



**Caution**

Do not mark on the model and other components with pen or leave any printed materials contacted on surface. Ink marks on the product cannot be removed.

MW24

# NKS Colonoscope Training Simulator

Instruction  
Manual

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**KYOTO KAGAKU co.,LTD**

## Manufacturer's Note

### Features

MW24 NKS Colonoscope Trainer is three dimensional representation of colon, constructed based on CTC analysis of clinical data, prepared for realistic colonoscopy training.

**The product is designed for training of healthcare professionals. Usage for any other purpose or the way of use not described in this manual is strongly discouraged.**

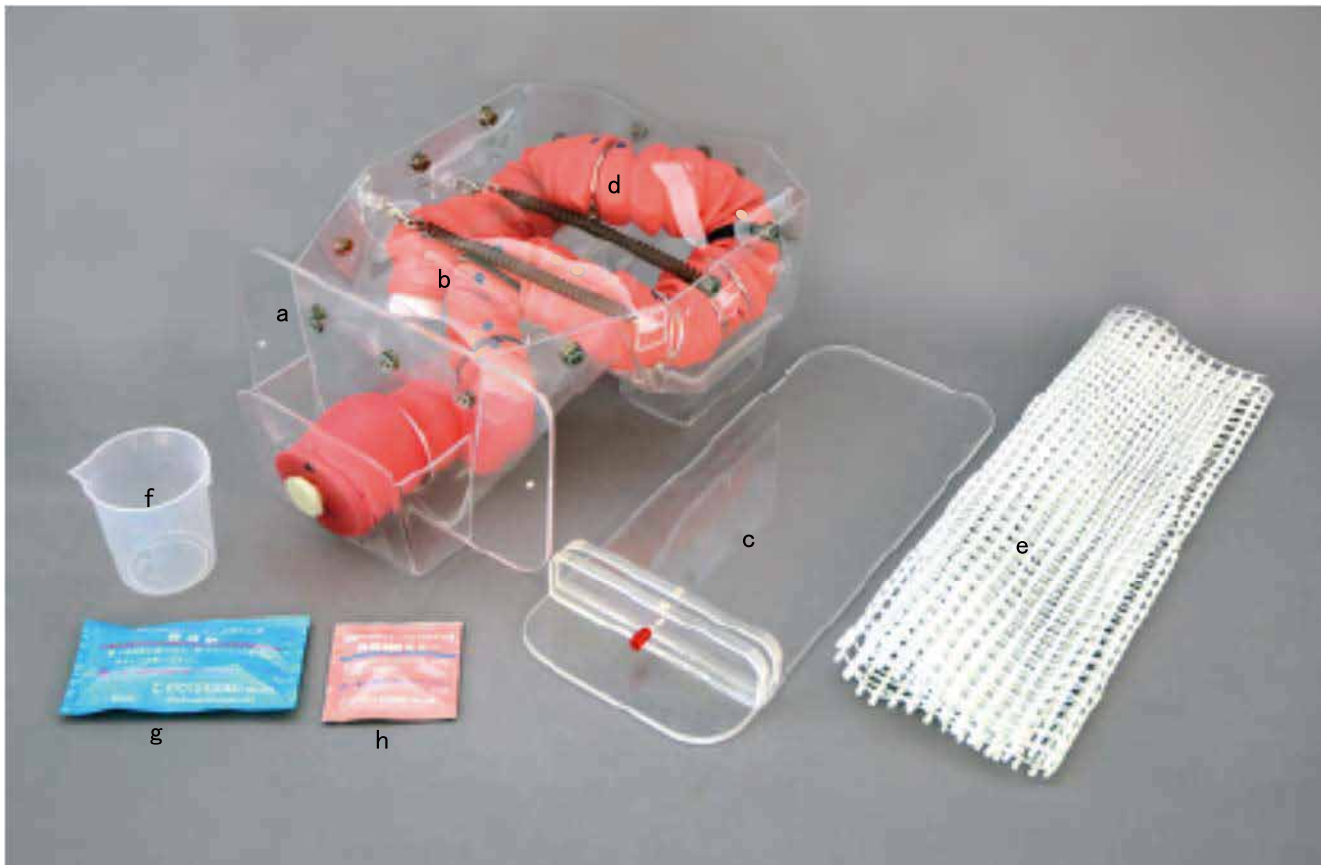
- **Transparent body:** Transparent skeleton body and attachments allow direct observation of the intubation process and appreciation of position of the tip of the scope as well as changing layout and form of the colon.
  - Enables to give understanding of colonoscopy techniques to observers, as well as the operator.
  - Facilitates understanding on the manual abdominal compression by nurses or assistant.
- **Fixed position of rectal anatomy:** On the colonoscopy, the shape of the rectum is very important. MW 24 is designed to acquire effective rectal intubation skills that uses three Houston's valve as landmarks. The rectal area is an exact replica of the rectum of a patient, based on CT Colonoscopy data, and supported by thick wall to stabilize the position of landmarks. All three of the Houston's valve will appear at the same place every time.
  - The fixed position of rectal anatomy allows repetitive endoscopy training.
- **Three morphological patterns of sigmoid colon:** The housing body is designed so that the sigmoid colon can be pre-set to take up any one of the three most common morphologies, which are derived from analysis of clinical CTC data: **1. short alpha loop** (pull back technique), **2. long alpha loop** (push forward technique), or **3. N loop** (pull back/push forward technique).
  - Setting of the morphology can be changed easily by sliding the colon through its attachments (convert 1 to 2 or 3), and the bending or twisting the colon into desired position (change between 2 and 3).
- **Maintenance:** The simulator is entirely water-resistant and can be cleaned easily by running through water.
- **Light-weight:** The system is light weight and compact, allowing transportation as hand luggage on aircraft in the included suitcase.

