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EVALUATING ESTHETICS OF CANINE SUBSTITUTION IN TREATMENT OF MISSING MAXILLARY LATERAL INCISORS USING EYE TRACKING

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Background: Agenesia of permanent maxillary lateral incisors poses a dilemma in orthodontic treatment planning which may be addressed by one of two treatment options including space closure, known as canine substitution, or prosthetic replacement. Of primary interest to patients is the esthetic outcome of the two treatment options.

Objective: To determine how perceptible canine substitution is as a treatment option for missing maxillary lateral incisors.

Methods: Raters consisted of forty (n=40) orthodontists and thirty-five (n=35) laypersons. Each rater was shown a series of twenty-four photographs of orthodontically treated smiles, consisting of three treatment groups: 1) patients who had bilateral canine substitution 2) patients with bilateral lateral incisor implants 3) controls with no missing teeth. Raters provided an esthetic rating from 0 to 10 and eye tracking was used during the course of viewing the photographs.

Results: Control photos received the highest esthetic ratings, on average, by both orthodontists and laypersons. Orthodontists rated the implants as more esthetic than canine substitution. There was no significant difference in esthetic ratings given by laypersons between these two treatment groups. Eye-tracking measures, including number of fixations, did not significantly differ across the three treatment groups.

Conclusion: The esthetics of canine substitution and implants for treatment of missing maxillary lateral incisors is comparable. Only weak correlations were found between objective eye-tracking measures and esthetic ratings assigned by orthodontists and laypersons, demonstrating that esthetic preferences are indeed subjective.