Maxillary and mandibular mesiodistal tooth sizes among different malocclusions in a sample of the Turkish population

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SUMMARY The purpose of this study was to establish normative data for mesiodistal tooth crown dimensions with respect to malocclusions and gender differences in Turkish sample. The subjects were randomly selected and assigned to three malocclusion groups according to Angle’s classification. Each group consisted of 100 individuals between the ages of 13 and 18 years with the following distribution: Class I, 42 males and 58 females; Class II, 52 males and 48 females; and Class III, 51 males and 49 females. An electronic digital calliper was used to measure the mesiodistal tooth width from the right second permanent molar to the left second permanent molar on both upper and lower study casts. For statistical evaluation, one- and two-way analyses of variance and post hoc Tukey’s honestly significant difference (HSD) tests were performed.

There were statistically significant differences for the maxillary canine (\( P < 0.001 \)), first premolar (\( P < 0.05 \)), second molar (\( P < 0.05 \)), and mandibular canine (\( P < 0.01 \)) for males, and for all maxillary teeth and the mandibular central (\( P < 0.05 \)), canine (\( P < 0.001 \)), and first premolar (\( P < 0.05 \)) teeth in females among the malocclusion groups. When Angle’s classification was evaluated, significant differences were determined, except for the first and second mandibular molars. All mesiodistal widths were also found to be statistically different according to gender dimorphism.

A significant relationship was found between mesiodistal tooth size, Angle’s classification, and gender. Therefore, tooth dimensions may play a crucial role in treatment planning and in achieving satisfactory interdigitation of the upper and lower dentition following the completion of orthodontic treatment.