









## Wave One Literature review- March 13, 2012

<b>Authors</b>	<b>Berutti E</b> , Chiandussi G, Paolino DS, Scotti N, Cantatore G, Castellucci A, Pasqualini D.	 Berutti E 2011.pdf
<b>Journal Ref</b>	J Endod. 2011 Dec;37(12):1687-90. Epub 2011 Oct 27.	
<b>Title</b>	Effect of canal length and curvature on working length alteration with WaveOne reciprocating files.	
<b>Study type</b>	Ex vivo –extracted permanent teeth	
<b>Aim</b>	Evaluation of working length (WL) modification after instrumentation with WaveOne Primary	
<b>Conclusion</b>	<ul style="list-style-type: none"> <li>• Study evidenced that a significant decrease in WL may occur after instrumentation with WaveOne primary in curved canals</li> <li>• Checking the WL before preparation of the apical third of the root canal is a highly recommended strategy when WaveOne is used</li> </ul>	
<b>Comments</b>	Checking the WL before preparation of the apical third of the root canal is indicated in the manufacturer instruction. The authors never mentioned in the paper that they followed manufacturer instructions.	
<b>Authors</b>	<b>Elio Berutti</b> , Davide Salvatore Paolino, Giorgio Chiandussi, Mario Alovisi, et al.	 Berutti E 2011b.pdf
<b>Journal Ref</b>	J Endod. 2012 Vol. 38, Issue 1, Pages 101-104	
<b>Title</b>	Root Canal Anatomy Preservation of WaveOne Reciprocating Files with or without Glide Path Journal of Endodontics	
<b>Study type</b>	In vitro –Endo training Blocks	
<b>Aim</b>	To compare modification of the canal curvature and axis with the new WaveOne single-file reciprocating system in endo training blocks, with and without glide path.	
<b>Conclusion</b>	Canal modifications are reduced when previous glide path is performed by using WaveOne	
<b>Authors</b>	<b>Webber J</b>	 Webber J 2011 Roots.pdf
<b>Journal Ref</b>	Roots 2011	
<b>Title</b>	The WaveOne single-file reciprocating system	
<b>Publication type</b>	Clinical technique	
<b>Aim</b>	Introduce new WaveOne single file reciprocating system	
<b>Authors</b>	<b>van der Vyver P</b>	 van der Vyver P. Endodontic Practice Nc
<b>Journal Ref</b>	ENDODONTIC PRACTICE NOVEMBER 2011	
<b>Title</b>	WaveOne instruments: clinical application guidelines	
<b>Publication type</b>	Clinical technique	
<b>Aim</b>	Guidelines for the clinical application of the WaveOne single-file reciprocating system in clinical practice	

