

A Comparative Analysis Using Endoscopic Simulation to Assess Surgical Skill of OB/GYN Residents

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INTRODUCTION

OB/GYN residents at LVHN are evaluated throughout the course of their training using various methods, both objective and subjective. However, endoscopic simulation has not been utilized as a required method to assess efficiency, dexterity, and technical ability.

Laparoscopic, robotic, hysteroscopic, and surgical skill curriculums using various simulation tools have proven to be efficacious in training as well as evaluating competency in residents who perform surgical procedures.

The inclusion of this methodology in resident surgical education at LVHN may provide objective data to more accurately assess efficiency, dexterity, and technical ability, ultimately translating to surgical skill.

METHODS

This study was prospective and observational, assessing skills using simulation exercises in hysteroscopy, laparoscopy, and robotics. Simulation exercises were performed in the Surgical Education Center at LVHN. The results of the study were compared to the total number of surgical procedures performed according to OPLOG data, New Innovation Surgical Evaluations, and Endoscopy Milestone assessments. The study participants were OB/GYN residents at all four levels of training from LVHN. All OB/GYN residents were given an orientation to and the ability to familiarize themselves with each exercise before testing.

Symbionix

- Exercises → 30° Camera Manipulation, Grasping/Clipping, Cutting, Electrocautery
- Scoring → Time, Path Length

