

## Important Scoring Information

The manual skills component of the FLS exam is intended to measure your technical skills during basic laparoscopic surgical maneuvers. These five tasks, designed by Dr. Gerald Fried and customized for the FLS Program, are based on the MISTELS program developed at McGill University and have been extensively tested to ensure that they reflect the technical skills that are fundamental to the performance of laparoscopic surgery. All tasks are demonstrated in the FLS didactic curriculum (Module 5) and each task must only be performed once during the test.

**Scoring.** The five skills tasks are timed and a maximum time limit has been set for each task. For all tasks, both time and accuracy are measured for performance and high scores result from tasks performed efficiently and without error. Penalties are assessed for specific errors and lack of precision. **Reaching or exceeding the maximum time results in a score of ZERO for that particular task. You will be asked to stop if you reach the maximum time limit without completing the task. Completing the task under the maximum time limit does not guarantee a passing score for that task.** Each task has its own scoring formula based upon a combination of time and accuracy measures. The scores for the tasks are normalized so that they contribute equally to the total manual skills assessment score.

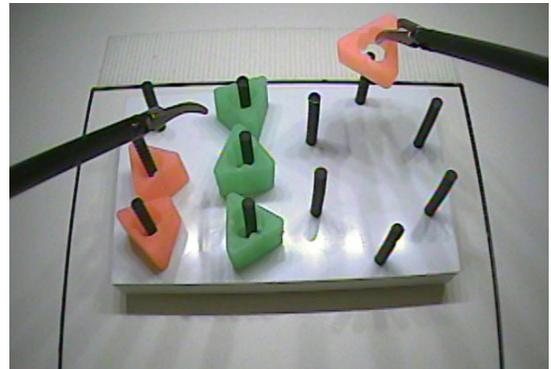
### Task One: Peg Transfer

*Equipment: Two Maryland dissectors, one pegboard, six rubber ring objects*

*Maximum time limit: 300 seconds*

Center the pegboard on the lower Velcro strip in the center of the marked square on the floor or base of the trainer. All six colored objects should be aligned on the six pegs on the same side of the board as your non-dominant hand (It does not matter which peg pattern-parallel or circular- is on the left or right side of the test taker). Adjust the camera as necessary to make sure the field of view is centered on the pegboard and the entire pegboard is visible.

To perform this task, grasp each object with your Non-dominant hand, and transfer the object mid-air to your dominant hand. You will then place the object on a peg on the opposite side of the pegboard. There is no importance placed on the color or order in which the six objects are transferred. Each transfer must be mid-air without using the board or pegs for assistance. Once all six objects have been transferred to the opposite side of the board, reverse the process and first grasp each object with your dominant hand, transferring mid-air to your non-dominant hand, and placing it on the original side of the pegboard. A penalty is assessed if an object is dropped outside of the field of view or depending on the angle you can no longer retrieve the object. You will not be allowed to retrieve the object if it is dropped outside of the field of view. If this occurs, continue the task with the remaining objects. There is no penalty for dropping the object within the field of view, unless you are not able to retrieve it. If you can retrieve it, pick the object up with the hand it was dropped with and continue the task. The drop cannot be used as the transfer point. Timing for this task begins when you touch the first object. Timing ends upon release of the last object. A video demonstration of this task, along with all the tasks described below, is included in Module Five of the FLS didactic curriculum.



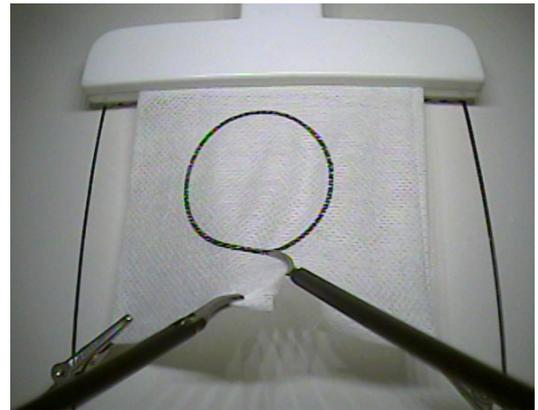
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## **Task Two: Precision Cutting**

*Equipment: One Maryland dissector, one pair of endoscopic scissors, one jumbo clip, one 4x4 piece of gauze with a pre-marked circle, two alligator clips (attached to the bottom of the trainer box)*  
*Maximum time limit: 300 seconds*

Place the two-ply piece of gauze with a single marked circle into the jumbo clip. The circle pattern should be facing up, with the open edge inside the jumbo clip, and the folded edge on the opposite side, closest to you. Make sure that the entire marked circle is outside of the clip. Place the clip with the gauze onto the upper Velcro strip located on the bottom of the FLS trainer. This is the Velcro strip located outside of the marked square. Use the alligator clips attached to the bottom front corners of the trainer with string to secure the bottom two corners of the gauze. Tighten the strings as needed so that the gauze is taut and suspended slightly above the bottom of the trainer. Make sure the camera is centered on the gauze so that the entire piece of the gauze is in the field of view.



