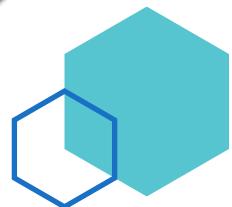
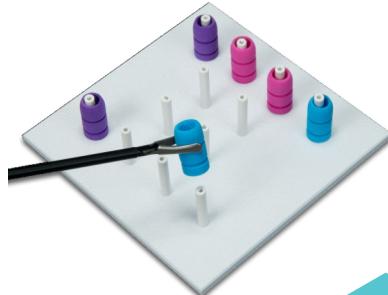
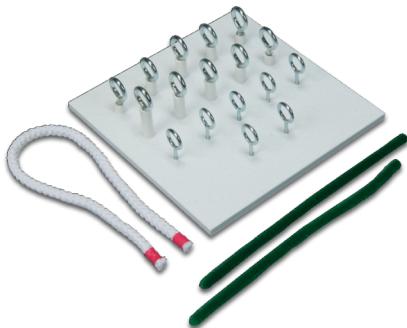


3-D MED®

LEARNING THROUGH SIMULATION

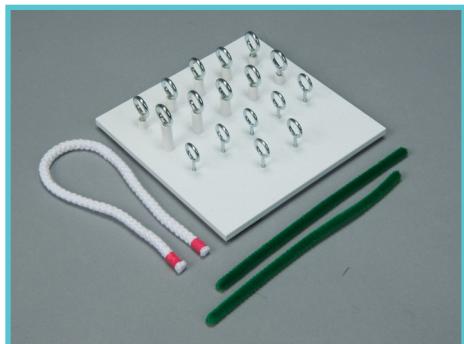


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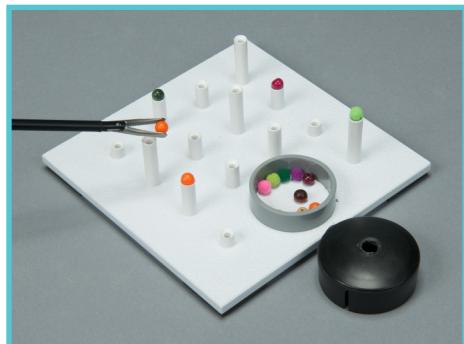


Skill Building Tasks User Manual

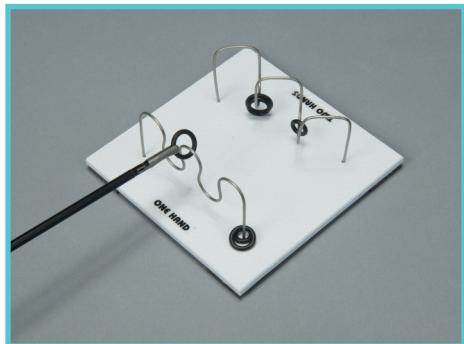
Skill Building Tasks



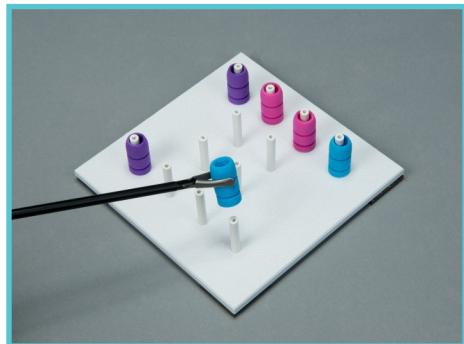
SBT1 - Loops and Wire



SBT2 - Pea on a Peg



SBT3 - Wire Chaser



SBT4 - Post and Sleeve

Base Size of each Game: 5" X 5" (130mm X 130mm)

Validated Training Course for Laparoscopic Skills

Introduction

We defined six different exercises:

1. Post and Sleeve
2. Loops and Wire
3. Pea on a Peg
4. Wire Chaser (one hand)
5. Wire Chaser (two hands)
6. Zigzag Loop

The goal of the different tasks is to train hand-eye coordination, manual dexterity, depth perception, and interaction of the dominant and non-dominant hand.

The overall score is based on time and precision which is calculated by adding the completion time to a penalty score. A lower score correlates with better performance.

The exercises can be done in any laparoscopic box or video trainer. The exercises were validated in a 42 x 32 x 24 cm box trainer with a fixed camera (Covidien® Surgical Box). Two reusable laparoscopic graspers (Karl Storz) were used to perform the exercises. A digital cooking timer was used to measure time.