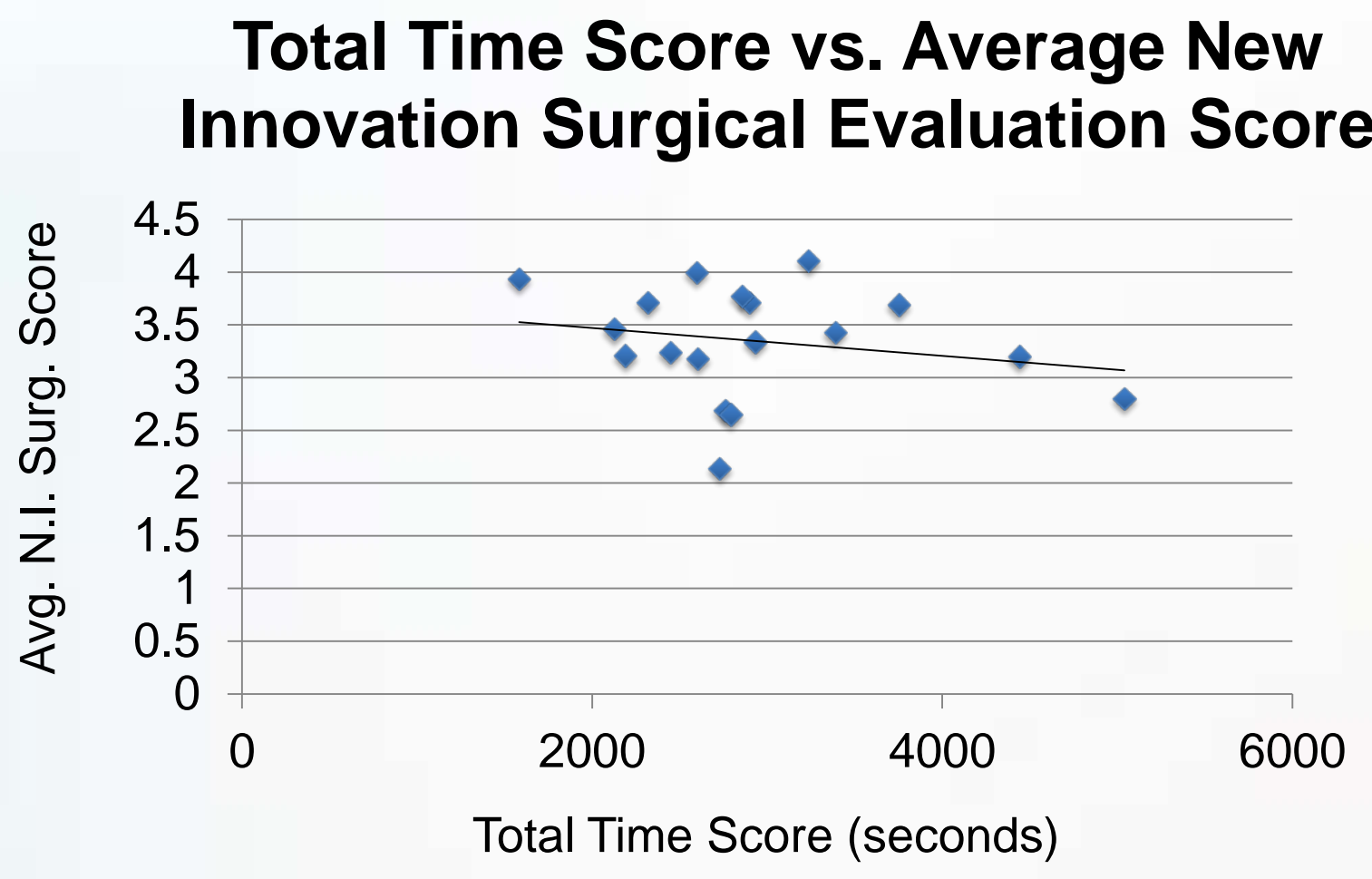
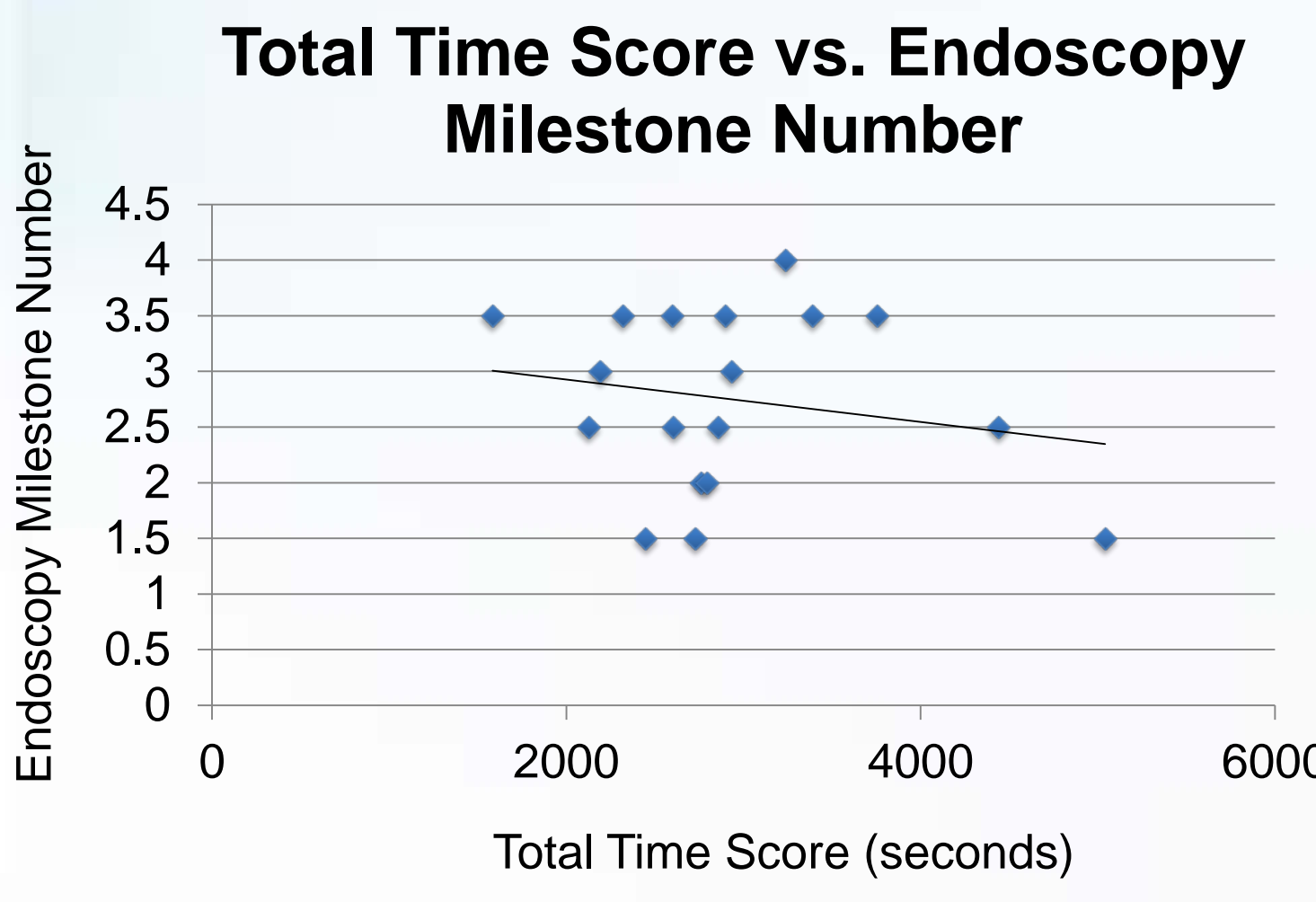
