



The single file technique

In 1988, a set of comparative tests demonstrated for the first time the potential advantages of nickel-titanium (NiTi) endodontic files over stainless steel files. The results of these tests were published in an article entitled 'An Initial Investigation of the Bending and the Torsional Properties of Nitinol Root Canal Files', by Walia, Brantley and Gerstein¹. In 1991, the first commercial NiTi hand files were introduced by NT Company. In 1994, NT Company also introduced the first series of NiTi rotary files with multiple non-conventional tapers: the McXIM Series, which have six graduating tapers ranging from the conventional 0.02 taper to 0.05 taper, aimed at reducing stress by limiting the file's engagement during the serial enlargement with rotary instrumentation².

NiTi instruments are able to maintain the original canal shape without creating severe irregularities such as zips, ledges or perforations, particularly in narrow curved canals, because of their superelastic behaviour and shape-memory property^{3,4}. Root canal preparation using instruments with increased flexibility, such as NiTi rotary instruments, often results in faster, more consistent preparations with less procedural errors than stainless steel hand instruments⁵.

Based upon the initial success and recognised advantages, the use of NiTi rotary files has proliferated and has become widely accepted by the profession.

In 2000, a new generation of instruments were introduced: RaCe (FKG) with an alternating cutting edge, increased flexibility and electropolished surface; ProTaper (Maillefer) with a variable taper along the cutting surface and a reduced number of instruments; and GT Rotary (Maillefer) with a new design of the cutting surface to decrease the torque value of the instrument⁶.

Today, approximately 20 years after the first series of NiTi instruments, a new concept of rotary instrumentation is to be introduced: the single file technique, a single instrument able to shape all types

of canals with alternating movement. The Reciproc file by VDW and WaveOne by Maillefer promise to reduce working time, reduce the number of steps, thus decreasing the shaping time up to 40%, improve cutting efficiency, and improving comfort, simplicity, safety and efficiency.

However, some questions remain: are these instruments really more suited to complex anatomy than the older series? Are these instruments able to shape and clean better than a sequence of five instruments? How do they shape canals with apical size more than 25 or 40? How much apically extruded debris are produced by the single file technique with reciprocating movement? What about re-treatment cases?

A great leap has begun ... but are we about to realise an innovation that does not decrease the quality of our endodontic treatment?

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Editors' welcome

The editors would like to welcome three new societies to *ENDO*: the Belgian Association for Endodontology and Traumatology (BAET), the French Society of Endodontics (SFE) and the Norwegian Endodontic Society (NEF). We are thrilled at your interest in the journal and look forward to providing your members with essential reading in the science and practice of endodontics.

Enjoy your *ENDO*!

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