On the next 6 pages, you will find a description of the six different tasks separately.

Task 1: 'Post and Sleeve'

Goal: Moving the colored sleeves from side to side

Material:

- Six Colored Sleeves
- Pegboard with 12 pegs

Starting Position:

- The board is placed in the box trainer with the peg rows in a vertical position (from left to right: 4-2-2-4)
- The six sleeves are positioned over the 6 pegs on the right side of the board.

Procedure:

- Start the time when the participant takes the first sleeve with the left hand
- Pass the sleeve to the right hand when it is taken from the peg
- Place the sleeve on the other side of the pegboard over the mirrored peg
- After the six sleeves have been moved successfully to the other side, the exercise is repeated in opposite direction, starting with the right hand.

Finishing Position:

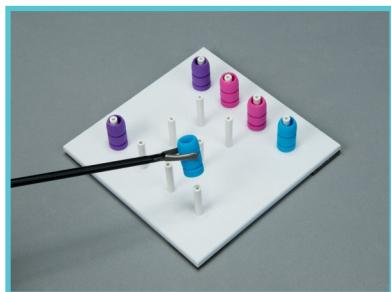
- The task is finished when all sleeves are again in the starting position

Penalty:

- Per dropped sleeve 10 penalty points are counted. When a sleeve falls from the pegboard it will not be used anymore and 20 penalty points are counted

Score:

- Time in seconds + penalty points



Task 2: 'Loops and Wire'

Goal: Placing pipe cleaners in as straight line through the loops

Material:

- Two pipe cleaners
- Pegboard with four rows of loops

Starting Position:

- The board is positioned with the five loops in front, the two pipe cleaners are lying in the front.

Procedure

- Start time when the first pipe cleaner is taken. Introduce the first pipe from the right, the next pipe from the left
- Pass two pipe cleaners through the first two rows of five loops, changing hands as it progresses.

Finishing Position

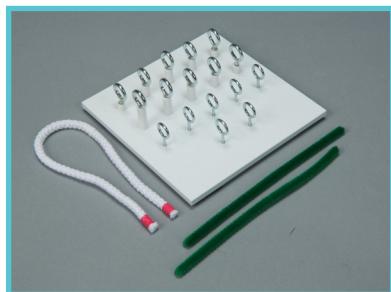
- The task is finished when both pipe cleaners are successfully placed through two rows of loops

Penalty

- If the pipe cleaner is passed beside a loop during the procedure, 10 penalty points are counted

Score

- Time in seconds + penalty points



Task 3: 'Pea on a Peg'

Goal: Put the beads on the 14 pegs

Material:

- Pegboard with 14 pegs (different heights) and a cup with 25 practice pieces.

Starting Position:

- The board is positioned with the cup containing the beads in front

Procedure:

- Start time when the first bead is taken
- Take 14 wooden beads one by one out of the cup and place them on pegs of different height
- The left side of the pegboard has to be done with the left hand, the right side with the right hand

Finishing Position:

- The task is finished when 14 beads are successfully placed on all pegs

Penalty:

- 10 penalty points when a bead is dropped; 20 penalty points when a bead falls from the pegboard
- When a bead is dropped beside the pegboard, it cannot be used anymore
- When a bead falls on the pegboard, it has to be picked up again to be successfully placed on a peg

Score:

- Time in seconds + penalty points.
- The exercise has a maximum time of 10 minutes.



Task 4: 'Wire Chaser' one hand

Goal: Moving three rings from one side to the other side

Materials:

- Wireboard (one hand)
- Three rings with decreasing diameter (increasing difficulty)

Starting Position

- The board is positioned with the text "one hand" in front
- The rings are at the side of the dominant hand

Procedure

- Start time when the first ring is taken
- Bring the three rings, with decreasing diameter, one by one to the other side of the wire using the dominant hand

Finishing Position

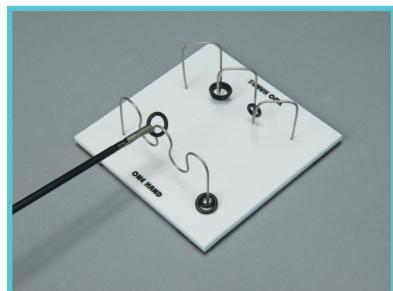
- The task is finished when the three rings are moved to the other side of the board

Penalty

- If a ring is lost by the instrument, 10 penalty points are counted

Score

- Time in seconds + penalty points



Task 5: 'Wire Chaser' two hands

Goal: Moving three rings from one side to the other side

Material:

- Wireboard (two hands)
- Three rings with decreasing diameter.

