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# XP ENDO® shaper

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## SCIENTIFIC OVERVIEW

**12/2019**

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● All comparisons are at least equal to XP-endo Shaper
● At least 1 comparison is negative for XP-endo Shaper
● All comparisons are negative for XP-endo Shaper

✓ Yes ✗ No

| MECHANICAL PROPERTIES | SHAPING ABILITY | CLINICAL TRIAL | BACTERIA / DEBRIS REMOVAL | RETREATMENT | APICAL DEBRIS EXTRUSION | TESTED AT BODY TEMPERATURE | 2019 |
|---|---|---|---|---|---|---|---|
| | | ● | | | | ✓ | (1) **Adiguzel M, et al. DCDP. 2019**<br>**Compared with:** iRace and Reciproc Blue.<br>**Comments:** Postoperative pain was similar for all 69 patients included into this study. XP-endo Shaper produced significantly less pain than Reciproc Blue at 24h and 48h post-treatment. |
| | ● | | | | | ✓ | (2) **Velozo C & Albuquerque D. MRT. 2019**<br>**Compared with:** none. Review article.<br>**Comments:** Based on the 5 articles retained for the literature review, XP-endo Shaper shows good performances in terms of untouched canal walls. |
| | ● | | | | | ✓ | (3) **Pacheco-Yanes J, et al. IEJ. 2019**<br>**Compared with:** Reciproc and Reciproc blue.<br>**Comments:** XP-endo Shaper produced significantly less transportation than Reciproc blue and Reciproc. All groups showed significantly more transportation at the inner wall of the endodontic training blocs. |
| | | | | ● | | ✓ | (4) **De-Deus G, et al. JOE. 2019**<br>**Compared with:** Reciproc and Reciproc blue.<br>**Comments:** The XP-endo Shaper instrument removed a higher percentage of root fillings. The apical enlargement improved the removal of root fillings in all groups. None of them was able to render root canals completely free from root fillings. |

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| | | | | • | | ✓ | (5) **Borges MMB, et al. MRT. 2019**<br>**Compared with:** Passive ultrasonic irrigation and manual instrumentation.<br>**Comments:** XP-endo Shaper is used as a "complementary cleaning method". After instrumentation with Waveone Gold, Reciproc Blue, or ProDesign R, XP-endo Shaper was used to remove more remaining filling material. PUI and manual (Hedström) were also used for complementary cleaning.<br>All 3 techniques removed a significant amount of filling material. XP-endo Shaper removed significantly more filling material in the apical and middle thirds when investigated with MicroCT. No difference was observed during the SEM investigation. |
| • | | | | | | ✓ | (6) **Cardoso RM, et al. JCDP. 2019**<br>**Compared with:** iRace and ProDesign Logic.<br>**Comments:** Body temperature (37°C) significantly lowers the resistance to cyclic fatigue of all instruments compared with 20°C. XP-endo Shaper instruments were more resistant to cyclic fatigue and time to failure compared at 20°C and 37°C ($p<0.001$). |
| | • | | | | | ✓ | (7) **Uğur Aydın Z, et al. MRT. 2019**<br>**Compared with:** Reciproc Blue and Waveone Gold.<br>**Comments:** None of the tested groups showed new dentinal microcracks nor cracks propagation after instrumentation. |
| | | | | • | | ✓ | (8) **Machado AG, et al. IEJ. 2019**<br>**Compared with:** SAF and TRUShape.<br>**Comments:** Overall there was no difference between the systems. However, canals were completely cleaned of filling material in 70% of the specimens for XP-endo Shaper, 55% for SAF and 30% for TRUShape; the difference between XP-endo Shaper and TRUShape was significant ($P = 0.03$). The use of XP-endo Finisher R resulted in an additional 38% reduction in filling material ($P< 0.001$). |

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| | • | | • | | | ✓ | (9) **Zhao Y, et al. IEJ. 2019**<br>**Compared with:** Reciproc Blue.<br>**Comments:** The amount of untouched walls were similar for the two groups, but XP-endo Shaper resulted in significantly less remaining dentinal debris. |
| | • | | | | | ✓ | (10) **Poly A, et al. COI. 2019**<br>**Compared with:** Waveone Gold.<br>**Comments:** Micro-CT technique revealed a significantly better centering ability and less canal transportation with XP-endo Shaper compared to Waveone gold. The double-digital radiography (DDR) technique was not capable of detecting significant difference between the tested groups. |
| | • | | | | | ✓ | (11) **Aksoy Ç, et al. JOE. 2019**<br>**Compared with:** Protaper Universal and Reciproc Blue.<br>**Comments:** Protaper universal significantly increased the rate of microcracks. Instrumentation with XP-endo Shaper and Reciproc Blue did not cause microcracks. |
| | • | | | | | ✓ | (12) **Tabbara A, et al. JCDP. 2019**<br>**Compared with:** None.<br>**Comments:** XP-endo Shaper is considered as safe and efficient by the authors, in order to achieve preparations of a size 30 and a 0.04 taper. |
| | | | • | | | ✓ | (13) **Kaya BÜ, et al. IEJ. 2019**<br>**Compared with:** Hyflex EDM and Waveone Gold.<br>**Comments:** XP-endo Shaper and Hyflex EDM were significantly superior to Waveone Gold in removing enterococcus faecalis in round and straight canals. Round canals tend to favor round files and are not the norm in clinics. |