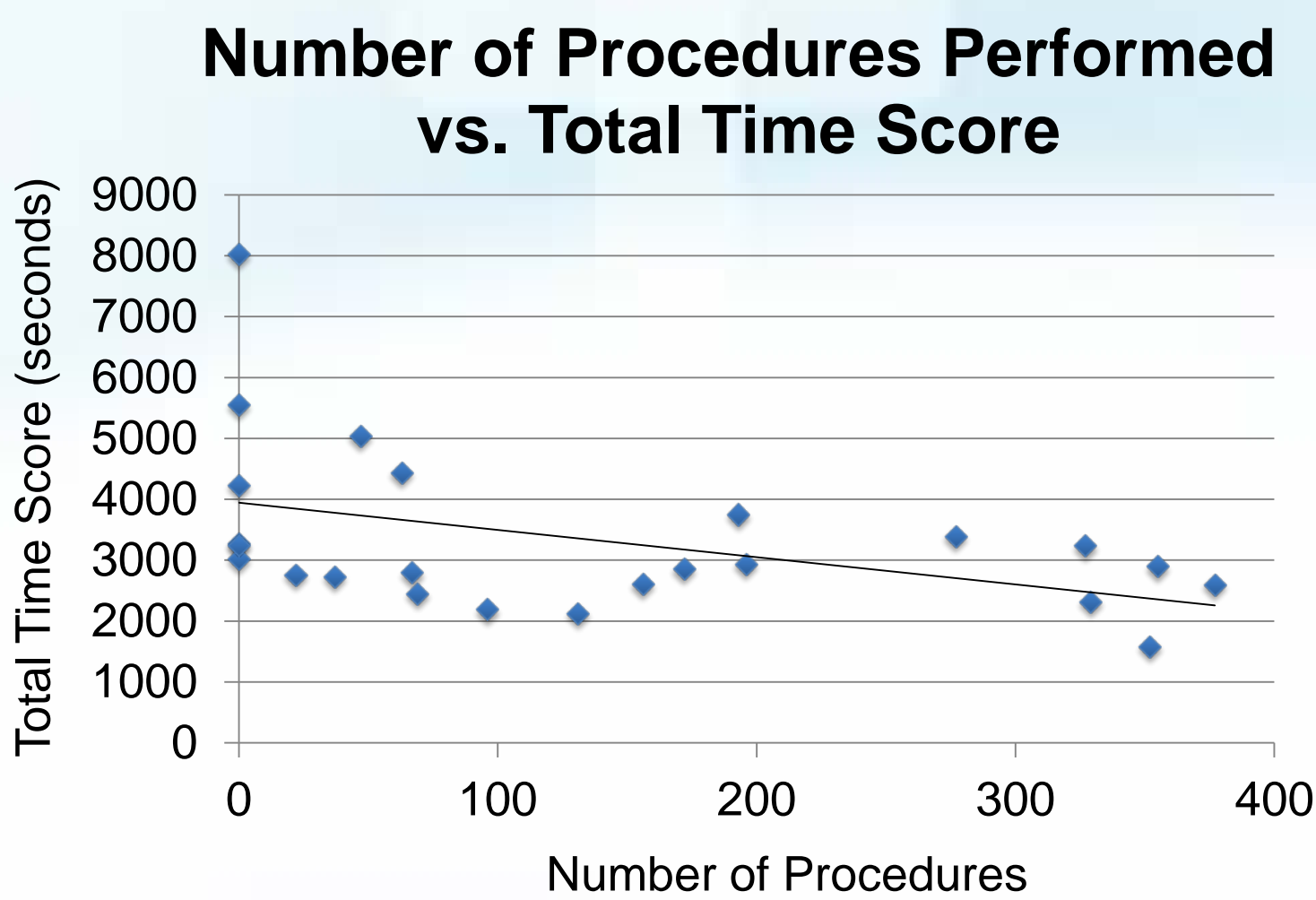
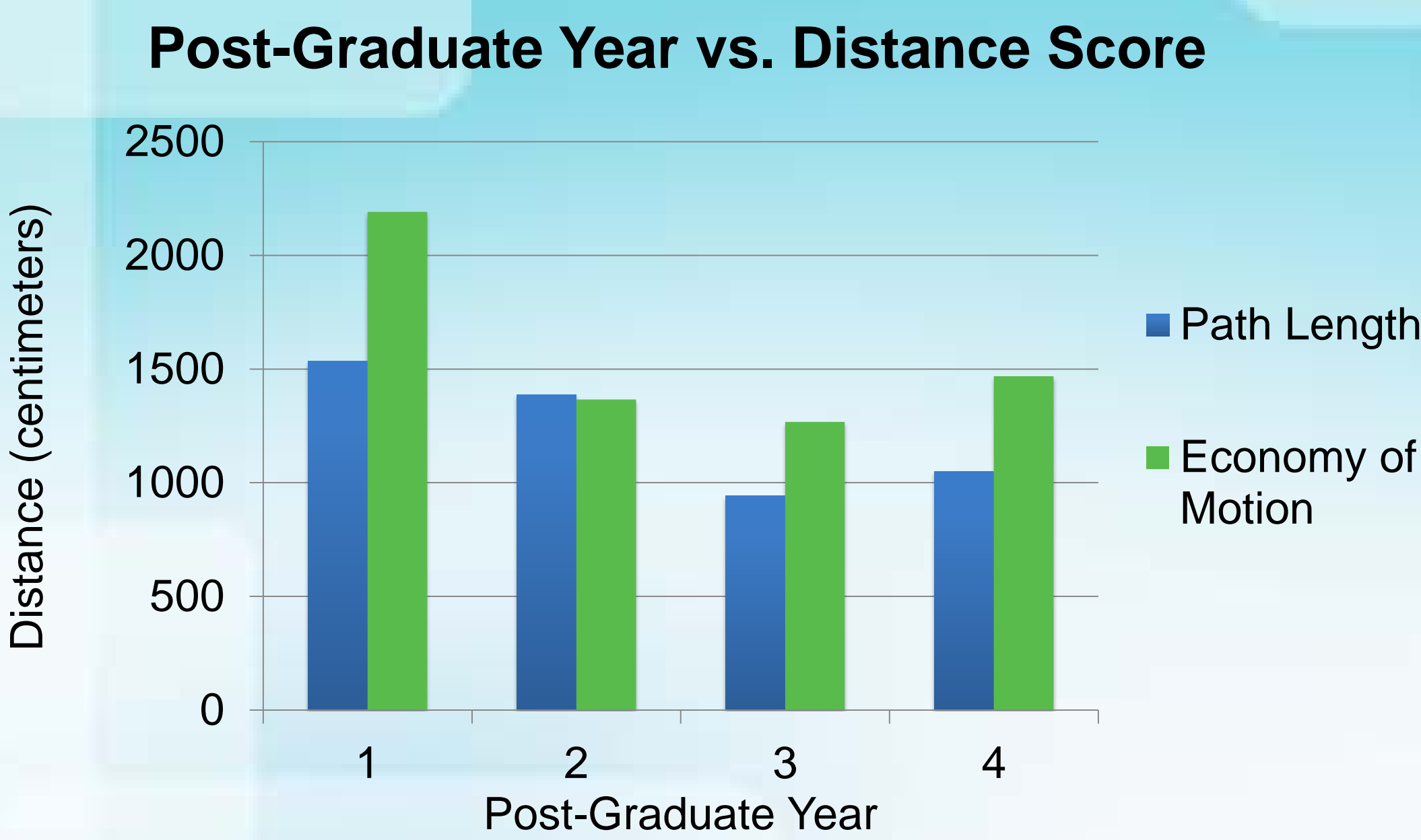
