The purpose of this study was to compare the accuracy of the following apex locators: Morita Root ZX II, Dentsply ProMark®, Sybron ApexID™, Parkell Formatron®, Ultradent Find™, and Schein®Digital.

**Methods**

Twenty-four single rooted extracted teeth were tested using the above apex locators following the manufacturer’s instructions.

**Results**

For the teeth we tested, the Schein®Digital and Dentsply ProMark® provided the most consistent results among the apex locators tested.

**Conclusion**

Electronic apex locators can be used to successfully locate the apical foramen.

**Abstract**

The purpose of this study was to compare the accuracy of the following apex locators: Morita Root ZX II, Dentsply ProMark®, Sybron ApexID™, Parkell Formatron®, Ultradent Find™, and Schein®Digital.

**Discussion**

Two apex locators were not able to give consistent readings and were excluded from the project.

1. Morita Root ZX II - 10 readings obtained with a #10 file
2. Ultradent Find™ - 4 readings obtained with a #15 file 0.25 mm from the apex
3. No readings could be obtained with a #12 file

For the Sybron ApexID™ measurements were taking at 0.6mm from the apex because the machine would not read at the apex.

The Parkell Formatron™ was hypersensitive to file placement. It would start at 0.5mm from the apex and then jump to 0.0 or -1.0mm from the apex.

The Dentsply ProMark® read values that were at the apex. The values for ProMark® were adjusted to take out the three zero values and then recalculated.

The Schein®Digital was the surprise in this project. It was the easiest to use even though it was the most rudimentary of all the locators. We were able to measure our apex to length and compare our results directly to the measured #15 file lengths.

**Conclusions**

The most consistent apex locator was the Digital© Apex locator.

The next most consistent was the Dentsply ProMark® followed by the Parkell Formatron™, and lastly the Sybron ApexID™ apex locators.

This project was a good pilot study to determine which apex locators were the most consistent when determining the location of the anatomic apex. There was room for refinement and this project could be done again with some modifications to help establish more consistent results.

Future studies should work to include Ultradent Find™ and Morita Root ZX II.

Areas for improvement:

- Not store the teeth in an NaOCl solution for extended periods of time leads to broken or brittle teeth
- After sectioning, all teeth should be prepared and tested in a timely manner.
- Have all apex locators available at the same time.


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**Reference**