

Accuracy of measurements made on digital and study models (A comparative study)

A thesis

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Abstract

Dental study models are a cornerstone in the armamentarium used by orthodontists to both classify malocclusion and formulate treatment plans. Recent technological advances have allowed the generation of digital dental models that can be saved, digitized, measured with software tools, viewed three-dimensionally, and retrieved with a computer.

Prearrangement with Cadent company of USA performed this service.

The purpose of this study was to test the accuracy of digital measurements made on digital models made by OrthoCAD system and compare it with manual measurements made on study models by the use of vernier caliper.

Twenty students with normal Class I occlusion selected from 175 students aged (16-25) years with certain criteria (8 males and 12 females). Double impressions for each dental arch were taken to each student with bite registration and the impressions were immediately poured with stone, with the collaboration of Cadent company (Fairview, NJ, USA) twenty sets of stone models were sent with the bite registrations to them for digital processing and the other twenty stone models remain for manual measurements, such arrangement for the first time in collaboration with an American institute.

Tooth size, arch widths, arch length, space available, and the space required were done on both digital and study models. This study revealed statistically non-significant differences between the two methods of measurements and hence digital measurements are an accurate, efficient, and easy to use as alternative to plaster models.