



## CFAO GRADUATE STUDENT POSTERBOARD ABSTRACTS

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### Effect of Clear Aligner Therapy on Orthodontic Pain and Masticatory Muscle Tenderness

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**Introduction:** Patients undergoing orthodontic clear aligner therapy (CAT) may experience tooth pain, which can significantly affect patient compliance during orthodontic treatment. Clinical findings reveal that patients may present with muscle tenderness and have visible wear on their aligners during the initial stages of CAT. This multi-site prospective study aimed to analyze tooth pain and masticatory muscle tenderness in patients submitted to CAT with Invisalign®.

**Methods:** Eighteen healthy adults (mean age  $\pm$  SD = 35.3 $\pm$ 17.6 years) undergoing treatment with Invisalign® were recruited from three university-based orthodontic clinics. Patients were invited to report, on visual analog scales, their tooth pain and symptoms of muscle tenderness three times per day over four weeks (before starting treatment – T0, after one week with a passive aligner – T1; after one week of active treatment with Invisalign®, T2; and after two weeks of active treatment with Invisalign®, T3). A mixed effect model was used to evaluate the outcome measures over time.

**Results:** The aligners had an effect on tooth pain, which was greater with the passive aligner (8.5 $\pm$ 14.7mm) than the active aligners (1st week: 6.4 $\pm$ 9.8 mm; 2nd week: 4.3 $\pm$ 7.3 mm; all P<0.001). Mild jaw muscle tenderness was triggered by both the active (1st week: 4.10 $\pm$ 7.7 mm; 2nd week: 5.1 $\pm$ 11.2 mm) and passive aligners (6.2 $\pm$ 13.6 mm; all P<0.05). The first week of active treatment resulted in less muscle tenderness than the passive aligner (P<0.001).

**Conclusion:** CAT was associated with mild tooth pain and jaw muscle tenderness of limited clinical significance. Tooth pain during CAT was mostly due to the fitting of the aligner rather than orthodontic tooth movement.