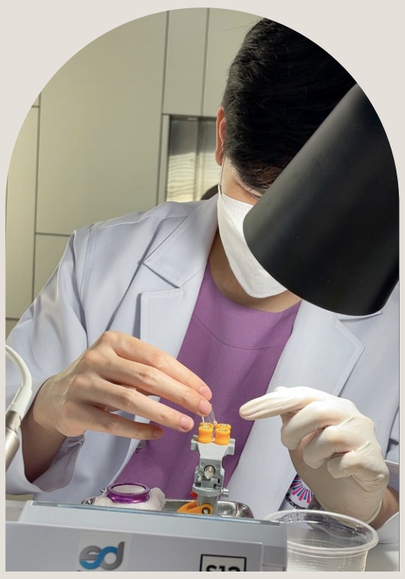
RANGSIT UNIVERSITY
มหาวิทยาลัยรังสิต

Influence of Operator's Experiences on Shaping Curved Canal with a Rotary Single-File Reciprocating Motion



INTRODUCTION

Reciproc Blue, introduced in 2011 as an enhanced version of Reciproc, demonstrated improved resistance to cyclic fatigue due to thermal treatment, offering greater flexibility and reduced surface microhardness for safer canal preparation. Studies affirmed its ability to maintain original canal curvature and reduce the risk of instrument fracture. Incorporating Reciproc Blue into dental education could potentially resolve issues such as canal transportation and instrument fracture among undergraduate students.

OBJECTIVE

The study aimed to assess the benefits of Reciproc Blue for undergraduate dental students. Two groups, comprising 4th-year students with laboratory experiences and 6th-year students with both laboratory and clinical experiences, were chosen. The study sought to evaluate the competency of both groups in preparing curved canals, intending to create guidelines for an effective teaching and learning process tailored to their needs.

RESULT

The result showed no statistical significance of canal transportation between the 2 student groups. ($p>0.05$) Intra group analysis found transportation at all levels. Canal deviation at 5-7 mm. from working length was greater than at 1-4 mm. from working length with statistical significance.

Working length control

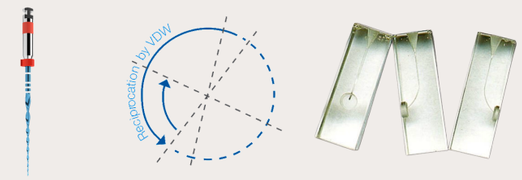
Data analysis with Chi square test found no statistically significant difference within experimental groups ($P>0.05$).

Ledging and broken Instrument separation were not found in any experimental group.

MATERIALS AND METHODS

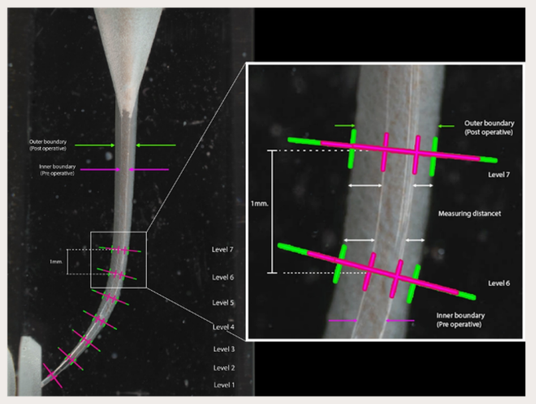
Resin blocks : N = 49
(Artificial canals with 30 degrees curvature)

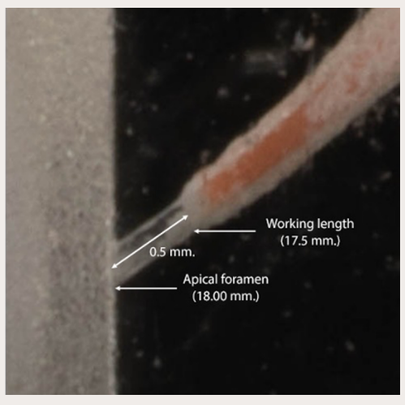
- 4th year dental students, n = 20
- 6th year dental students, n = 20
- Experienced endodontists, n = 9



Reciproc Blue: The innovative heat - treated, reciprocating single file system

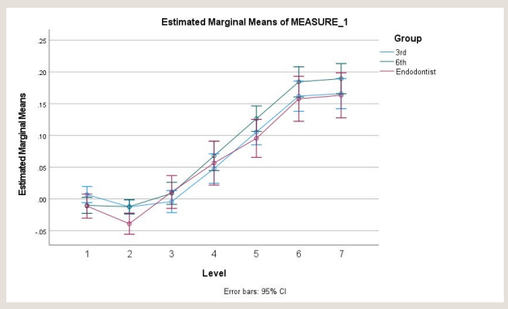
Pre and post instrumentation photographs are taken with Sony A7RIII camera, Sony FE 90mm f2.8 Macro G OSS.
Adjusted and evaluated with Adobe Photoshop 2023 ver. 24.0.0

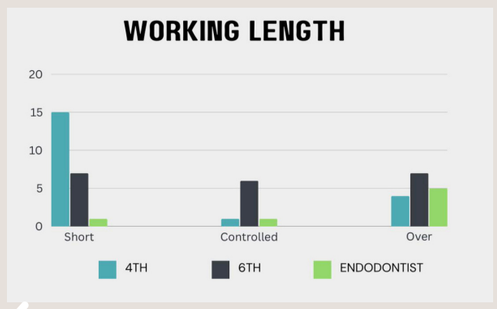




BENEFICIAL SIGNIFICANCE

This experiment revealed that most of the experimental groups, undergraduates student, can be able to perform mechanical instrumentation without any crucial error. It can be implied that Reciproc-blue, reciprocating rotary files, are benefits used for root canal instrumentation that are ease to use, save time, reduce complication in canal instrumentation.





DATA ANALYSIS

- Canal transportation
  - The Shapiro-Wilk test
    - Intragroup → One-way ANOVA
    - Intergroup → Two-way ANOVA
- Working length
  - Chi-square test

CONCLUSION

A rotary single-file reciprocating motion system seems to show a good acceptance to be used among undergraduate dental students according to the result of errors that showed minimum deviation in all levels. Working length control was found only 0.25-1 mm. away from working length. And no separate instrument was found.

Jirachot Jiamjamroensuk 6000038
Pakpoom Prayoonphokaraj 6000075
Wasapol Chookietwattana 6003019
Teerapat Kaeosaengtham 6003101
Phatchara Layrungradis 6003109
Pusana Orachaipunlap 6003111

Clin. Prof. Saisawart Thongsuphan
Siripat Lertnantapanya