



Comparison of electronic versus mechanical torque-limiting devices for dental implants

An in-vitro study

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Introduction

Accurate torque application to prosthetic components ensures long-term success. Currently, there is limited research comparing accuracy of electronic torque-limiting devices to mechanical ones.

Objectives:

The objective of this study is:

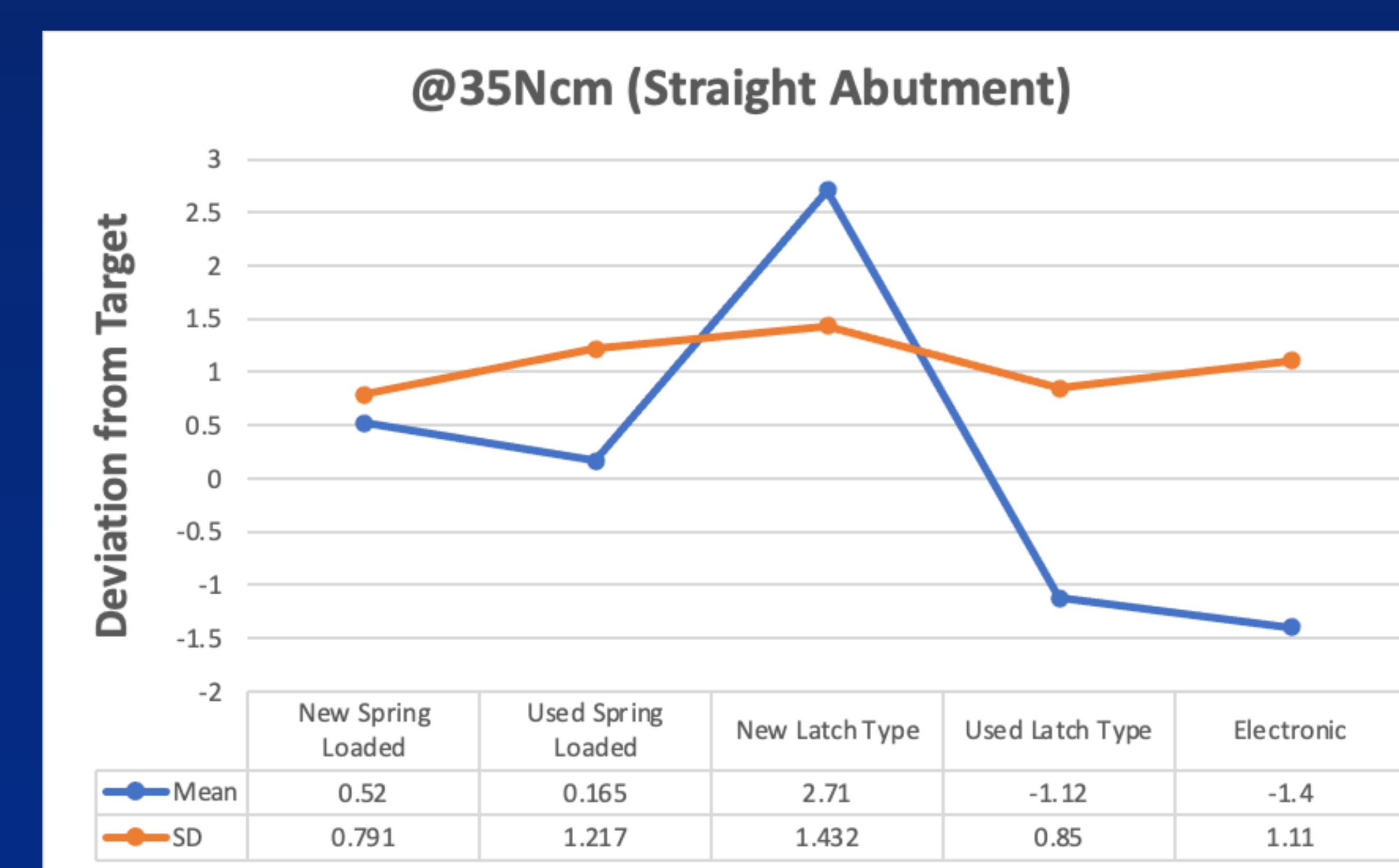
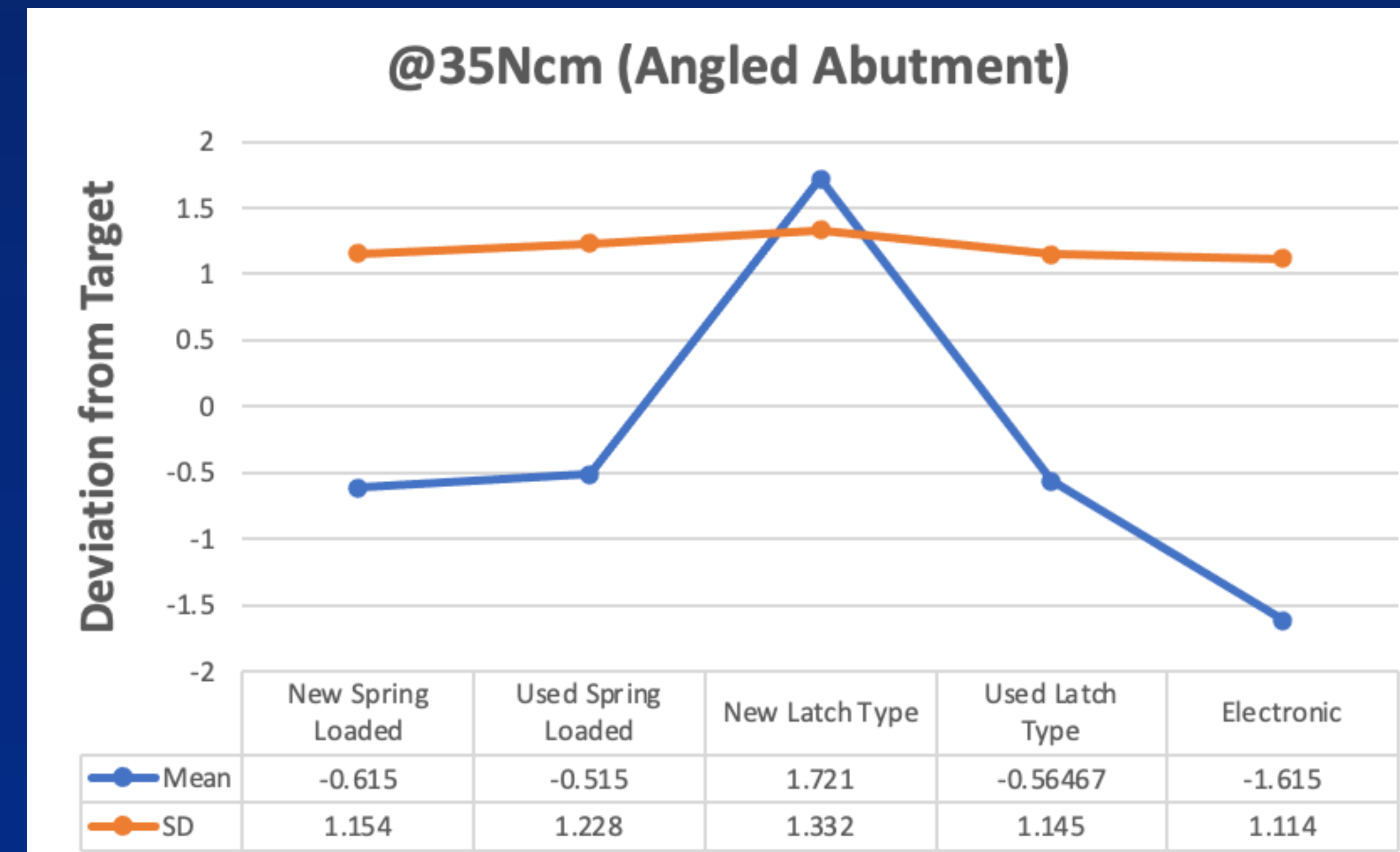
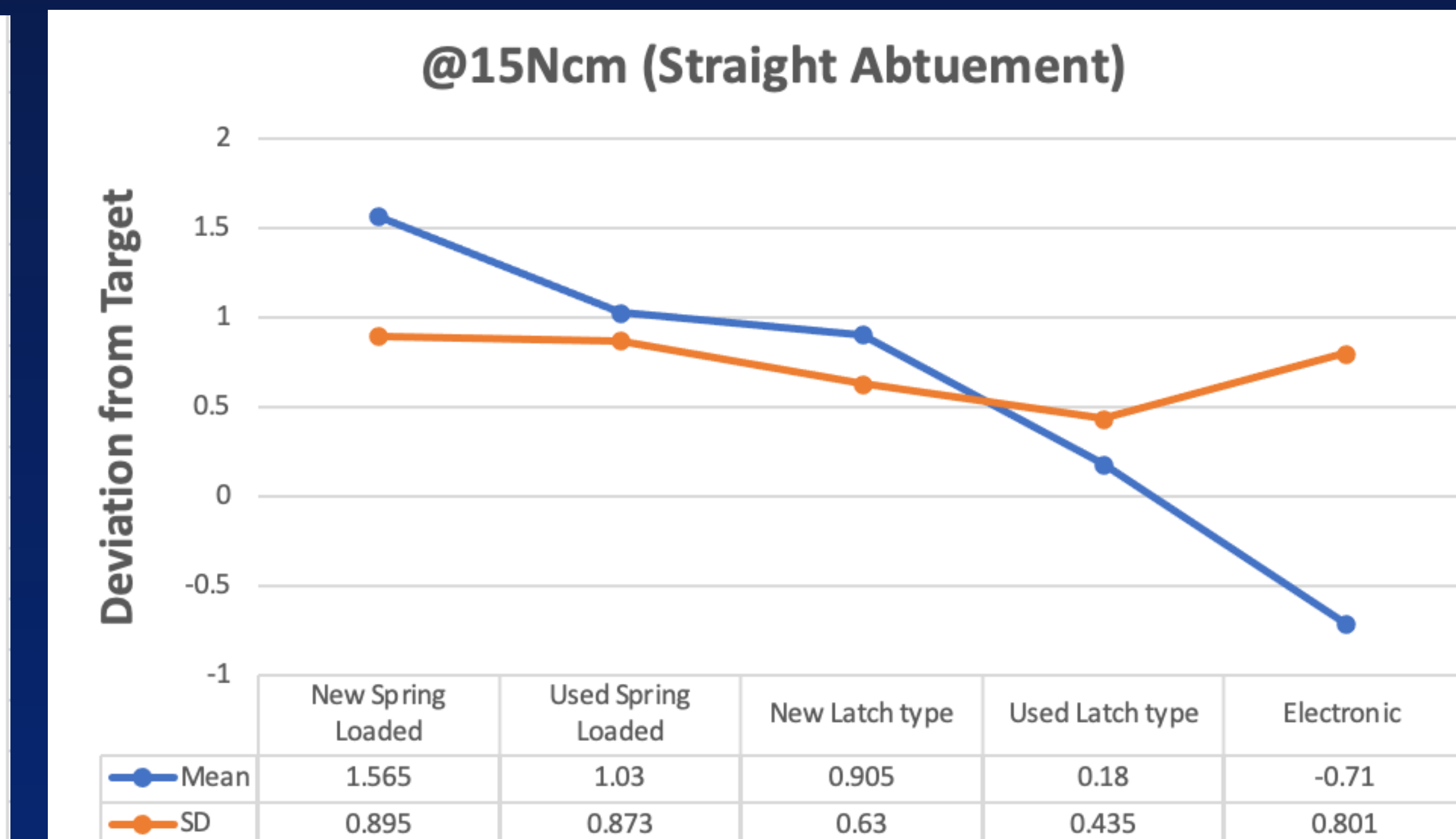
