

RADIOGRAPHIC MEASUREMENT OF SEALED OCCLUSAL CARIES LESIONS AFTER 3 YEARS

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Background: SEAL-DK is an ongoing randomized, controlled clinical study of sealing versus restoring manifest occlusal caries lesions in young permanent dentition.

Aim: Use a new developed measurement method for quantitative radiographic assessment of the depth of sealed lesions at baseline and after 3 years, and relate the findings to treatments performed during the 3-year follow-up period.

Design: By January 2013, the material consisted of 318/368 sealed occlusal caries lesions followed by annual radiographs for 3 years \pm 6 months. The dentinal depth of the lesions was measured and expressed as percentage of the width of the tooth at column in radiographs from baseline and final control.

Results: At baseline, 19 lesions had no dentinal extension, 244 lesions extended to the outer third of the dentin, and 55 to the middle third. At the final control, 14 lesions showed caries regression, 272 were arrested, and 32 showed caries progression. Caries progression was significantly dependent on the lesion extension at baseline ($p=0.02$). During follow-up, 66 lesions were restored with resin composite: 3 lesions with caries regression, 44 arrested lesions and 19 lesions with progression. Furthermore, 22 lesions were resealed: 1 lesion with caries regression and 21 arrested.

Conclusions: The dentinal depth and development of sealed occlusal caries lesions can be quantified. The majority of the lesions were arrested; some showed caries progression; and some caries regressions 3 years after sealing. Discrepancies were found between the standardized measurements of changes in depth of the lesion and the dentists' choice of treatment during the follow-up period.