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College of Dentistry**



**Evaluation of the effect of different irrigants on
the Cyclic Fatigue of Wave One Gold and
Reciproc Blue instruments**

(In vitro study)

A Thesis

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Abstract

One of the most common complications of root canal treatment is instrument fracture. Fracture because of fatigue through flexure occurs because of metal fatigue. The present study aimed to: compare the cyclic fatigue resistance between two types of reciprocating instruments with tip size 0.25, Wave One Gold (7% taper, Dentsply, Malifier) and Reciproc Blue(8%taper,VDW, Munich ,Germany) and evaluating the effect of sodium hypochlorite 5,25% gel (Cerkamed, Stalowa Wola, Poland), sodium hypochlorite 5,25% liquid(Cerkamed, Stalowa Wola, Poland) and Glyde (Dentsply Maillefer, Ballaigues, Switzerland) on the cyclic fatigue resistance of the instruments.

The testing canals were customized within stainless steel block covered with glass face for easy visualization and to prevent slippage of instrument from the canal. The fractured time was measured and the mean of cycles to fracture (MCF) detected for each instrument. Data were analyzed statistically by ANOVA, Tukey HSD test and independent t-test at 5% significant level.

Reciproc Blue had more resistant to cyclic fatigue fracture than Wave One Gold. There is a negative effect of Glyde and sodium hypochlorite 5.25% as a gel and a liquid on the cyclic fatigue resistance of the tested files as compared with the control group (normal saline).This is duo the their corrosion effect of these materials on the endodontic files.

Reciproc Blue showed longer fractured fragment than that of Wave One Gold, this is duo to the difference in taper between the two instruments.