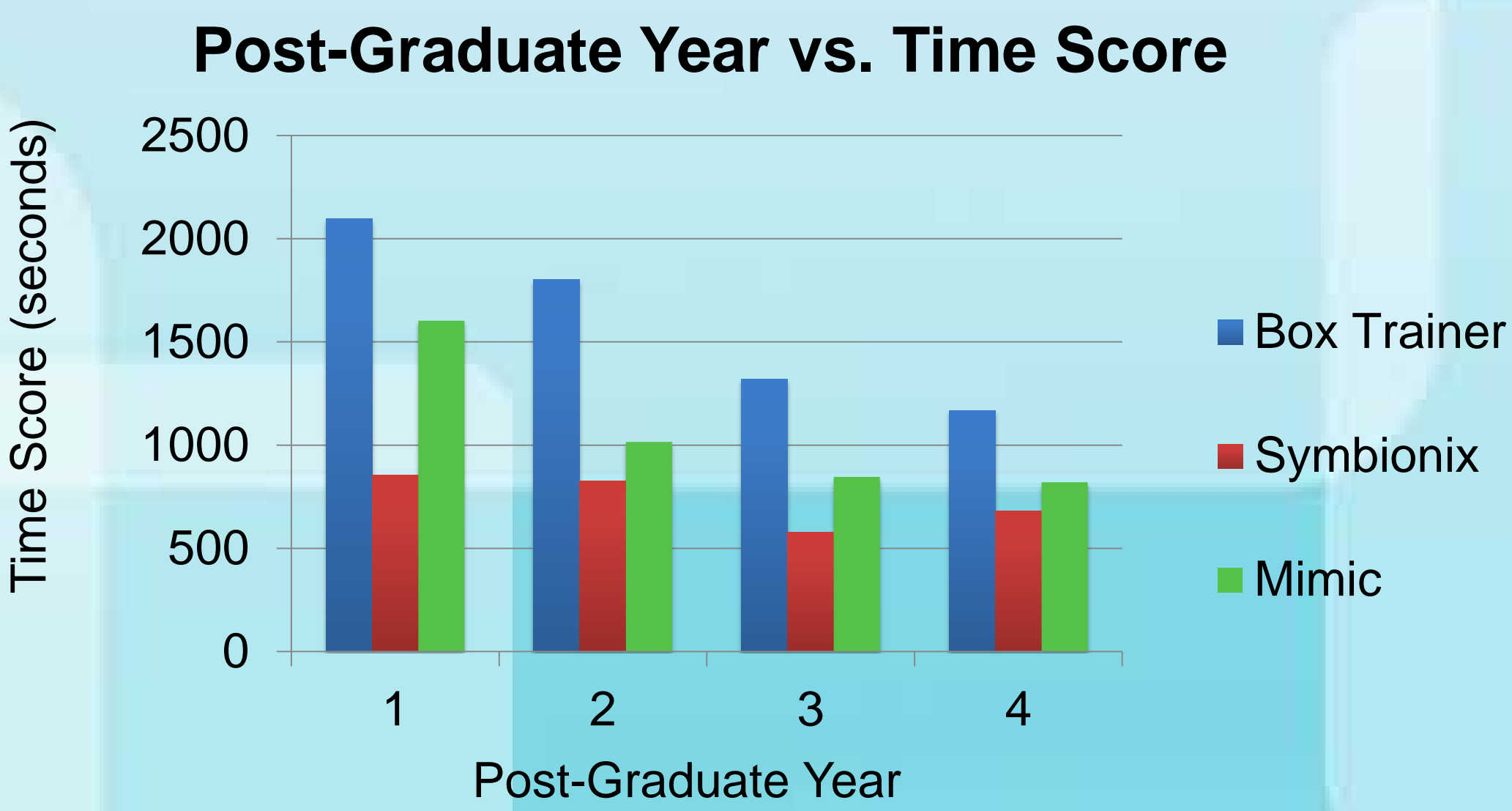
Box-Trainer

