

Anatomical models for learning dental anatomy

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Abstract

Knowledge of tooth morphology and function is essential of dental practice. Anatomical and morphological characteristics of human dentition are presented in preclinical Dental course. To teach dental anatomy is used natural tooth specimens combined by manufacturing drawings and progressive teeth sculpture. However, many dental structures are not well recognized as well as their function understandable due to its small size. The purpose of this study was build macro models of teeth in plaster to facilitate observation and understanding the function of anatomical elements of teeth. After built macro models to teach dental anatomy its learning efficiency were evaluated in two class of students (N = 160).

Key words: Dental anatomy, education, guideline models

Introduction

Tooth morphology and function are essential to dental practice course. Usually educational contents about dental anatomy are found in books, manuals or lectures¹. Practice activities to teach dental anatomy are to examine preserved tooth specimens, teeth drawings and sculpture. Those activities are not enough to fix concepts about the function of certain anatomical structures for the dental practice. The purpose of this study was build macro models of teeth in plaster to facilitate observation and understanding the function of anatomical elements of teeth.

Results and Discussion

Macro models were built based on measurements of natural teeth using a digital caliper (Mitutoyo, Japan)². Measurements of the crown and root were magnified 6X to define the proportion between macro models and natural teeth. After carving the teeth macro models in wax they were molded and the mold was filled with plaster stone type III (São Paulo, SP, Brazil) to obtain permanent plaster macro models of teeth (Figure 1A). All 8 macro models of permanent teeth had their structures individually painted with different colors (Figure 1B).

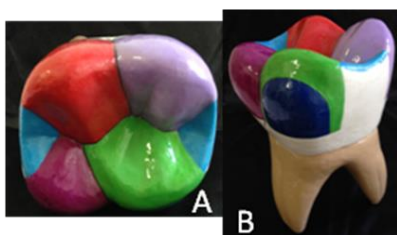


Image 1. A. Occlusal view of tooth macro model.
B. Lateral view of tooth macro model

Table 1. Results of one-way ANOVA comparing students' scores with and without use of macro models of teeth.

Study model	Natural Teeth	Macro models
Number of students	80	80
Mean score	65.4	88.6
SD	8.4	2.6
F ratio	0.77	0.05
Significance	0.48	0.07

Note: Outcomes are reported from two classes, in the two years (2014, 2015). *Significant at $p < 0.05$

Although the results have not presented relevant statistics differences, is possible to notice that students' performance was improved (table 1). These results reinforce the importance of diversification of teaching methods, for offering different teaching methodologies such as macro models, allowed students to explore anatomical details that were not well recognized in natural human teeth.

Conclusions

Use of macro models of teeth is an efficient method for teaching dental anatomy because it favored the student performance.

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² Siéssere S1, Vitti M, de Sousa LG, Semprini M, Regalo S. Educational material of dental anatomy applied to study the morphology of permanent teeth. *Braz Dent J.* 2004;15(3):238-42.