



## CFAO GRADUATE STUDENT POSTERBOARD ABSTRACTS

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### Efficacy of deep overbite correction using Invisalign®

Catherine Fontaine-Sylvestre\*, Robert Drummond, Luis Piedade, Reynaldo Todescan

**INTRODUCTION:** A deep overbite is a common malocclusion encountered in orthodontic patients. It represents about 95.2% of vertical occlusal problems in the general population and is more prevalent than open bite. It can be dentoalveolar or skeletal in origin, or a combination of both. The increasing number of adult patients seeking orthodontic treatment has led to an increased demand for aesthetic alternatives to fixed multibracket systems. For more than a decade, Invisalign® has treated patients presenting minor to complex malocclusions. However, there are limited data to assess the efficacy of Invisalign® in the treatment of deep overbite.

**OBJECTIVE:** To investigate the efficacy of deep overbite correction using Invisalign®.

**MATERIAL & METHODS:** Fifty-one adult patients who had undergone orthodontic treatment exclusively with Invisalign® were included in the preliminary data of this retrospective study. Pre- and post-treatment digital models acquired from an iTero® scan were obtained from a single orthodontist. Linear values of the pre- and post-treatment overbite were measured in the OrthoCAD® software. A sample t-test was used to measure the overbite correction achieved throughout the first round of aligners. Variance ratio tests were used to determine if the amount of pre-treatment overbite, the type and number of bite opening mechanics were correlated with larger corrections.

**RESULTS:** The mean overbite correction in deep bite subjects using Invisalign® was 1.031 ( $\pm 0.775$ ) mm. The mean overbite correction was 0.750 ( $\pm 0.784$ ) mm in the mild overbite group, 1.207 ( $\pm 0.577$ ) mm in the moderate overbite group and 1.280 ( $\pm 0.834$ ) mm in the severe overbite group. The overbite correction was greater in the severe overbite group compared to the mild and moderate overbite groups, but this was not statistically significant ( $p > 0.05$ ). The mechanics that were used for overbite correction were mainly lower incisor intrusion (86.67%), upper incisor intrusion (83.33%), upper incisor proclination (80.00%) and lower incisor proclination (73.33%). Patients with upper incisor intrusion and lower incisor intrusion had a statistically significant greater overbite reduction ( $p < 0.05$ ). An increased number of bite opening mechanics was correlated to a greater overbite correction, but this was not statistically significant ( $p > 0.05$ ).

**CONCLUSION:** Invisalign® is successful at opening deep bites during the first set of aligners, up to just beyond 1 mm, irrespective of the depth of the initial overbite.