
Caries Protective Effect of Low Viscosity Fluoride-Releasing Sealant In Primary Teeth: Polarized Light Study. S Seybold*, J Hicks, C Flaitz, M Milano, F Garcia-Godoy. UTx-Houston, Tx Children's Hosp, Houston TX & Tuft's U, Boston MA.

This *in vitro* polarized light microscopic study evaluated the caries protective effect of a low viscosity fluoride-releasing pit and fissure sealant in primary teeth. 10 extracted or exfoliated primary teeth with caries-free buccal and lingual surfaces underwent soft tissue debridement and a fluoride-free prophylaxis. Specimens were sectioned into tooth halves to allow for a paired-tooth design. Cavity preparations were placed in buccal and lingual surfaces. Buccal cavities were filled with fluoride-releasing sealant (CS-F, Conseal F, SDI), while lingual cavities were filled with sealant lacking fluoride (CS, Conseal Light Grey, SDI). Acid-resistant varnish was placed leaving a 1mm rim of surface enamel and the sealant exposed. After thermocycling, artificial caries were formed (2.2mM Ca, 2.2mM PO₄, 50mM acetic acid, 0.5ppm fluoride, pH 3.90). After lesion initiation and progression periods, sections (5/tooth half) were taken and mean surface lesion depths and wall lesion frequencies were determined using polarized light.

	Lesion Initiation Period		Lesion Progression Period	
	Lesion Depth	Wall Lesions	Lesion Depth	Wall Lesions
CS-F	152±17um	12%	193±27um	22%
CS	223±21um	16%	349±34um	28%

(Paired t-test [P.05]: CS-F vs CS mean lesion depth at initiation and progression periods)

Fluoride-release from pit and fissure sealants provided a protective effect against a constant cariogenic challenge for the adjacent surface enamel following lesion initiation and progression. Similar caries resistance along the sealant-cavosurface interface was found with either fluoride-releasing or non-fluoride containing sealant. Supported by an AAPD Foundation Grant.