Educational and training aspects of new surgical techniques: experience with the endoscopic-laparoscopic interdisciplinary training entity (ELITE) model in training for a natural orifice transluminal endoscopic surgery (NOTES) approach to appendectomy.

Abstract:
Natural orifice transluminal endoscopic surgery (NOTES) is a new surgical concept that requires training before it is introduced into clinical practice. The endoscopic-laparoscopic interdisciplinary training entity (ELITE) is a training model for NOTES interventions. The latest research has concentrated on new materials for organs with realistic optical and haptic characteristics and the possibility of high-frequency dissection. This study aimed to assess both the ELITE model in a surgical training course and the construct validity of a newly developed NOTES appendectomy scenario. The 70 attendees of the 2010 Practical Course for Visceral Surgery (Warnemuende, Germany) took part in the study and performed a NOTES appendectomy via a transsigmoidal access. The primary end point was the total time required for the appendectomy, including retrieval of the appendix. Subjective evaluation of the model was performed using a questionnaire. Subgroups were analyzed according to laparoscopic and endoscopic experience. The participants with endoscopic or laparoscopic experience completed the task significantly faster than the inexperienced participants (p = 0.009 and 0.019, respectively). Endoscopic experience was the strongest influencing factor, whereas
laparoscopic experience had limited impact on the participants with previous endoscopic experience. As shown by the findings, 87.3% of the participants stated that the ELITE model was suitable for the NOTES training scenario, and 88.7% found the newly developed model anatomically realistic. This study was able to establish face and construct validity for the ELITE model with a large group of surgeons. The ELITE model seems to be well suited for the training of NOTES as a new surgical technique in an established gastrointestinal surgery skills course.