

An in vitro comparison of new irrigation and agitation techniques to ultrasonic agitation in removing bacteria from a simulated root canal.

J Endod. 2009 Jul;35(7):1040-3. Townsend C, Maki J. Department of Graduate Endodontics, Marquette University, Milwaukee, WI 53233, USA.
cameron.townsend@mu.edu

INTRODUCTION: This in vitro study compared 3 agitation and 2 irrigation devices to ultrasonic agitation at mechanically removing bacteria from a plastic simulated canal, instrumented to 35/.06. **METHODS:** The plastic blocks were divided into seven groups. The control (C) group with brain-heart infusion (BHI) broth (sterile) received only needle irrigation. The remaining groups were incubated with BHI inoculated with *Enterococcus faecalis*. Irrigation and agitation techniques were ultrasonic, needle irrigation, EndoVac irrigation (Smart Endodontics; Discus Dental, Culver City, CA), EndoActivator (Dentsply Tulsa Dental Specialties, Tulsa, OK), F-File (Plastic Endo, Lincolnshire, IL), and sonic. Sterile water was the irrigant in all treatments. Remaining bacteria were stained with 0.1% crystal violet. The crystal violet was extracted using a detergent and measured spectrophotometrically. **RESULTS:** The results of this study show that ultrasonic agitation was not significantly different ($p > 0.05$, Tukey test) from the control. There was no significant difference ($p > 0.05$, Tukey test) between the ultrasonic agitation and the use of EndoActivator, F-File, and sonic agitation. Ultrasonic agitation was significantly more effective at removing bacteria than needle irrigation and EndoVac irrigation ($p < 0.05$, Tukey test). **CONCLUSION:** In a plastic simulated canal, ultrasonic agitation was significantly more effective than needle irrigation and EndoVac irrigation at removing intracanal bacteria. Ultrasonic, EndoActivator, F-File, and sonic agitation are similar in their ability to remove bacteria in a plastic simulated canal. PMID: 19567330 [PubMed - indexed for MEDLINE]