AM. Pawar, S. Pawar, A.Kfir, M. Pawar, S Kokate. Push-out bond strength of root fillings made with C-Point and BC sealer vs. gutta percha and AH Plus after the instrumentation of oval canals with the Self-Adjusting File vs. WaveOne. Int Endod J. 2016;49(4):374-81.

Abstract: AIM: To compare the push-out bond strength exhibited by root fillings performed with either C-Point and Endosequence® BC sealer™ (BC Sealer) or gutta-percha and AH Plus® after the instrumentation of oval canals with either the Self-Adjusting File (SAF) System or WaveOne (WO) reciprocating file. METHODOLOGY: Eighty extracted premolars were selected and divided randomly into the following four groups (n = 20): group 1, SAF instrumentation and filling using gutta-percha and AH Plus sealer; group 2, SAF instrumentation and C-Point and BC sealer filling; group 3, WO instrumentation and filling using gutta-percha and AH Plus sealer; and group 4,WO instrumentation and filling with C-Point and BC sealer. Sodium hypochlorite (5.25%) and EDTA (17%) were used as irrigants for all groups. After the sealer was set completely, the teeth were prepared for micro push-out assessment using 1.0-mm-thick root slices. Loading was performed with universal testing machine at a speed of 0.5 mm min(-1) . Two-way anova and Student's t-test for pairwise comparisons were used to compare groups.

RESULTS: All specimens filled with C-Point and BC sealer were associated with significantly higher push-out bond strength compared with gutta-percha and AH Plus sealer ($P < 0.001$). The bond strength was higher for the coronal and apical samples of the C-Point/BC sealer/SAF group (6.6 ± 0.3 and 3.2 ± 0.3 MPa) versus those of the gutta-percha/AH Plus/WO group (4.8 ± 0.3 and 1.8 ± 0.3 MPa), by 38% and by 80% in the coronal and apical parts, respectively ($P < 0.001$, $P < 0.0001$). Adhesive bond failure was more common in the WaveOne-instrumented group in general and in the buccal and lingual recesses in this group in particular.CONCLUSIONS:
In oval canals, the instrument used and the root filling material significantly affected the push-out values of root fillings. The highest value was recorded in oval root canals instrumented with the SAF System and filled with C-Point and BC sealer, whereas the lowest strength was noted in oval canals instrumented with WaveOne and filled with gutta-percha and AH Plus sealer.