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Sealants vs. Amalgams: Antibacterial Properties

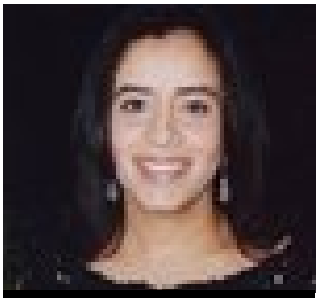
Tufts Study Shows Surprising Results

Sharma et al compared the antibacterial properties of three pit and fissure sealants and amalgam using streptococci mutans bacteria with chlorhexidine as the control.[1]

The samples tested were Ultraseal XT, Embrace WetBond, Clinpro, amalgam and the chlorhexidine control.

The results show significant statistical difference with Embrace far outperforming Ultraseal XT, Clinpro and amalgam. There was no significant difference between Embrace and chlorhexidine.The study concludes that Embrace WetBond had the highest mean zone of inhibition against strep. Mutans and had significant antibacterial properties in comparison to the other test groups.

The research study was conducted at Tufts University School of Dental Medicine in Boston and was presented at the IADR in Toronto in July 2008.



Dr. Shradha Sharma

1. Sharma S, Demorizi R, Krizova L, Paisner M, Defuria C, Kugel G. Comparison of antibacterial properties of sealants and amalgam. IADR Toronto 2008; abstr. 0450.

Dr. Sharma Answers Questions About the Study

Q. Do you think these findings have implications for the effect of Embrace on incipient caries?

A. As a clinician, knowing there is a zone of inhibition means no growth of bacteria in the area of the restoration. It means that in all likelihood, if there are incipient caries, they will not progress. ADA and CDC studies confirm this.

Q, Are antibacterial and antimicrobial interchangeable terms?

A. Yes. Embrace would be considered bacteriostatic. The zone of inhibition suggests ongoing resistance to bacteria.

Q. Does the research suggest that other Embrace materials are also antibacterial?

A. Although other Embrace products were not tested in this study, some of the results may be translated to other products based on the same chemistry. pH is the major consideration.

Q. What is the significance of the Embrace pH level?

A. Embrace has a lower pH to start and may be able to effect bacteria more readily while it is being placed prior to curing.

Q. How is Embrace different from other fluoride releasing resin pit and fissure sealants?

A. Fluoride helps with desensitizing and once incorporated into the tooth structure is cariostatic in nature. All products tested had fluoride in them, and Embrace had the best zone of inhibition.

Q. Does Embrace have a remineralization effect on tooth structure?

A. Remin was not a part of this study and is relative to the fluoride participation. Remin of Embrace Pit and Fissure Sealant has been tested by Dr. Mark Cannon of Southern Illioois University, and his results show that Embrace does very well.

Q. What is the duration of the antibacterial activity of Embrace?

A. Long-term studies would require very controlled environments and would be very difficult to perform. Our protocol is commonly accepted. The fact that a zone of inhibition remained after curing is, according to Dr, Gerald Kugel, ña huge protection.ò and is unique for a resin.

Q. What is the significance of the Embrace antibacterial property in the presence of saliva?

A. Saliva contains bacteria, enzymes and other microbes. How Embrace impacts enzymes andother microbes we do not know without testing. Testing with saliva is very complicated.