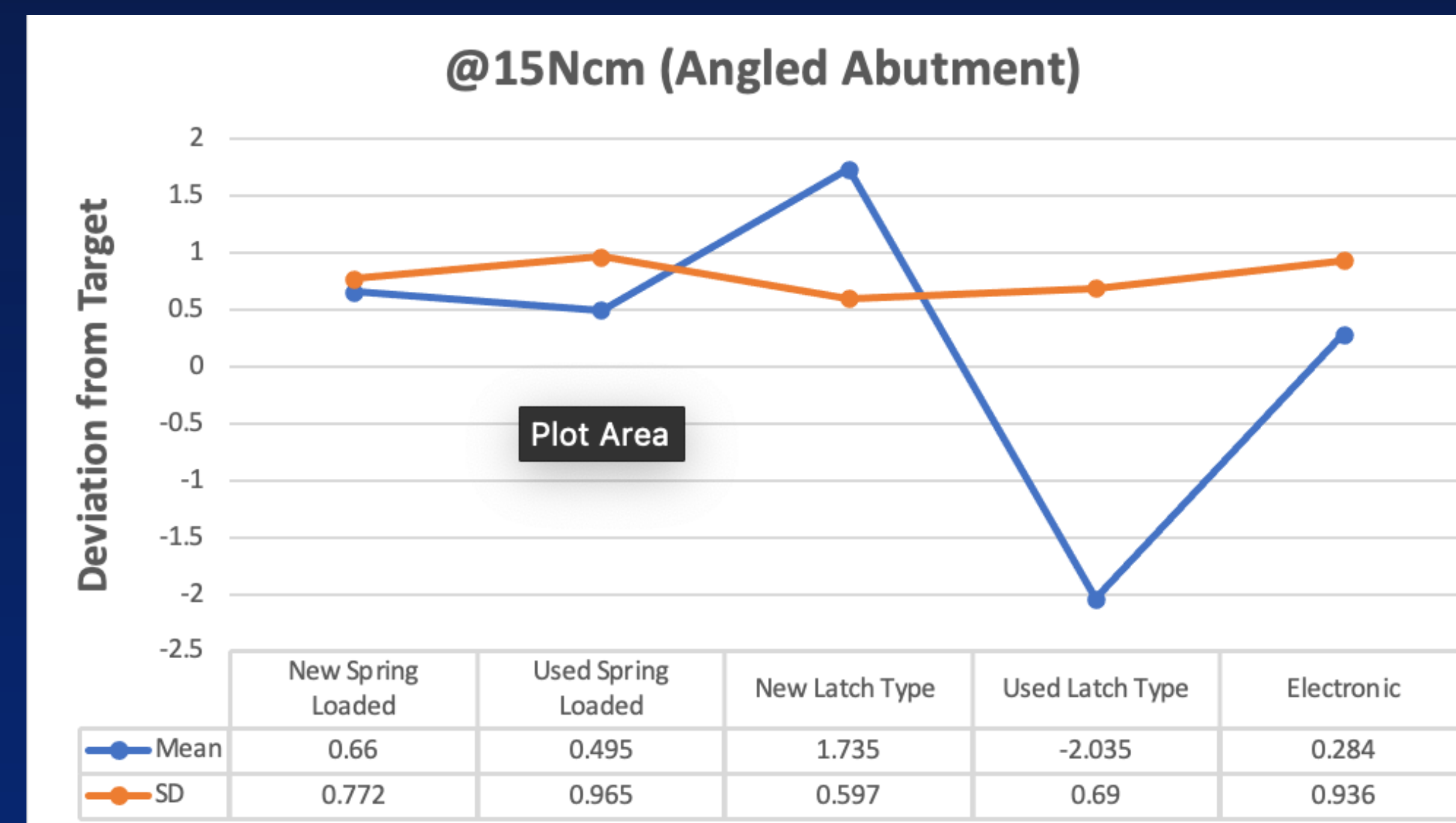
- To evaluate the difference in accuracy of new mechanical and electronic torque-limiting devices
- To evaluate difference in accuracy between electronic torque-limiting devices and used mechanical ones

