“Into the Fire” Hands-On Simulation Course For Endoscopic Sleeve Gastroplasty Increases Knowledge, Technical Skills, and Confidence

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Background

The Endoscopic Sleeve Gastroplasty (ESG) is an incisionless weight loss procedure that restricts the gastric lumen with endoscopically placed sutures. Randomized trials demonstrate safety, feasibility, and excellent outcomes. A standardized training program is needed to safely and effectively allow endoscopists to adopt the procedure.

Objective

We hypothesize that an “into the fire” simulation approach is effective at teaching the technical skills needed to perform ESG and increase confidence in the surgical endoscopist.

Methods

Data was collected during a two-day hands-on simulation course including a written knowledge-based exam, a confidence survey, and a skills assessment given before and after the course. The simulation model included a porcine stomach, the Overstitch™ suturing system (Apollo Endosurgery, Dallas, Tx) with both dual and single lumen gastroscopes, a helix device, and 2-0 permanent suture. The course begins with a hands-on pre-test during which the learners attempted an ESG without prior training and without mentorship. The learners then proceeded to the classroom for lecture and discussions focusing on the technical aspects of the procedure. This was followed by hands-on practice with skilled faculty mentorship and post-test assessment. A validated tool for ESG was used to assess the technical skills of the learners. Quality was assessed by comparing the percent change in pre- and post-test scores using the paired t-test.

Results

Six experienced faculty trained 26 learners over two days. 16 of the participants were surgeons, 9 were gastroenterologists, 1 did not respond. There were 20 attending physicians, 3 fellows, and 3 residents. There was significant difference between pre- and post-testing in the written knowledge focused assessment with an 18% improvement (Pre:11.9±1.9, Post:13.7±1.3; p<001). There was a significant difference between hands-on pre-and post-testing assessment with a 43% improvement (Pre:27.6±5.7, Post:38.6±2.1; p<0.001). Confidence scores also significantly increased (Pre:15.7±8.1, Post:31.6±3.1; p<0.001). Learners evaluated the course highly; 96.4% believed their learning goals had been reached. The participants believed that the hands-on portion helped them improve their technique. (5.0 ± 0.02) The overall rating for the course out of 5 was a mean of 5.0 ± 0.0.

Table 1: Results of Pre and Post Test Scores

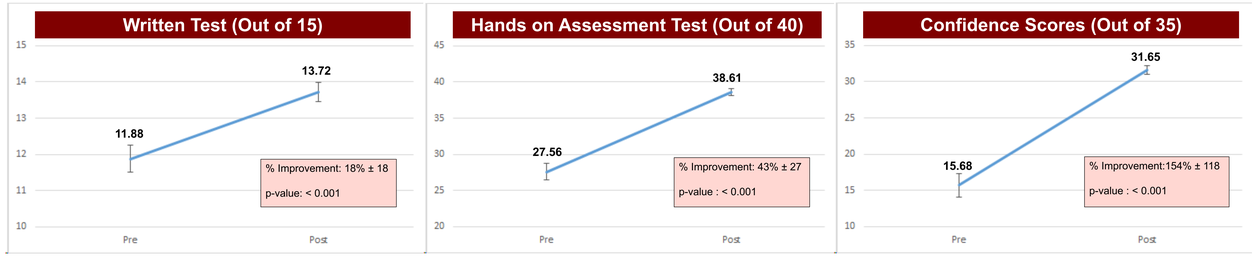
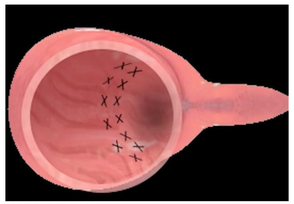


Table 2: Results of ESG Course Evaluation

Questions	Mean ± SD
Did you find the Pre and Post tests helpful? (out of 5)	4.6 ± 0.6
Were the lectures and presentations helpful? (out of 5)	4.8 ± 0.5
How well did the hands-on/explant portion help you better your technique? (out of 5)	5.0 ± 0.2
Overall, how would you rate the course? (out of 5)	5.0 ± 0.0
Your learning goals have been reached (% reached) (out of 100)	96.4 ± 7.6



U-Stitch pattern in ESG

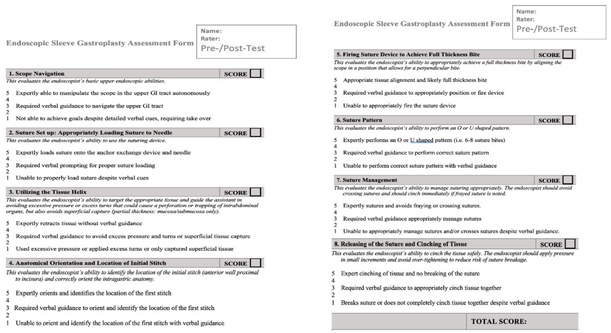


(Apollo Endosurgery, Dallas, Tx)

Conclusion

Endoscopists were able to show increased competency and confidence in completing an ESG after completion of an “into the fire” hands on simulation course. We recommend this method be strongly considered when training endoscopists to address a growing worldwide obesity epidemic.

Figure 1: Hands on Assessment Form



Acknowledgements

Endeavor Health℠

** Formerly NorthShore University HealthSystem