Intern surgical skills rotation improves proficiency of technical skills

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Introduction

Historically, surgical technical skills have been obtained through experience in the operating room; however, with the emergence and popularity of simulation, surgical experience can be supplemented with simulated tasks and procedures.

Our study aims to evaluate the efficacy of our institution's Intern Surgical Skills Rotation in improving proficiency of technical skills.

By providing a one-month rotation to dedicate to the practice of laparoscopic, robotic, and endoscopic skills, we hypothesize trainees will demonstrate improvement in efficiency, accuracy, and confidence with fundamental skills.

Methods

- General surgery interns performed the Fundamentals of Laparoscopic Skills (FLS) tasks at the beginning and end of their Intern Surgical Skills Rotation.
- The completion time for the following five tasks were measured pre- and post-rotation:
  I. Peg Transfer
  II. Pattern Cut
  III. Ligating Loop
  IV. Extracorporeal Suture
  V. Intracorporeal Suture
- Objective data were then anonymized, and SPSS was used for statistical analysis.
- A students t-test was used to compare the mean time of each task pre- and post-rotation.
  - An α level of 0.05 was used to assess statistical significance.

Results

- Ten general surgery interns completed the Intern Surgical Skills Rotation
- Post rotation data revealed a statistically significant decrease in:

I. Peg Transfer completion time
  - Mean time decreased from 130.7 to 41.3 seconds ($p < 0.0001$)

II. Pattern Cut completion time
  - Mean time decreased from 177 to 83.9 seconds ($p = 0.0006$)

III. Ligating Loop completion time
  - Mean time decreased from 89.3 to 50.5 seconds ($p = 0.0366$)

IV. Extracorporeal Suture completion time
  - Mean time decreased from 92.7 to 83.8 seconds ($p < 0.0001$)

V. Intracorporeal Suture completion time
  - Mean time decreased from 431.7 to 86 seconds ($p < 0.0001$)

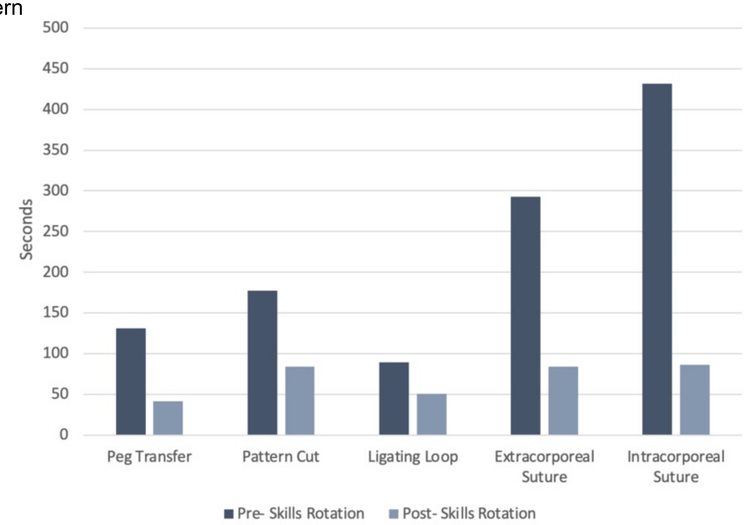


Figure 1. Timed performance of laparoscopic skills pre- and post- Intern Surgical Skills Rotation



Figure 2. Fundamentals of Laparoscopic Skills [1]. (Left to right) Peg transfer, Pattern cut, Ligating loop, Extracorporeal suture, Intracorporeal suture.

Discussion

Surgical technical skills have a steep learning curve, and it is known that simulation and skills training can improve performance. During this one-month rotation, surgical residents can practice their laparoscopic, robotic, and endoscopic skills in a mandatory, self-directed setting. This study shows a statistically significant improvement in each of the laparoscopic skills during this surgical skills rotation.

Previous studies have confirmed that training with simulators improves overall task times[2]; however, the implementation of this training varies from mandatory, proctored training to voluntary, self-directed training. While self directed training can be just as effective as proctored training [3, 4], voluntary participation with unrestricted access to simulators during "free-time," either on-site or at home, is not effective in motivating surgical residents to practice technical skills [5, 6]. Decreased motivation is presumed to be a result of overworked trainees with work-related stresses.

Therefore, our institution's Intern Surgical Skills Rotation provides dedicated time in a relaxed environment, free of clinical obligations, during which surgical trainees can become proficient in laparoscopic, robotic, and endoscopic skills.

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