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## Acta Medica Iranica

2009;47(4) : 87-91

"The Effect of Bite Registration on the Reproducibility of Parallel Periapical Radiographs Obtained with Two Month Intervals "

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### Abstract:

Statement of Problem: Digital Subtraction Radiography (DSR) needs reproducible alignment between the x-ray source, the object, and the film for obtaining identical projections of the same anatomic region. Purpose: The aim of this study was to evaluate the effect of bite registrations (placed on individual bite blocks) on the reproducibility of parallel periapical radiographs, obtained every 2 months, in patients undergoing periodontal surgery for furcation involvement. Materials and Methods: Ninety eight parallel periapical radiographs were used in this study. The radiographs were taken with individual bite-blocks attached to the beam-guiding device. In order to individualize the bite blocks, bite registrations were fabricated using silicon impression material, and were placed on the individual bite blocks. All radiographs in each series were processed under similar conditions and were digitized with the flatbed scanner fitted with a transparency adaptor (hp Scanjet 7400) at 300 dpi resolution. Reproducibility of this method for obtaining similar parallel periapical radiographs was assessed by measuring the horizontal and vertical distances between two selected unchanged reference points on each radiograph and comparing them in each series. Reliability of measurements was analyzed using the one way random model intraclass correlation coefficient for average of raters. Results: For both measurements (Horizontal and Vertical) statistically significant reliability was found between three repeated radiographs with two month intervals in 16 patients, as well as 5 repeated radiographs with two month intervals in 10 patients ( $P < 0.001$ ). Conclusion: The result of this study shows that bite registration on individual bite blocks is enough for obtaining identical parallel periapical radiographs.

### Keywords:

[Geometric standardization](#) , [Standard intraoral radiography](#) , [Repro-ducibility](#)

TUMS ID: 3316

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