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Effect of Desensitizer Application Mode on Dentin De- and Remineralization

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Authors:
PD Dr. med. dent. Christian R. Gernhardt, Anja Rother, Prof. Dr.med. dent. Hans-Günter Schaller, Dr. med. dent. Anne Francke-Freudenberg, PD Dr. med. dent. Katrin Bekes,
Department of Operative Dentistry and Periodontology, Martin Luther University Halle-Wittenberg, Halle, Germany

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Objectives

The aim of the present study was to determine the effect of four different desensitizing agents (Gluma Desensitizer, Admira Protect, Hyposen, VivaSens) applied two different modes on root surface de- and remineralization in vitro.

Material and Methods

The root surfaces of 90 freshly extracted caries-free human molars were thoroughly cleaned, thereby removing the cementum. The teeth were then coated with acid-resistant nail varnish, exposing a rectangular windows. All specimens were demineralized (De) for 14 days with acidified gel (HEC, pH 4.8, 37 degrees C). Before remineralization (Re) using a NaF-containing calcium-phosphate buffer solution one window was covered. Beside an untreated control group, the specimens were distributed among two main groups: In one group (A) the desensitizer was applied after demineralization, in the other subgroup (B) the desensitizer was applied before demineralization. From each tooth, two dentinal slabs were cut. The depth of the demineralized areas was determined using a polarized light microscope.

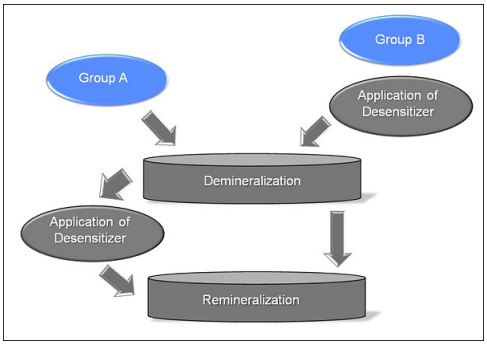


Fig. 1: Different experimental groups. Four different desensitizers were used in each maingroup.

Results

Following lesion depths (in microns) were evaluated (Table 1, Figure 5).
The comparison between de- and remineralized groups showed a significant reduction of lesion depth in all cases ($p < 0.05$, Tukey's test). In all cases application of the desensitizers prior to demineralisation resulted in significantly decreased lesion depths compared to the demineralization lesion depths without desensitizer application ($p < 0.05$, Tukey's test).

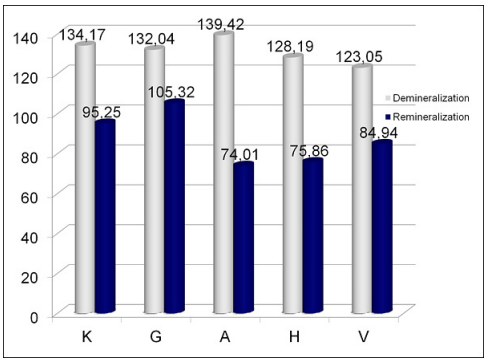
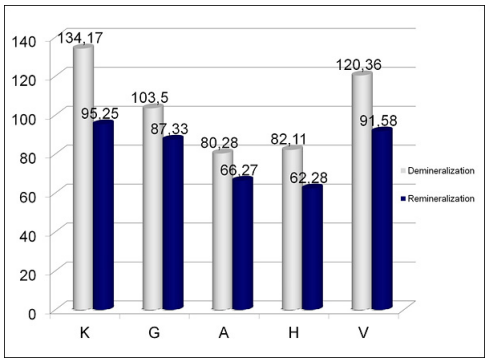


Fig. 2: Graphically expression of the results of group A and B, Demineralization - Desensitizer Application -Remineralization.



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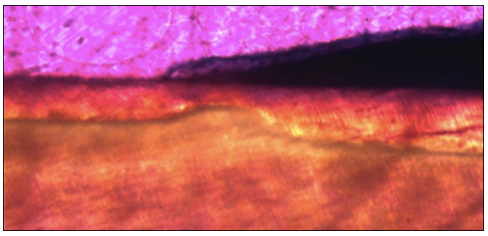

Fig. 4: Lesion after De- and Remineralization. The differnece betwenn reminieralization (left part) and demineralization (right part) is clearly visible. (Magnification 100x).

Group	**Control group**		**Demineralization – Desensitizer Application – Remineralization**								**Desensitizer Application – Demineralization – Remineralization**							
	untreated		Gluma		Admira Protect		Hyposen		Vivasens		Gluma		Admira Protect		Hyposen		Vivasens	
Lesion	De	Re	De	Re	De	Re	De	Re	De	Re	De	Re	De	Re	De	Re	De	Re
Mean	134.2	95.3	132.0	105.3	139.4	74.0	128.2	75.9	123.0	85.0	103.5	87.3	80.28	66.3	82.1	62.3	120.4	91.6

Table 1: Mean values (in µm) within the different groups

Conclusions

Within the limitations of an in vitro investigation it can be concluded that the demineralization of the root surface can be hampered by the application of desensitizing agents in both modes in vitro. Furthermore, remineralization might not be negatively affected by the used sealants.

Abbreviations

µm = micrometer

This Poster was submitted by PD Dr. med. dent. Christian R. Gernhardt.

Correspondence address:
PD Dr. med. dent. Christian R. Gernhardt
Martin Luther University Halle-Wittenberg
University School for Dental Medicine, Department of Operative Dentistry and Periodontology
Grosse Steinstrasse 19
D-06018 Halle
Germany

Poster Faksimile:

Martin-Luther-University Halle-Wittenberg #522

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C.R. GERNHARDT*, A. ROTHER, H.-G. SCHALLER, A. FRANCKE-FREUDENBERG, and K. BEKES

Department of Operative Dentistry and Periodontology, University School of Dental Medicine, Martin-Luther-University Halle-Wittenberg, Germany

Introduction

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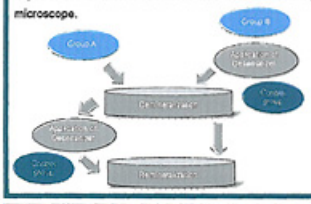

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Lesion	De	Re	De	Re	De	Re	De	Re	De	Re	De	Re	De	Re	De	Re	De	Re
Mean	134,2	95,3	132,0	105,3	139,4	74,0	128,2	75,9	123,0	86,0	103,5	87,3	80,28	66,3	82,1	62,3	120,4	91,6

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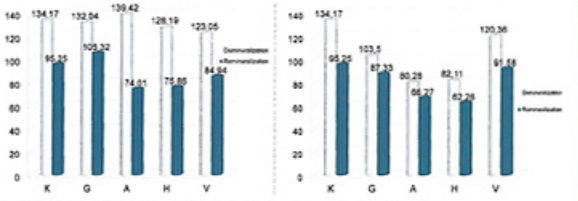

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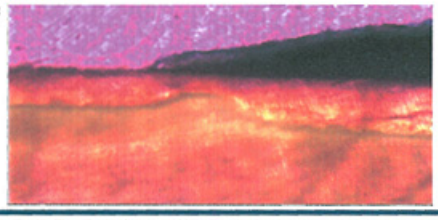

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Correspondence: PD Dr. Christian Gernhardt; Martin-Luther-University Halle-Wittenberg, Dental School of Medicine, Department of Operative Dentistry; Grosse Steinstrasse 19, D-06108 Halle (Saale), E-Mail: christian.gernhardt@medizin.uni-halle.de