Effect of thickness of cavity wall on fracture strength of pulpotomized primary molar teeth with class capital PE, Cyrillic amalgam restorations.

Author(s): Mazhari, F; Gharaghahi, M

Source: European archives of paediatric dentistry : official journal of the European Academy of Paediatric Dentistry **Volume:** ٩ **Issue:** ١ **Pages:** ٣١-٦ **Published:** ٢٠٠٨-Mar

Abstract: AIM: This was to evaluate the effect of different thicknesses of cavity walls on fracture strength of pulpotomized primary molar teeth with class II amalgam restorations.

METHODS: ٨٠ carious extracted human primary molar teeth were selected for pulpotomy preparation. The teeth were divided into four groups. Mesio- or disto-occlusal (٢٠ teeth) and mesio-occluso-distal (٢٠ teeth); cavities were prepared in both first and second primary molar teeth. Each group was divided into two subgroups of ten teeth according to the thickness of their walls (١,٥ or ٢,٥ mm). After restoring teeth with amalgam, all groups were stored in distilled water at ٣٧ degrees C for seven days. They were then thermo cycled ١٠٠٠ times between ٥ degrees to ٥٥ degrees C. The specimens were then subjected to a compressive axial load in a universal testing machine at a crosshead speed of ٠,٥ mm min(-١). The t-test was used for statistical analysis.

RESULTS: Mean fracture resistances of the first and second molar teeth were ٩٧٥,٥ +/- ٣٦٨,٨ and ١٠٤٩,٢ +/- ٥٤٠,١, respectively. In the first molars, fracture resistance of ٢-surface cavities was significantly more than ٣-surface cavities (p=٠,٠٠١), but this difference was not statistically significant in second molars. In second molars, fracture strength in ٢- and ٣-surface cavities with a ٢,٥ mm thickness in the walls was more than those with ١,٥ mm thickness. However, in first molars this difference was only statistically significant in ٣-surface cavities (p=٠,٠٤٥).

CONCLUSIONS: The fracture strength in pulpotomized primary molar teeth with amalgam restorations was high, more than maximum bite forces in primary teeth, even in extensive ٣- surface cavities.

PubMed ID: ١٨٣٢٨٢٣٦

Document Type: Journal Article

Language: English

Address: Dept Paediatric Dentistry, Faculty of Dentistry; Mashhad University of Medical Sciences, Mashhad, Iran. mazharif@mums.ac.ir

MeSH Terms:

Heading	Qualifier
*Dental Amalgam	chemistry
Dental Cavity Preparation	*methods
Dental Restoration, Permanent	*classification
Humans	
Materials Testing	
Molar	*pathology
	physiopathology
Pulpotomy	*methods
Stress, Mechanical	
Surface Properties	
Temperature	
Time Factors	