A comparative study of Endoflare-Hero Shaper and M$_{two}$® NiTi instruments in the preparation of curved root canals

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Aim: To analyse the shaping ability of two new NiTi rotary systems in molar curved canals.

Methodology: Thirty molar root canals with curvatures from 24° to 69° were divided into two groups that were balanced in terms of curvature. The canals in one group were shaped using the M$_{two}$® and the canals in the other group using the Endoflare-Hero Shaper (Micro-Mega, Besançon, France) in a modified sequence. Pre- and post-instrumentation X-rays were taken using a radiographic platform with a contrast medium being used to enhance canal opacity. The dentine removed at five positions along the canals, the symmetry of canal shaping and the presence of aberrations were analysed through computer-aided measurements. The instrument failures, the working time and the changes in working length were also recorded. The Mann-Whitney U-test was used for statistical analysis.

Results: Both systems produced uniform dentine removal and symmetrical canal shapes; there was no significant difference between the systems ($P > 0.05$). In the apical region, preparations were centred in the canal. A mean loss of working length of 0.55 mm for M$_{two}$® and 0.58 mm for Endoflare-Hero Shaper was detected, with no significant differences between the instruments ($P > 0.05$). No aberrations were seen and no instruments separated. The mean working time was 124.4 s for the M$_{two}$® system and 141.3 s for the Endoflare-Hero Shaper but this difference was not statistically significant ($P > 0.05$).

Conclusions: The systems tested in this study were effective in shaping curved canals in extracted teeth.