### Dos and Don'ts

<ul style="list-style-type: none"> <li>● <b>Handle the manikin and the components with care</b> Be sure not to drop or add shock to the simulator and its components. Since the product uses special resins and heavy, such shock may cause damage to the products or environment.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Do not let ink from pens, oriented materials, this manual or other sources contact with the product's surface, as they cannot be cleaned off.</b></li> </ul>
<ul style="list-style-type: none"> <li>● <b>Storage dark, cool and dry space will help prevent the product's colors from fading and product from deforming.</b></li> </ul>	<ul style="list-style-type: none"> <li>● <b>When opening and closing the fixation rings, be ensure not to pinch the colon tube. This may cause damage.</b></li> </ul>
<ul style="list-style-type: none"> <li>● <b>The product may be cleaned with a wet cloth if necessary, using mildly soapy water or diluted detergent.</b></li> </ul>	<ul style="list-style-type: none"> <li>● <b>Wipe off any dirt on the surface with water or a neutral detergent, and apply talcum powder to the surface of the colon tube. Never use anything expect for water or a neutral detergent. Organic solvents such as paint thinner should never be used.</b></li> </ul>
<ul style="list-style-type: none"> <li>● <b>Be sure to remove lubricant and dry the system completely before storage, to avoid mold</b></li> </ul>	<ul style="list-style-type: none"> <li>● <b>The color of the product's surface may change across the ages, this does not affect the quality of its performance.</b></li> </ul>
<ul style="list-style-type: none"> <li>● <b><u>Store the product with the colon-rectum tube attached to the body.</u></b></li> </ul>	

## Set Includes

Before your first use, ensure that you have all components listed below.



- a. 1 skeleton body
  - b. 1 abdominal membrane
  - c. 1 body base
  - d. 1 colon-rectum tube  
(with a cap and a plug)
  - e. 1 slip resistant mat
  - f. 1. plastic jar
  - g. 15 lubricant
  - h. 15 colonoscopy gel
  - i. 1 carrying case
- 1 DVD  
instruction manual



Original packing



\*See page 15 for instruction on how to open the carrying case.

### Unpacking and Verifying the Components

1. At the time of delivery, abdominal membrane and slip resistant mat are placed over the skeleton body.



2. Unpack slip resistant mat and abdominal membrane from the plastic bag. **\*Keep the plastic bags for storage.**



### Fill the Colon-Rectum Tube with Lubricant

1. Pour about three packs of lubricant to the plastic jar
2. Remove the plague and pour the lubricant into the colon-rectum tube form the opening at the anus.  
(Be careful to not pour too much lubricant all at once)

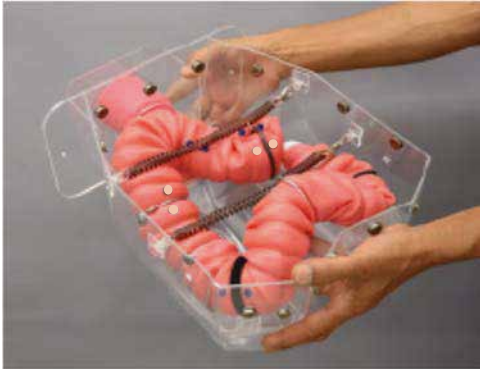


## Preparation

# Fill the Colon Tube with Lubricant Setting Abdominal Membrane

### Fill the colon tube with lubricant

3. Fill up the colon tube carefully and then hold the skeleton body firmly and move it around so that overall internal wall of the tube is covered.