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| | • | | | | | ✓ | (14) **De-Deus G, et al. IEJ. 2019**<br>**Compared with:** None.<br>**Comments:** Extending the period of XP-endo Shaper active instrumentation at working length significantly influenced several parameters such as volume ($P < 0.001$) and surface area ($P < 0.001$) of the instrumented canal, surface area of non-instrumented canal areas ($P < 0.001$), and volume of removed dentine ($P < 0.001$). |
| **2018** | | | | | | | |
| • | | | | | | ✓ | (15) **Azim AA, et al. JOE. 2018**<br>**Compared with:** Hyflex EDM, Protaper Universal and Waveone Gold.<br>**Comments:** The XP-endo Shaper showed the greatest number of cycles to fracture. |
| | | | | • | • | ✓ | (16) **Azim AA, et al. JOE. 2018**<br>**Compared with:** Hyflex EDM and Waveone Gold.<br>**Comments:** XP-endo Shaper was the most efficient in gutta-percha removal from the canals when operated at a higher speed (3000 rpm) followed by Hyflex EDM and Waveone Gold. No difference of apically extruded debris was observed. |
| • | | | | | | ✓ | (17) **Keskin C, et al. JOE. 2018**<br>**Compared with:** K3XF and Protaper Gold.<br>**Comments:** XP-endo Shaper showed significantly higher resistance to cyclic fatigue when compared with other devices. |
| | | | • | | • | ✓ | (18) **Alves FRF, et al. JOE. 2018**<br>**Compared with:** Reciproc.<br>**Comments:** XP-endo Shaper was superior than Reciproc in bacterial reduction while there was no difference in extrusion of debris. |

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| | ● | | | | | ✓ | (19) **Hassan R, et al. AOL. 2018**<br>**Compared with:** Waveone and OneShape.<br>**Comments:** Waveone showed the best centering ratio followed by XP-endo Shaper and OneShape. XP-endo Shaper showed the lowest significant mean transportation among the three systems. No difference was found between Waveone and OneShape. |
| | | | | | ● | ✓ | (20) **Uslu G, et al. JOE. 2018**<br>**Compared with:** Hyflex EDM and Reciproc Blue.<br>**Comments:** XP-endo Shaper extruded significantly less debris compared to Reciproc Blue. Hyflex did not show statistically significant difference compared to the other two groups. |
| ● | | | | | | ✓ | (21) **Elnaghy A, et al. COI. 2018**<br>**Compared with:** iRace, Profile Vortex, TRUShape and Vortex Blue.<br>**Comments:** XP-endo Shaper was significantly more resistant to cyclic fatigue than all other files tested. |
| | ● | | | | | ✓ | (22) **Versiani MA, et al. JOE. 2018**<br>**Compared with:** EdgeFile and iRace.<br>**Comments:** Although there was no statistical difference in the parameters measured the XP-endo Shaper prepared the canals in a more conical shape i.e. maintained the original shape of the canal better. |
| ● | | | | | | ✓ | (23) **Silva EJNL, et al. JOE. 2018**<br>**Compared with:** TRUShape.<br>**Comments:** Cyclic fatigue resistance was superior for XP-endo Shaper while torsional fatigue resistance was superior for TruShape. Test for torsional fatigue locks the tip artificially – if this is the case in the canal both instruments will fracture. The superior resistance to cyclic fatigue allows the XP-endo Shaper to be used at a faster speed thus decreasing the chance of tip lock. |

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| 🟡 | | | | | | ✓ | (24) **Elnaghy AM, et al. IEJ. 2018**<br>**Compared with:** Flexmaster, Profile Vortex and TRUShape.<br>**Comments:** There was no difference (torsional resistance) found between XP-endo Shaper and TRUShape but Flexmaster and Vortex were superior. These results are expected due to core size and tips are artificially locked into position for the test. |
| | | | | | 🟡 | ✗ | (25) **Caviedes-Bucheli J, et al. IEJ. 2018**<br>**Compared with:** Manual instrumentation, Reciproc Blue and WaveOne Gold.<br>**Comments:** The expression of substance P and calcitonin gene-related peptide was higher for instrument groups than in the healthy periodontal ligament (PDL) group. XP-endo Shaper showed lower expression than manual instrumentation but higher expression than the other groups. No indication that the experiment was performed at body temperature. |
| 🟢 | | | | | | ✓ | (26) **Adiguzel M, et al. JDRDCDP. 2018**<br>**Compared with:** Flexmaster, Hyflex CM and Race.<br>**Comments:** The number of cycles to fracture showed the following hierarchy: XP-endo Shaper > Hyflex CM > Felxmaster > Race. |
| **2017** | | | | | | | |
| | 🟡 | | 🟢 | | | ✓ | (27) **Lacerda MFLS, et al. JOE. 2017**<br>**Compared with:** SAF and TRUShape.<br>**Comments:** There were no significant differences for specimen length, canal volume, and canal surface area before preparation. SAF showed less amount of untouched canal walls than the other instruments. No significant difference between the systems in terms of the amount of vital pulp remnants was observed. |

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| | • | | • | | | ✓ | (28) **Azim AA, et al. JOE. 2017**<br>**Compared with:** vortex blue.<br>**Comments:** XP-endo Shaper left significantly less untouched canal walls (38.6% ± 8.1%) than Vortex blue (58.8% ± 8.5%). Low amount debris remained into the canal for both brands of instruments. The mechanical preparation of the root canal space was faster, by almost 1 minute, when XP-endo Shaper was in use. |
| | • | | | | | ✓ | (29) **Bayram HM, et al. JOE. 2017**<br>**Compared with:** Protaper Universal, Protaper Next and SAF.<br>**Comments:** Protaper universal caused significantly more microcracks while there was no difference between the other groups. |

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