

## Temperature Rise on the External Root Surface Using Ultrasonic Tips during Removal of Broken Instruments

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This study was conducted in order to compare the amount of heat generated on the external root surface and the amount of lost dentin caused by three different types of ultrasonic tips.

**Materials and Methods:** The study was done in Magrabi Dental Center Research division, sixty extracted human mandibular first molars were used, and 3 mm fragments of Size 30 K- files were intentionally separated inside mesio-lingual canals.

Teeth were placed in eppendorf tubes containing alginate to simulate human body. Two fine thermocouples connected to a digital thermometer were connected to the mesial and distal aspect of the mesial root.

The amount of lost dentin thickness was assessed through comparing pre- and post – instrumentation CT scan at 0.5 mm from the separated instrument.

Form this study conclusions could be summarized as follow:

The assembly used in the study proved to be efficient in measuring the external root surface temperature in situation simulation simulating clinical conditions.

1. The material of the tips, the time of application and the power intensity affected both the amount of heat generated and the amount of removed dentin.
2. The size of the ultrasonic tips may be an influencing factor that affects the amount of the remaining mesial and distal dentin thickness.
3. There is a potential risk of root perforation during the use of the ultrasonic tips.

**Keywords:** Ultrasonic tips, Broken instruments, Heat generation.

### Biography:

Dr. Moataz Mahran D.S, M.S.C Endodontics graduated from Ainshams University 2003 Cairo, Egypt. He Received my Master's degree in Endodontics from Ainshams University 2011 Cairo, Egypt. He is a private practitioner and Head of Endodontic department at Magrabi Dental Hospital Madinah road Jeddah, Saudi Arabia. His work is limited to MicroEndodontics with almost 30.000 canal has been treated. Member of the Irish Dental Council, British Endodontic Society and European Endodontic Society.