Starting Position

- The board is positioned with the text "two hands" in front
- The rings are placed at the right side of the board

Procedure

- Start time when the first ring is taken
- Bring the three rings, with decreasing diameter, one by one to the other side of the wire using the left and right hand alternately
- Both hands are used and hands need to change after each curve in the ring

Finishing Position

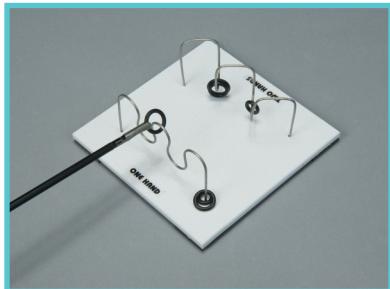
- The task is finished when the three rings are moved to the other side of the board

Penalty

- If a ring is lost by the instrument, 10 penalty points are counted

Score

- Time in seconds + penalty points



Task 6: 'Zig-Zag Loop'

Goal: Passing the rope in a zigzag pattern through the loops

Materials:

- White rope with red end on one side
- Pegboard with four rows with loops.

Starting Position

- The board is positioned with four loops in the front, the white rope is lying in the front

Procedure

- Start time when the rope is taken at the red side of the rope
- Pass the rope alternately through the five loops of the first and second row of loops, resulting in a zigzag pattern
- Use both hands

Finishing Position

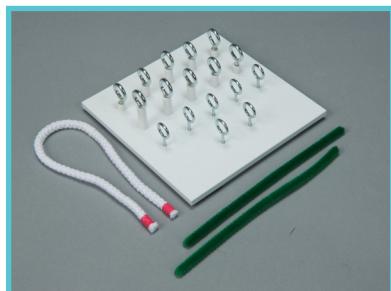
- The task is finished when the rope is passed through the last loop

Penalty

- If the pipe cleaner is passed beside a loop during the procedure, 10 penalty points are counted.

Score

- Time in seconds + penalty points



Warranty

In order to provide warranty or future service, please contact us via e-mail at: support@3-Dmed.com prior to taking any action. This will help expedite the process. Problems can be resolved by e-mail or phone.

3-Dmed®, a division of 3-D Technical Services Co., warrants this Product against defects, material, or workmanship subject to the following conditions:

1. MONITOR and CAMERA: These items are covered by their manufacturer's warranty for a period of one year. **3-Dmed®** will act as liaison in the case of your claim, but final determination of coverage is the manufacturer's decision.
2. LABOR: For a period of 90 days from the date of purchase, if **3-Dmed®** determines the Product (part) to be defective, we will repair or replace the Product (part) at no charge. After the warranty period, we will provide an estimate for labor charges upon request.
3. PARTS: **3-Dmed®** will replace defective parts with new or rebuilt replacements for a period of 90 days. After the warranty period, parts are available through **3-Dmed®** and pricing will be provided upon request.

TO OBTAIN WARRANTY SERVICE: YOU MUST OBTAIN A RETURN AUTHORIZATION NUMBER via phone or e-mail BEFORE sending the unit back. The Product must be sent in its original packaging, or packaging affording an equal degree of protection, to **3-Dmed®** with insurance for its full value. Uninsured parcels are sent at YOUR RISK for loss or damage.

This warranty does not cover user cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, or modification to any part of the Product. This warranty does not cover damage due to improper operation or maintenance, connection to improper voltage supply, or attempted repair by anyone other than a trained technician at **3-Dmed®**. This warranty is invalid if the factory applied serial number has been altered or removed from the Product.

Laparoscopic Task Inserts



Tray of Organs



Playground



Soft Tissue Suture Pad



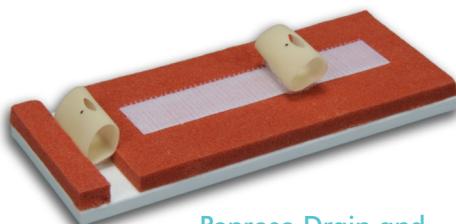
Practice Board
for FLS® Skills



Vaginal Cuff and Holder



Bowel Sections



Penrose Drain and
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