Intermaxillary Tooth Size Discrepancy and Malocclusion: Is There a Relation?

Tancan Uysal, DDS, PhD; Zafer Sari, DDS, PhD; Faruk Ayhan Basciftci, DDS, MS; Badel Memili, DDS

Abstract: The aims of this study were to identify the possible sex differences in tooth size ratios between males and females, to determine whether there is a difference in the incidence of tooth size discrepancies for both the anterior and overall ratios when comparing with Angle Class I; Class II, division 1; Class II, division 2; and Class III malocclusion groups, to compare the tooth size ratios of different malocclusion groups with the anterior and overall tooth size ratios of 150 untreated normal occlusion subjects. In addition, the aim was to determine the percentage of tooth size discrepancies outside 2 SD from Bolton means for tooth ratios present in each malocclusion group and in the overall sample of this study. This study consisted of 150 subjects who served as the normal occlusion group and 560 patients who showed four different malocclusion characteristics (Angle Class I; Class II, division 1; Class II, division 2; and Class III). Tooth size measurements were performed on the models of normal occlusion and pretreatment models. For statistical evaluation, Student’s t-test, analysis of variance and Tukey Honestly Significant Difference tests were performed. A significant sex difference was found only in the overall ratio for normal occlusion subjects (P<.001). All malocclusion groups showed statistically significant higher overall ratios than the normal occlusion group (P <.001). There were no statistically significant differences among malocclusion groups; however, there were a large number of patients within each group who had discrepancies greater than 2 SD from the mean. Further investigations are needed to explain the probable racial differences and relationships between malocclusion and tooth size measurements. (Angle Orthod 2005;75:204–209.)

Key Words: Bolton; Tooth size discrepancy; Malocclusion