Thinking Inside the Box: A Simple and Effective Laparoscopic Box Trainer for Use in a Deployed Environment

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BACKGROUND

- Technical skill decay has been an ongoing area of concern and discussion for deploying military surgeons.
- Transition to shorter and less frequent deployments has helped to combat skill decay, but no specific interventions have been made for deployed Army surgeons to maintain laparoscopic technical skills while in theater.

OBJECTIVES

- Create a laparoscopic box trainer using materials readily available in a deployed setting.
- Use the Advanced Training in Laparoscopic Suturing (ATLAS) Curriculum as a guide to track skill progression.
- Use readily available materials to make simulated models to practice skills directly relevant to the elective practice of a minimally invasive surgeon.
- Learn new complex laparoscopic skills.

METHODS/MATERIALS

- A box trainer was made using a cardboard box from a care package, iPhone camera, and laptop.
- Laparoscopic instruments and pegboard were provided.
- Additional models were made using Coban, Penrose drains, and beads.
- Two surgeons completed portions of the ATLAS curriculum tracking average times to complete each task.

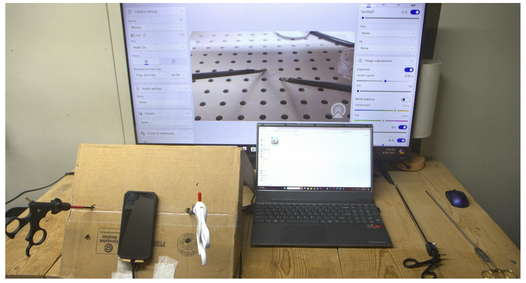
RESULTS

- A box trainer was created in less than an hour with a cost of $17 for shipment of materials not readily available.
- Two surgeons improved baseline scores and achieved mastery on ATLAS skills.
- Hiatal closure and laparoscopic, hand sewn, gastrojejunostomy models were created.

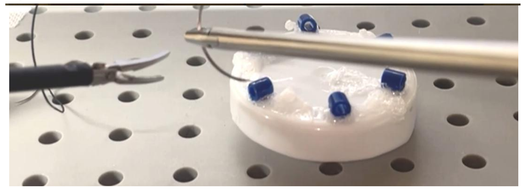
Skill	First Attempt	After Practice
Square knot	9 minutes	88 sec
Sliding knot	DNF	128 sec
Needle Driving	DNF	2 min 22 sec

RESULTS CONTINUED

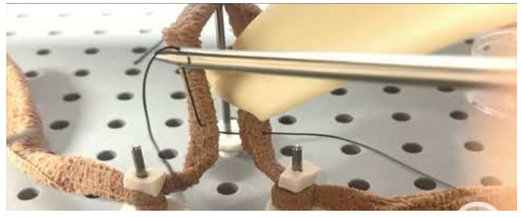
A) Box trainer



B) Needle driving exercise



C) Hiatal closure model



D) Gastrojejunostomy model



DISCUSSION

- This is the first published instance of an Army surgeon using a box trainer in a deployed environment to maintain laparoscopic surgical skill.
- Maintenance of complex laparoscopic skill can reduce case time, cognitive load, surgeon stress, and lessen the physical and mental burdens of restarting an elective practice when returning to the OR after a deployment.

CONCLUSIONS

- This box trainer is a cheap, easily made, and effective way to maintain laparoscopic skill and learn new complex skills in deployed environment.
- This serves as a proof of concept that surgeons in deployed environments can house and maintain laparoscopic trainers, and that laparoscopic skill can be maintained when given access to appropriate tools.

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