



Pit and Fissure Sealants

Case Study

Case Study: Effect of Pit and Fissure Sealants on Bacterial Levels – Review of the Literature

Dental caries is an infectious disease caused mainly by lactobacilli and streptococcus mutans. Despite strong evidence of the caries preventive benefits of pit and fissure sealants, the majority of the population that would most benefit from sealants have never had a sealant placed. One of the main concerns expressed by dentists is that of sealing bacteria in and thus increasing the risk of caries. A systematic review was conducted in which the authors examined the literature in which bacterial levels and caries progression were compared in permanent teeth in permanent teeth with and without sealants.¹

After an extensive literature search, the authors identified 311 studies of which 26 were further reviewed. Data were extracted from six studies that included information on mean viable bacteria count (VBC) as measured with colony-forming units per milligram (cfu/mg). Data were tabulated and recorded using two outcomes— (CFU/mg) and percentage of samples with VBC greater than zero for *Streptococcus mutans* and lactobacilli.

At baseline, 94% of lesions were cavitated. Across the studies, the average value of proportion of samples with reductions in viable bacteria attributable to sealants was 51.6 percent with a range from zero percent to 100.0 percent. Sealants reduced total bacteria counts and bacterial cultivability in caries lesions.



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References:

1. Oong EM, Griffin SO, Kohn WG, Gooch BF, DMD, and Caufield, PW. The effect of dental sealants on bacteria levels in caries lesions - A review of the evidence. *JADA*, Vol. 139; March, 2008; 271-278.