

Relationships between upper dental arch shape and second molar rotation in primary dentition.

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Abstract

Objectives. Because the primary second molars play such an important role in determining dental arch type and size, the author compared the size and rotation of the upper primary second molars among three groups of children. **Methods.** The occlusal surfaces of the upper primary dental casts of 116 children with untreated normal occlusions were measured from standardized photographs (11 linear measurements of tooth size and 5 angular measurements of primary second molar rotation). The children were divided into groups according to their upper dental arch shape: group A, a wide arch, group B, a round arch, and group C, a slender arch. **Results.** There were few significant differences in the sizes of the upper primary second molars among the three groups. Children in group A had significantly smaller arch lengths, larger arch widths, and more mesiopalatal rotation of the upper primary second molars compared with children in group C. The arch lengths, arch widths, size of the upper primary second molars, and degree of mesiopalatal rotation of the upper primary second molars in children in group B were between those in group A and those in group C. The mean positions of the mesiopalatal cusp of the upper primary second molars were almost on the lines connecting the midpoint of the distal surface of the upper primary second molar to the midpoint of the incisive papilla in each group. **Conclusions.** These findings may be helpful in understanding the variations in upper primary second molar rotation in normal primary dentition and in determining whether the teeth are in ideal rotations in their dental arch shapes.