Using the Maryland dissector in one hand, you will provide traction to the gauze, placing it at the best possible angle to the cutting hand. Using your endoscopic scissors in the other hand, you will cut into the gauze and then along the pre-marked circle until it is completely removed from the 4x4 gauze piece. The gauze is two-ply; however only the top marked layer will be scored, so, cut as much or as little of the bottom layer of the gauze as desired. The objective is to complete the task accurately in as little time as possible. A penalty is assessed for any cuts deviating from the line demarcating the circle, whether made inside or outside the marked circle. Remember, you must start cutting from an edge of the gauze and you may switch hands with your instruments at any time during the task.

If gauze comes out of the jumbo clip during the task, you must continue the task without reaffixing the gauze. Timing for this task begins when the gauze is touched. Timing ends upon the marked circle being completely cut out from the gauze piece.

Single circle gauze will be used for the FLS Exam. Double circle gauze is available for purchase as well, but is only to be used for practice.

## **Task Three: Ligating Loop**

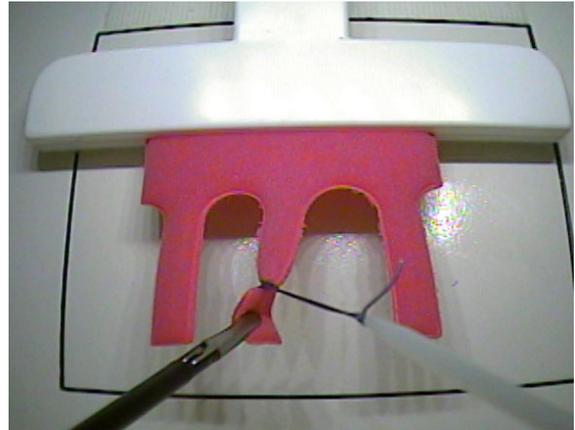
*Equipment: One grasper (choice of one Maryland dissector or one grasper with locking or ratcheted handle), one pair of endoscopic scissors, one jumbo clip, one pre-tied ligating loop or endoloop, one red foam organ with appendages.*  
*Maximum time limit: 180 seconds*

Place the foam organ into the jumbo clip with the three appendages hanging out the bottom of the clip, with approximately half an inch of the organ inside the mouth of the clip. Place the clip onto the lower Velcro strip that is located inside the black marked square on the bottom of the FLS trainer. Make sure



the organ is centered in the field of view. You may need to adjust the camera to make sure there is at least half an inch of viewing area below the end of the organ's three appendages.

In this task, you are required to place a pre-tied ligating loop or endoloop around the provided mark on the middle appendage of the foam organ. Using your grasper or Maryland with one hand and the pre-tied ligating loop in the other, you will position the loop around the appendage at the provided mark. Once the loop is positioned, you will break off the end of the plastic pusher at the scored mark on the outside of the trainer. Next, you will secure the knot on the mark near the base of the foam appendage by sliding the pusher rod down. You will complete the task by cutting the end of your loop material inside the trainer. A locking grasper may be used to enable the use of two hands to manipulate the ligating loop. A penalty is assessed for any deviation of the knot from the mark on the foam appendage or if the knot is not secured on the appendage. Do not break or preload the ligating loop prior to beginning the task. Timing for this task begins when either the instrument or the loop material is visible on the monitor. Timing ends when you have cut the end of your loop material inside the trainer.

