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Mesio-distal Tooth Angulation in Elderly with Many Remaining Teeth Observed by 3-D Imaging

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Abstract: Few studies have investigated the morphologic characteristics of teeth, dental arches and occlusion in elderly persons with many remaining teeth. The purpose of this study was to establish a method of measurement using 3-D imaging to investigate tooth angulation in the elderly from the orthodontic point of view. The dental casts of 20 elderly persons with many remaining teeth were digitized with a 3-D laser scanner (VMS-100F, UNISN INC., Osaka, Japan) to construct 3-D images. The mesio-distal angulation of each tooth was then measured with analytical software (SURFLACER, UNISN INC. and IMAGEWARE 12, UGS PLM Solutions, MO, USA). The occlusal plane formed by the incisal edge of the central incisor and distal buccal cusp tip of the first molar on either side was used as a reference plane for measurements. Mesio-distal tooth angulation (indicated in degrees) of maxillary teeth in this subjects averaged 1.26 for central incisors, 5.46 for lateral incisors, 7.84 for canines, 6.59 for first premolars, 5.78 for second premolars, 1.64 for first molars and -4.17 for second molars. Average values for mandibular teeth were 0.91 for central incisors, 2.35 for lateral incisors, 7.04 for canines, 8.76 for first premolars, 10.44 for second premolars, 7.33 for first molars and 12.67 for second molars. There was no statistical difference between the data in man and women except maxillary second molar ($p < 0.05$). Mesial angulation in the mandibular arch showed a progressive increase from the anterior to the posterior. However, this tendency was not observed in the maxillary arch.

Key words: [Tooth angulation](#), [Elderly with many remaining teeth](#), [Dental cast](#), [3-D images](#), [Crowding](#)

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