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BOLTON COMPARISON BETWEEN CAUCASIAN AND CHINESE POPULATIONS

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ABSTRACT

To determine the preferred management approach before commencing orthodontic treatment, the clinician should do a Bolton calculation to detect tooth size discrepancies. The aim of this study was to use the Bolton calculations to compare and detect any tooth size discrepancies which may exist between Caucasian and Chinese subjects, and between males and females. Fifty Caucasians and fifty Chinese subjects' casts (25 male and 25 female) were selected who had a complete permanent dentition up to the first molars, without interproximal restorations or caries, and had no previous orthodontic treatment. Casts were measured with a Digital Caliper (accurate to 0.01mm), Boley Gauge Vernier Caliper and OrthoCAD®. The measurements were used to do the Bolton calculations for the over-all ratio (Overall 12) and for the anterior ratio (Anterior 6). Linear regression models with main effects for race and gender as well as an interaction effect between them were used.

No significant difference ($p > 0.05$) was found amongst the gender groups for the Overall 12 and the Anterior 6. A significant difference ($p = 0.007$) was found amongst the different ethnic groups for the Overall 12 but not for the Anterior 6 ($p > 0.05$). For the Anterior 6 there was a significant difference ($p = 0.04$) in the group variances with the Caucasian group showing more variance.

For improved accuracy it will be advisable to generate Chinese- specific Bolton tables.