

Laparoscopic Surgery: Be a Surgical Resident for a Day!

Laparoscopic surgery reduces the potential for scarring and infection because it is a minimally invasive surgery. A small incision is made in the abdomen, and the entire abdominal cavity is inflated with carbon dioxide. Two or three other holes, or ports, are made, and surgery is performed using specialized tools that are inserted through these ports. The instruments used in these kinds of procedures are very skinny so that they can fit through the ports. They are also fairly long so that the handle of the instrument can be outside of the body, while the other end is inside of the body. The ends of these instruments are specially designed for a multitude of uses. They can cut, grasp, clamp, and staple, just to name a few uses. Like the other laparoscopic instruments, the laparoscope is long and skinny to fit its function.

How does the surgeon see what he or she is doing? A special camera called a laparoscope is also inserted through one of the ports. It has a light source and lens on the end that is inserted into the body. Fiber optics in the scope act as light pipes to send light into the body and carry the image out to a television screen. In order to complete the delicate tasks required, the surgeon must be extremely proficient with the instruments that he or she is using. Training sessions similar to the activity that follows can provide a means of becoming adept at this task.

Materials: “Black box”, flashlight, laparoscopic device, webcam

Objective: To complete the task in the “Black box” in a given amount of time.

Procedure: Each team will be given a box, device, flashlight, and webcam.

1. Look inside the box, to discover what task your team is to complete.
2. Decide who will hold the flashlight, device, and webcam. Each team member should get a turn doing each. The person in charge of the flashlight will need to point it through one of the holes in the side of the box, in the direction that the device is located (in the box). The person in charge of the webcam will need to maneuver it, so that the device (inside the box) will show up on the computer screen. The person in charge of the laparoscopic device will put the device through one of the “holes” in the top of the box. The fourth person will be in charge of keeping an eye of the stopwatch.
3. Each member will get two minutes in order to accomplish their part of the task. The team must be able to communicate with each other to be successful and accomplish the task.
4. When a member finishes his or her part of the task, they need to record how much they accomplished in the corresponding table.
5. Start back at number 2, until the whole team has “operated” on the box.
6. Total your answers in the corresponding table.
7. Switch boxes with another team. Make sure the box you get is not one that you have already worked on. Start over at number 1.

Data:

(these are just examples of different “Black boxes”)

Can you corral the pigs?

Name	Number of pigs corralled

Total:

Can you bead the hook?

Name	Number of beads hooked

Total:

Can you hoop it?

Name	Number of hoops on the nail

Total:

From cup to cup

Name	Number of objects moved into new cup

Total:

Questions:

1. What made all of these seemingly simple tasks so difficult?

2. Do you think that a surgeon is immediately proficient at this type of procedure?

3. Describe how the form of the laparoscopic graspers fit their function.

4. What differences might there be between our setup and an actual surgery?