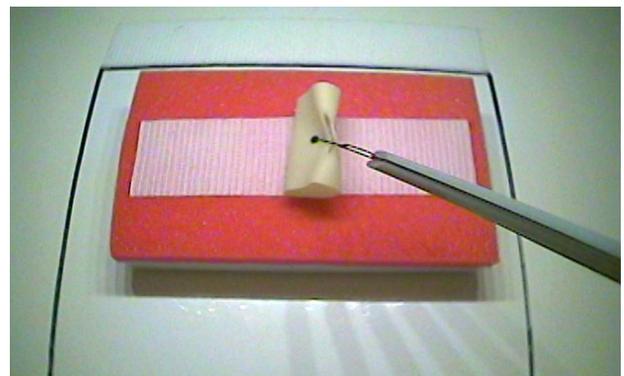


#### **Task Four: Suture with Extracorporeal Knot**

*Equipment: Two needle drivers (or choice of one needle driver and one Maryland dissector), one knot pusher (either open or closed), one 2-0 silk suture of 90cm or 120cm length, one pair of endoscopic scissors, one penrose drain with marked targets, one suture block. Note: self-righting needle drivers and hemostats are not permitted.*

*Maximum time limit: 420 seconds*

Place the foam suture block onto the Velcro strip inside the black marked square on the bottom of the FLS trainer, so that the Velcro strip on the suture block is horizontal, with the foam side up. Center a penrose drain securely onto the Velcro strip on the suture block, so that the slit in the penrose drain is vertical. Adjust the camera as necessary so that there is equal viewing area on all sides of the suture block.



In this task, you will place a long suture through the two marks in the penrose drain and then tie three single throws of a knot, extracorporeally, using a knot pusher to secure each throw onto the penrose drain, thus, closing the slit. Once all three throws have been secured onto the penrose drain, cut both ends of the suture inside the trainer. The ends may be cut together or separately and the tail length is not important for this task. The suture must be grasped by the thread and NOT the needle when introducing it into the trainer. Once inside the trainer, the needle may be placed through the drain in one motion, or two or more motions. Penalties are assessed for any deviation of the suture material



from the two marks on the penrose drain, for not properly closing the slit in the drain, and for a knot that slips or comes apart when tension is applied to it. Take care not to avulse or separate the penrose drain from the suture block as this is an automatic failure of the task. Timing for this task begins when your first instrument is visible on the monitor. Timing ends when you have cut both ends of your suture inside the trainer.

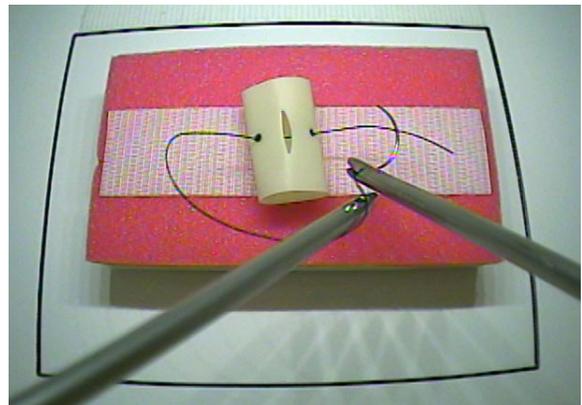
### Task Five: Suture with Intracorporeal Knot

*Equipment: Two needle drivers, one 2-0 silk suture of 15 cm length, one pair of endoscopic scissors, one suture block, one penrose drain with marked targets. Note: self righting needle drivers are not permitted.*

*Maximum Time Limit: 600 seconds*

Place the foam suture block onto the lower Velcro strip inside the black marked square on the bottom of the FLS trainer, so that the Velcro strip on the suture block is horizontal with the foam side up. Center a penrose drain securely onto the Velcro strip on the suture block, so that the slit in the penrose drain is vertical. Adjust the camera as necessary so that there is equal viewing area on all sides of the suture block.

For this task you will need to place a short suture through the two marks in a penrose drain and then tie three throws of a knot intracorporeally, in order to close the slit in the penrose drain. The first throw must be a surgeon's knot or double throw, followed by two single throws. You must exchange hands with your needle, or needle end of the suture, between each throw to ensure you are tying each throw with the opposite hand. You may start tying with either hand. Once all three throws have been secured onto the penrose drain,



cut both ends of the suture inside the trainer. The ends may be cut together or separately and the tail length is not important for this task. The suture must be grasped by the thread and NOT the needle when introducing it into the trainer. Once inside the trainer, the needle may be placed through the drain in one motion, or two or more motions.

Penalties are assessed for any deviation of the suture from the two marks on the penrose drain, for not properly closing the slit in the drain, and for a knot that slips or comes apart when tension is applied to it. Take care not to avulse or separate the penrose drain from the suture block as this is an automatic failure of the task. Timing for this task begins when your first instrument is visible on the monitor. Timing ends when you have cut both ends of your suture inside the trainer.

Please review the video demonstration of this task and all other tasks, included in Module Five of the FLS didactic curriculum for additional guidance.

