

DIAGNOSIS OF APPROXIMAL CARIES AFTER DELAYED SCANNING OF PHOTOSTIMULABLE PHOSPHOR PLATES

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Objectives: This study was aimed to assess the effects of delay in scanning PSPs on the diagnostic accuracy of detection of approximal caries. **Methods:** Radiographs from Fifty-two extracted molar and premolar teeth were radiographed using DIGORA Photostimulable phosphor plates (PSP)(Soredex Corporation, Helsinki, Finland). The teeth were either intact or with non-cavitated approximal caries. The plates were scanned immediately (time zero) and at 10 min, 30 min, 60 min and 120 min after exposure. A total of 65 images were obtained and evaluated for presence or absence of approximal caries by two oral and maxillofacial radiologists and 2 restorative specialists. The diagnostic accuracy of approximal caries detection was measured using a 5-point rating scale. Definite presence of caries was confirmed using a stereomicroscope. Analysis of caries detection data was performed by calculating sensitivity and specificity using repeated measures with ANOVA. **Results:** Significant differences were found in complete Negative Predictive Value (NPV), absolute Negative Predictive Value and complete dentine sensitivity value between different scan times ($P<0.05$). These values



were significantly different at 10 min, 60 min and 120 min ($P<0.05$). However, immediate scan and 30 min delay were not significantly different ($P>0.05$). The accuracy of approximal caries detection at 120 min was less than at 60 min and at 60 min was less than at 30 min. **Conclusion:** In order to detect approximal caries more accurately, DIGORA PSPs should be scanned within 30 min after exposure.

Keywords: radiography, dental, digital images, photostimulable phosphor plate