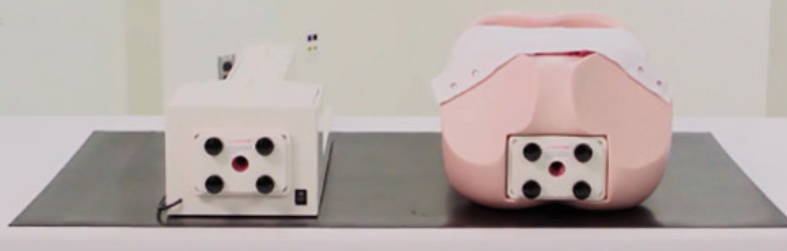


ENDOSCOPY TRAINING SYSTEM RESEARCH



Dr. Ritter, Limbs & Things and **Kyoto Kagaku** have a joint agreement that has supported the research conducted on the **Endoscopy Training System (ETS)** to date. The system has been created to teach the 5 essential skills needed to perform safe endoscopy. Starting in the 2017 academic year, general surgery residents will be required to pass a mandated exam, similar to Fundamentals of Laparoscopic Surgery (FLS), called Fundamentals of Endoscopic Surgery (FES). So far, the research shows that 100% of residents who have worked on the ETS system using Dr. Ritter's curriculum have passed the FES exam.

Current Failure Rates for ETS:

- 25% of graduating chief residents
- 40% of GI surgery residents
(All had completed their required case numbers of 50 colonoscopies)

Dr. Ritter's Hypothesis:

- A simulation based mastery learning (SBML) training curriculum, using the ETS platform, will result in higher FES pass rates than what is currently published for required clinical training alone.

Set Training goals for ETS:

| TASK | EXPERT MEAN (SEC) | TIME STANDARD (SEC) | ALLOWABLE ERRORS | OVERTRAINING |
|--------------------|------------------------------|---------------------|----------------------|------------------------------|
| Scope Manipulation | 121 (+/-31) all targets | 121 | 10/10 targets | 2 consecutive + 5 additional |
| Tool Targeting | 197 (+/-46) all targets | 243 | 10/10 targets | 2 consecutive + 5 additional |
| Retroflexion | 138 (+/-21) all white shapes | 159 | 5/5 targets | 2 consecutive + 5 additional |
| Loop Management | 158 (+/-103) | 261 | Loop reduced | 2 consecutive |
| Mucosal Inspection | 313 (+/-176) 8 (+/-1) polyps | 180-480 | >6 polyps identified | 2 consecutive |

Study

- 17 PGY1 residents with no colonoscopy experience
- Average of 5 training sessions (6-8 hours total time)
- Pre-FES test: 18% pass
- Post ETS training: 100% pass rate
- Training correlated with residents who had performed 151-300 colonoscopies

Conclusions:

- Simulation based mastery learning (SBML) using the ETS platform is feasible for novice learners
- Develops the technical skills required to pass the FES manual skills exam
- Post-training performance is similar to a clinical experience of around 300 endoscopies
- Curriculum should be considered by those looking for strategies to develop or remediate flexible endoscopy skills
- [Link to Abstract.](#)



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