



**ABSTRACT: 2006 IADR General Session & Exhibition**

**2078 Ionic exchange between Riva Self Cure GIC and demineralized dentine**

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**Objectives:** To determine changes in profiles of Ca, P, F and Sr across demineralized dentine following its direct contact with Riva Self Cure GIC using an Atraumatic Restorative Technique (ART) model, and to analyse for any resultant changes in its microhardness. **Methods:** Six intact extracted human molars had cavities prepared occlusally into dentine. The cavity floors were demineralized for 14 days. Half the cavity floor was painted with varnish from labial to lingual and Riva Self Cure GIC material inserted. The crowns were stored at 37°C for 14 days in an artificial saliva before being hemi-sectioned vertically from mesial to distal through the restorations. One side of each crown was prepared for Electron Probe Microanalysis of the pre-demineralized dentine from both protected (control) and unprotected (test) floor surfaces. The remaining side was prepared for Microhardness testing of both surfaces. **Results:** Relative weight percentages (RWP) of Sr and F reached mean peak values of 3.6 and 1.7 respectively in the test side specimens of demineralized dentine. These compared favourably with those found in previous experiments to result after 21 days exposure to Fuji IX (Ngo, 2005). The Microhardness of the test side dentine increased proportionally to the peak RWP of Strontium, in comparison to the control values. The Ca/P ratios within the test dentine remained constant throughout, irrespective of the concentrations of Strontium present. **Conclusion:** Ion exchange between Riva Self Cure GIC and demineralized dentine compares well with that previously observed when Fuji IX was used. A high uptake of Sr results in significantly increased microhardness of the demineralized dentine. The chemical and physical form by which Strontium is present in the dentine is not known.

Seq #171 - Cements: Bond Strength

3:30 PM-4:30 PM, Friday, 30 June 2006

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Back to the Dental Materials: III - Ceramics and Cements Program

Back to the IADR General Session & Exhibition (June 28 - July 1, 2006)

**#037**