic therapy

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Introduction

The orthodontic retention devices can contribute to a worsening of the gingival and periodontal health, and in these individuals, there is a chance that the existing gingivitis could evolve into peridontitis.

Aim

The main aim of this study was to assess the alterations in gingival health that are present among patients receiving treatment with fixed and mobile retainers, in corelation with bioactive splints in post-orthodontic (retention) period.

Materials and Methods

To accomplish the defined aim, a comparative clinical trial was carried out at the PHI "Pi Dental" in Skopje, involving 30 subjects after fixed orthodontic treatment. In this study three groups were evaluated: (1)10 subjects where post-orthodontic treatment was with bioactive splints; (2)10 subjects treated with mobile retainers; and (3)10 subjects treated with fixed retainers. For each subject, (1)Sulcus Bleeding Index (SBI); (2)Gingival Index of Silness-Loe(GI) and (3)Evaluation of gingival enlargement using the index by McGaw et al, were assessed. The indices were evaluated at three distinct time points: immediately after the retention appliance was placed, and at one and three months thereafter.

Results

SBI	Beginning	1 month	3 months
Bioactive splints	2,1 ± 0,994	0,5 ± 0,527	0,3 ± 0,483
Mobile retainers	2,8 ± 0,919	1,1 ± 0,738	0,5 ± 0,849
Fixed retainers	1,9 ± 1,287	0,9 ± 0,731	1,1 ± 0,994

The average values for Sulcus Bleeding Index (SBI)

GI	Beginning	1 month	3 months
Bioactive splints	1,3 ± 0,675	0,5 ± 0,527	0,2 ± 0,422
Mobile retainers	1,9 ± 0,738	1,00 ± 0,667	0,4 ± 0,699
Fixed retainers	1,4 ± 0,966	0,8 ± 0,623	0,9 ± 0,738

The average values for Gingival index (GI) Loe and Silness

GZ	Beginning	1 month	3 months
Bioactive splints	1,2 ± 0,632	0,3 ± 0,483	0,2 ± 0,422
Mobile retainers	1,8 ± 0,421	0,7 ± 0,483	0,3 ± 0,483
Fixed retainers	1,6 ± 1,075	1,1 ± 0,567	1,1 ± 0,568

The average values for Gingival enlargement (GZ) McGaw et al.

PI	Beginning	1 month	3 months
Bioactive splints	1,2 ± 0,632	0,3 ± 0,483	0,2 ± 0,422
Mobile retainers	1,8 ± 0,421	0,7 ± 0,483	0,3 ± 0,483
Fixed retainers	1,6 ± 1,075	1,1 ± 0,567	1,1 ± 0,568

The average values for Dental Plaque Index (PI) Silness and Loe

This study shows that there is a statistically significant difference between the mean values of the gingival inflammation indices in patients treated with bioactive splints and patients whose post-orthodontic treatment was carried out with fixed or removable retainers, especially in the third month after treatment. Based on this, it can be observed that gingival inflammation increases over time in patients who receive retentive therapy with fixed retainers.

Conclusion

The research indicates that gingival inflammation tends to increase in patients undergoing retention therapy with fixed retainers, as opposed to those receiving retention therapy with mobile appliances, especially in cases involving bioactive appliances.