

Comparison of the Cyclic Fatigue Resistance of Endoart Gold, Endoart Blue, Protaper Universal, and Protaper Gold Files at Body Temperature

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Abstract : The aim of this study is the comparison of the cyclic fatigue resistance of EndoArt Gold (EAG, Inci Dental, Istanbul, Turkey), EndoArt Blue (EAB, Inci Dental, Istanbul, Turkey), ProTaper Universal (PTU, Dentsply Tulsa Dental Specialties), and ProTaper Gold (PTG, Dentsply Tulsa Dental Specialties) files at body temperature. Twelve instruments of each EAG, EAB, PTU, PTG file system were included in this study. All selected files were rotated in the artificial canals, which have a 60° angle and a 5-mm radius of curvature until fracture occurred. The time to fracture (Ttf) was measured in seconds by a chronometer in the control panel that presents in the cyclic fatigue testing device when a fracture was detected visually and/or audibly. The lengths of the fractured fragments (FL) were also measured with a digital microcaliper. The data of Ttf and FL were analyzed using Kruskal-Wallis, one-way ANOVA and post hoc Bonferroni tests at the 5% significance level. There was a statistically significant difference among the file systems ($p < 0.05$). EAB had the statistically highest fatigue resistance, and PTU had the statistically lowest fatigue resistance ($p < 0.05$). PTG system had a statistically higher FL means than EAB and PTU file systems ($p < 0.05$). EAB had the greatest cyclic fatigue resistance amongst the other file systems. It can be stated that heat treatments may be a factor that increases fatigue resistance.

Keywords : cyclic fatigue resistance, Endo art blue, Endo art gold, pro taper gold, pro taper universal

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