- Exercises → Bead-Speed, Shoelace, Hysteroscopy, Peg Transfer
- Scoring → Time

Mimic

- Exercises → Matchboard Level 2, Tubes Level 1, Energy Switching Level 2
- Scoring → Time, Economy of Motion

RESULTS



Correlation Coefficients	# of Procedures Performed	Endoscopy Milestone Number	New Innovation Score
Total Time Score	0.441	-0.194	-0.208

Correlation Coefficients	Box -Trainer Time	Symbionix Time	Symbionix Path Length	Mimic Time	Mimic Economy of Motion
PGY	-0.387	-0.446	-0.630	-0.667	-0.466

DISCUSSION

It can be inferred that implementation of the endoscopic simulation exercises utilized in this study would provide an additional method of objectively evaluating efficiency, dexterity, and technical ability of OB/GYN residents at LVHN. This conclusion can be made in light of the relationship between post-graduate year and endoscopic simulation performance. Additionally, the relationship between performance and number of procedures performed supports the conclusion as well.

Interestingly, subjective evaluation methods of surgical skill, such as the Endoscopy Milestone and New Innovation assessments, may not be an adequate way to evaluate efficiency, dexterity, and technical ability, as there was no relationship between objective and subjective scoring in this study.

FURTHER INVESTIGATION

- Utilize endoscopic simulation to trend annual performance throughout residency
- Compare endoscopic simulation performance to academic performance
- Compare endoscopic simulation performance to gender
- Compare endoscopic simulation performance to hours awake prior to testing
- Compare resident and attending endoscopic simulation performance
- Compare simulated surgical skills to actual clinical skills, possibly using crowd sourcing as a more objective assessment of actual clinical surgical skills

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