<b>Authors</b>	<b>Hyeon-Cheol Kim</b> , DDS, MS, PhD, Sang-Won Kwak, DDS, MS, Gary Shun-Pan Cheung, BDS, MDS, PhD, Dae-Hoon Ko, MS, Se-Min Chung, DDS, WooCheol Lee, DDS, MS, PhD	 Kim HC 2012.pdf															
<b>Journal Ref</b>	<i>J. Endo. In Press Corrected Proof</i>																
<b>Title</b>	Cyclic Fatigue and Torsional Resistance of Two New Nickel-Titanium Instruments Used in Reciprocation Motion: Reciproc Versus WaveOne																
<b>Product</b>	Reciproc , WaveOne and ProTaper																
<b>Study type</b>	In vitro –bench study																
<b>Aim</b>	To compare the cyclic fatigue resistance and torsional resistanc of Reciproc and WaveOne																
<b>Conclusion</b>	<ul style="list-style-type: none"> <li>• Reciproc showed a higher cyclic fatigue Resistance than WaveOne</li> <li>• WaveOne showed higher torsional resistance than Reciproc</li> <li>• WaveOne and Reciproc demonstrated significantly higher cyclic fatigue and torsional resistances than ProTaper</li> </ul>																
<b>Comments</b>	Reciproc performed better than WaveOne on cyclic fatigue. Nevertheless, as WaveOne is a single use product, the cyclic fatigue should not deeply impact its performance.																
<b>Authors</b>	<b>Bürklein S</b> , Hinschitzka K, Dammaschke T, Schäfer E.	 Bürklein S 2011.pdf															
<b>Journal Ref</b>	<i>Int Endod J. 2011 Dec 22. doi: 10.1111/j.1365-2591.2011.01996.x. [Epub ahead of print]</i>																
<b>Title</b>	Shaping ability and cleaning effectiveness of two single-file systems in severely curved root canals of extracted teeth: Reciproc and WaveOne versus Mtwo and ProTaper.																
<b>Product</b>	WaveOne–Reciproc																
<b>Study type</b>	Ex-vivo (extracted teeth)																
<b>Aim</b>	To compare the shaping ability and cleaning effectiveness of two reciprocating single-file systems with Mtwo and ProTaper rotary instruments during the preparation of curved root canals in extracted teeth.																
<b>Conclusion</b>	<ol style="list-style-type: none"> <li>1. All the instruments maintained the original canal curvature with no significant differences between the different files and were safe to use</li> <li>2. Instrumentation with Reciproc was significantly faster than with all other instruments , while WaveOne was significantly faster than Mtwo and ProTaper</li> <li>3. Reciproc and Mtwo instruments achieved better results than the others in the apical third of the canals.</li> <li>4. In the middle and coronal parts, no significant differences were obtained between Mtwo, Reciproc and WaveOne, while ProTaper showed significantly more residual debris</li> <li>5. Results for remaining smear layer were similar and not significantly different for the different parts of the canals.</li> </ol>																
<b>Comments</b>	<ol style="list-style-type: none"> <li>1. No apex perforation has been observed which counteract Berutti 's article published in 2011*</li> <li>2. the results presented in table 2 of this paper, showed effectively a difference up to 60% between Reciproc vs Mtwo and ProTaper, whereas even if still significative, the differences is not as important between Reciproc (Mean: 73.1 SD:12.2) and WaveOne (Mean: 82.3 SD: 9.8)</li> </ol> <div style="text-align: center;"> <p><small>Table 2 Mean preparation time (s) and SD with the different instruments</small></p> <table border="1"> <thead> <tr> <th>Instrument</th> <th>Mean</th> <th>SD</th> </tr> </thead> <tbody> <tr> <td>Mtwo</td> <td>181.7<sup>a</sup></td> <td>16.5</td> </tr> <tr> <td>ProTaper</td> <td>188.7<sup>a</sup></td> <td>11.5</td> </tr> <tr> <td>Reciproc</td> <td>73.1<sup>b</sup></td> <td>12.2</td> </tr> <tr> <td>WaveOne</td> <td>82.3<sup>b</sup></td> <td>9.8</td> </tr> </tbody> </table> <p><small>Values with the same superscript letters were not statistically different at P = 0.05.</small></p> </div> <p>*Berutti et al. J Endod. 2011 Dec;37(12):1687-90.</p>		Instrument	Mean	SD	Mtwo	181.7 <sup>a</sup>	16.5	ProTaper	188.7 <sup>a</sup>	11.5	Reciproc	73.1 <sup>b</sup>	12.2	WaveOne	82.3 <sup>b</sup>	9.8
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<b>Authors</b>	<b>Elio Berutti</b> , Giorgio Chiandussi, Davide Salvatore Paolino, Nicola Scotti, et al.	 Berutti E 2012.pdf
<b>Journal Ref</b>	J. Endo 02 February 2012 in press corrected proof	
<b>Title</b>	Canal Shaping with WaveOne Primary Reciprocating Files and ProTaper System: A Comparative Study	
<b>Study type</b>	<i>Ex vivo</i> – Endo training blocks	
<b>Aim</b>	To compare the ability of WaveOne Primary files with the ProTaper system up to F2 rotary file in preserving canal anatomy	
<b>Conclusion</b>	Canal modifications are reduces when WaveOne , single-file and reciprocating mvt, is used Use of WaveOne enhanced the canal centering ability , and lead to less invasive root canal preparation	
<b>Authors</b>	<b>Plotino G</b> , Grande NM, Testarelli L, Gambarini G.	 Plotino G 2012.pdf
<b>Journal Ref</b>	<i>Int Endod J.</i> 2012 Jan 23. doi: 10.1111/j.1365-2591.2012.02015.x. [Epub ahead of print]	
<b>Title</b>	Cyclic fatigue of Reciproc and WaveOne reciprocating instruments.	
<b>Study type</b>	Bench study	
<b>Aim</b>	To evaluate the cyclic fatigue resistance of Reciproc and WaveOne instruments in simulated root canals	
<b>Conclusion</b>	<ul style="list-style-type: none"> <li>• Reciproc intruments resisted cyclic fatigue significantly more than Wave One instruments (mean time of fracture).</li> <li>• No significant difference in the mean length of the fractured fragments between the instruments have been determined</li> <li>• These differences could be relate to the different cross-sectional design (S-shape with two cutting blades for Reciproc; modified concex triangular cross-section at the tip and a convec triangular cors-section in the middle and coronal portion for WaveOne) and/or to the different reciprocating movement of the two instruments.</li> </ul>	
<b>Comments</b>	These two instruments are sold as single use instrument, which should avoid even if not eliminates risk of accumulation of metal fatigue and failure	