Methods

This poster represents the pilot results of an ongoing in vitro study was carried out using 5 devices on 2000 sample size

- An electronic torque limiting device (W&H Co.)
- A new and a used spring-loaded torque limiting device (Straumann)
- A new and a used latch-type contra angle torque limiting device (Anthogyr)
- Abutment/analog complex was connected to digital torque meter (MARK-10) that was fixed onto a grip vice .

Preliminary Results



Conclusions

- At lower target torque values of 15Ncm on an angled abutment, the electronic torque limiting device was more accurate than new and used spring loaded and new and used latch type contra angle devices. At 15Ncm on a straight abutment, the electronic device was more accurate than new and used spring loaded devices and new latch type contra angle device but less accurate than the used latch type device.
- At higher torque values of 35Ncm on an angled abutment, there was no statistical difference in accuracy between the electronic and the used latch type contra angle device in terms of deviation from target value. The electronic device under delivered on torque and the used latch type over delivered. They both were less accurate than new and used spring loaded devices and the used latch type device.
- At 35Ncm on a straight abutment the new and used spring loaded devices were more accurate than any other device. There was no statistical significance in accuracy between electronic and used latch type devices, both of which were more accurate than new latch type.

Summary

It has been demonstrated that at lower target torque values, the electronic torque-limiting device comparable to the new and used spring loaded devices and had varying results comparing to new and used latch type contra angle devices. At higher target values, the new and used spring loaded were more accurate than all other devices.

References

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