



OCCLUSION OF DENTIN TUBULES BY 45S5 BIOGLASS®

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The currently accepted theory for tooth hypersensitivity is the hydrodynamic theory based on the belief that open dentin tubules allow fluid flow through tubules exciting nerve endings. Clinical replicas of hypersensitive teeth reveal numbers of open tubules. It is the purpose of the present study to evaluate BioGlass® (NovaMin®) compositional, size range and techniques to enhance bonding to dentin surfaces and occluding open tubules. Experiments were performed using standardized human dentin slabs in vitro cut from extracted teeth. SEM and FTIR evaluations were performed on the dentin surface after treatment with NovaMin® compounds. Results showed an increase in tubular occlusion compared with non-NovaMin® containing controls.

Summary

It can be seen from the data presented that there is significant occlusion of tubules with the NovaMin compounds. In addition, early stage remineralization of the tooth surface can be seen with FTIR. In conclusion, incorporation of NovaMin into a compound for treatment of sensitive teeth could be efficacious based on in vitro data. It will be necessary to perform a human trial on patients with hypersensitive teeth in order to confirm this hypothesis clinically.

In, Bioceramics 10, Proceedings of the 10th International Symposium on Ceramics in Medicine, Paris, France, Oct. 1997. eds. Sedel L, Rey C.