

Impacts of Multiple Root Canal Usage on the Surface Wear

Aziz Al-Farra*

Tufts University School of Dental Medicine,
Boston, Massachusetts, USA

Received: February 03, 2021; **Accepted:** February 17, 2021; **Published:** February 24, 2021

Root canal instruments manufactured from nickel-titanium (Ni-Ti) alloy were introduced in 1988 to overcome the rigidity of stainless steel material. The super elasticity of the material allows the Ni-Ti rotary instruments to be used in continuous rotation even in curved root canals to produce a desirable tapered root canal form with a low risk of transporting the original canal lumen. Although these files are recommended by some manufacturers to be of single use, unfortunately most clinicians are frequently sterilized files and reused them many times.

Despite the increased flexibility and strength of Ni-Ti rotary instruments compared with stainless steel instruments, Ni-Ti rotary instruments appear to have a higher risk of separation. Several strategies have been suggested by manufacturers to reduce the chance of separation of Ni-Ti instruments. These methods include: electropolishing, varying the taper over the length of the cutting blades, and the use of new alloys that provide superior mechanical properties.

Number of usages of an endodontic instrument may be an important factor controlling instrument failure and fracture, which in turn is directly related to pre-existing surface defects and to those generated during canal instrumentation. Moreover, topographic features control the adhesion on material's surface of biological components, serving as potential sites for microorganisms, blood cells, and tissues debris. Hence, it is

important to understand the nature, type, and incidence of these surface defects of Ni-Ti instruments. Recently, PROTAPER NEXT® File system (DENTSPLY, Tulsa Dental, DENTSPLY Maillefer, TN) was introduced with a unique manufacturing process, which includes M-waire Ni-Ti, thermal treatment process, which provides greater flexibility as well as increased strength to assist in reducing the risk of cyclic fatigue and file separation, patented rectangular cross-section design for greater strength and Unique Asymmetric Rotary (AR) Motion that further enhances ProTaper canal shaping efficiency.

***Corresponding author:** Aziz Al-Farra

✉ dr.aziz_elfarra@hotmail.com

Tufts University School of Dental Medicine,
Boston, Massachusetts, USA.

Tel: 6032298369

Citation: Al-Farra A (2021) Impacts of Multiple Root Canal Usage on the Surface Wear. J Orthod Endod. Vol. 7 No.2:10