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Original Articles

Overjet at the Anterior and Posterior Segments: Three-Dimensional Analysis of Arch Coordination

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Abstract

Objectives: To compare the amounts of anatomical overjet measured from facial axis (FA) points with the amounts of bracket overjet measured from bracket slot center (BSC) points.

Materials and Methods: The samples consisted of 27 subjects with normal occlusion whose models were fabricated with a three-dimensional (3D) scanner and the 3T_xer program (Orapix Co Ltd, Seoul, Korea). 3D virtual brackets (0.022" Slot, MBT setup, 3M Unitek, Monrovia, Calif) constructed with a 3D-CAD program were placed on an FA point with the 3T_xer program. The arch dimension and the amounts of overjet from FA and BSC points were measured. Paired t-tests and analysis of variance (ANOVA) tests were used for statistical analysis.

Results: No significant difference in arch width and depth was observed between FA and BSC points. Although the amounts of overjet measured from FA points showed homogenous distribution, a tendency to decrease from the anterior segment (2.3 mm) to the posterior one (2.0 mm) was noted. However, the amounts of overjet measured from BSC points were variable, especially in the premolar and molar areas. Significant discrepancies in the amounts of overjet in most of the areas between FA and BSC points (more than $P < .05$), except the lower second premolar and second molar areas, were reported, even though insets and offsets are part of the prescription for the base of straight-wire appliance (SWA) brackets.

Conclusions: The hypotheses that the amount of overjet measured from BSC points was 3 mm through the whole segments and that distribution of the amounts of overjet from BSC points was the same as that from FA points were rejected.

Keywords: [Overjet](#), [Arch coordination](#), [Facial axis point](#), [Bracket slot center point](#)

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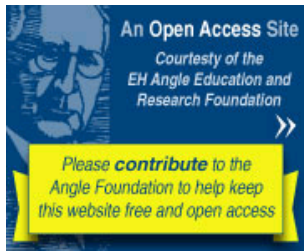
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