

*THE COMPARISON OF PROTAPER® AND
K-FLEXOFILES IN PREPARATION OF
CURVED CANALS
- IN VITRO STUDY*

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ABSTRACT

OBJECTIVE: To compare the performance of ProTaper® rotary instruments and stainless steel K-Flexofiles in preparing curved root canals in terms of changes in angle of curvature, apical transportation and production of canal aberrations and also to record the rate of separation of ProTaper® files.

STUDY DESIGN: Forty-one human mandibular first molars (mesial roots only each with 2 canals) with canal curvature of 15 to 18 degrees were divided into two groups. Forty-one canals were prepared using ProTaper® rotary instruments while forty-one canals were prepared using K-Flexofiles and Gates-Glidden drills. Digital radiographs obtained were analyzed with various image-analyzing programs. The parameters evaluated were reduction in canal curvature, apical transportation, lateral perforation, ledge, and apical zip, elbow, over-instrumentation and instrument separation. The statistical tests used were both independent and paired t-test, general linear models repeated measures, cross-tabulation with Pearson's chi-square test and Fisher's exact test. Significance level was set at 5% ($\alpha= 0.05$).

RESULTS: Significant difference ($P < 0.05$) was found in the mean curvature reduction and in the occurrence of elbows. Five ProTaper® files fractured during canal preparation procedures; three of them were F3, and two were F2 instruments.

CONCLUSIONS: ProTaper® rotary instruments maintained the curvatures better and performed equally in terms of apical canal transportation, compared with stainless-steel instruments. For procedural errors and canal aberrations, ProTaper® instruments produced more elbows. Incidence of fractures was enhanced with increasing size of ProTaper® files, with most fractures occurring with file size #30 (F3) and #25 (F2).

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"When there is a hill to climb, don't think that waiting will make it smaller, motivation is what gets you started; dedication is what makes you decide; determination is what makes you going"

_____ *Unknown* _____

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