4. Put the plugcap to the anus opening to prevent lubricant from spilling out. Knead gently all parts of colon tube, allowing lubricant to cover all the inside.



**Remember to apply lubricant at the right amount just before using. The effect of lubrication may be lost after certain length of time.**



**Caution:** The lubricant is intended to be used for this trainer only. Never use it on human body or for any other purposes.

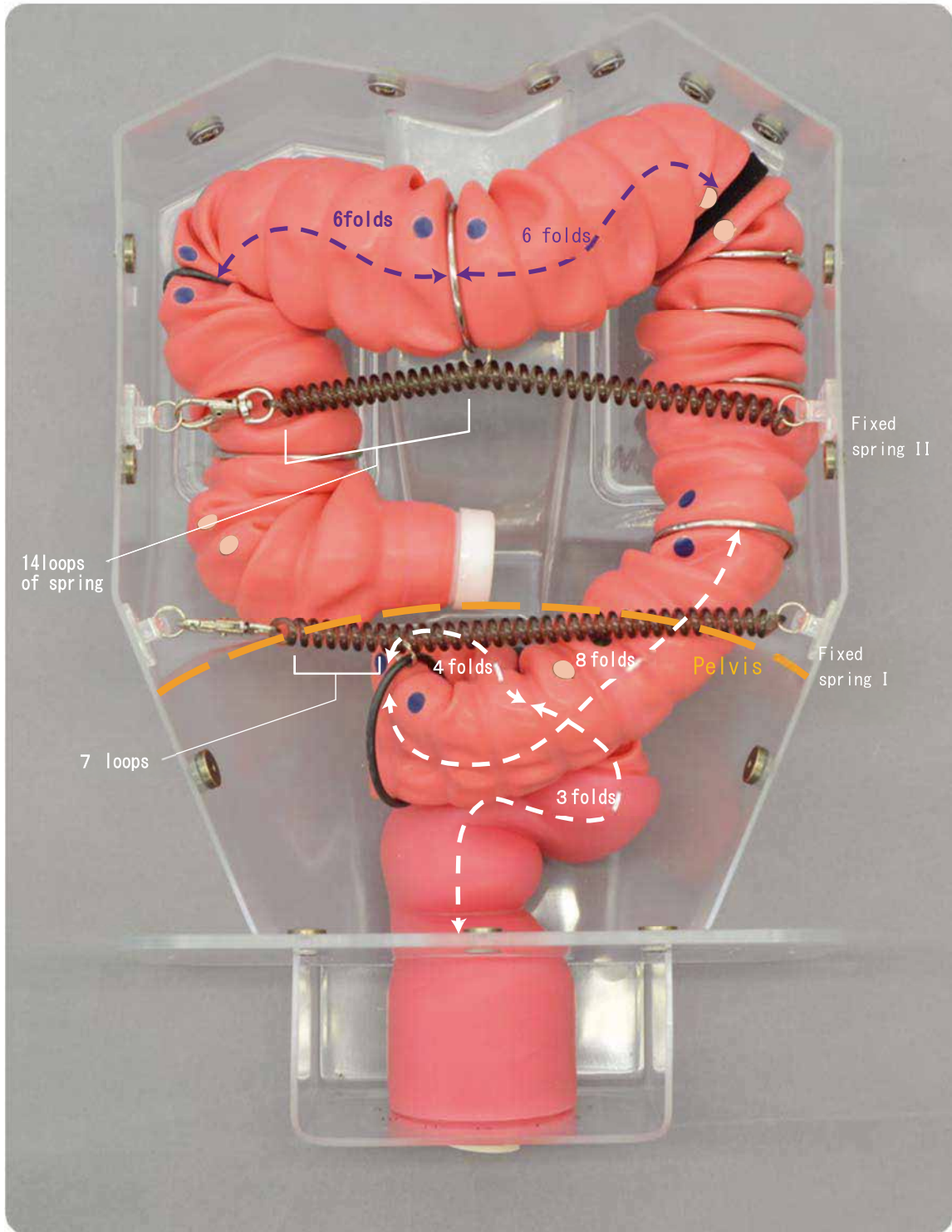
### Setting Abdominal Membrane

1. Attach abdominal membrane to the skeleton body by magnet hooks. Start with five magnets outside of the skeleton body over the transverse colon section, and proceed with rest of the magnets which locates inside of the plastic walls.



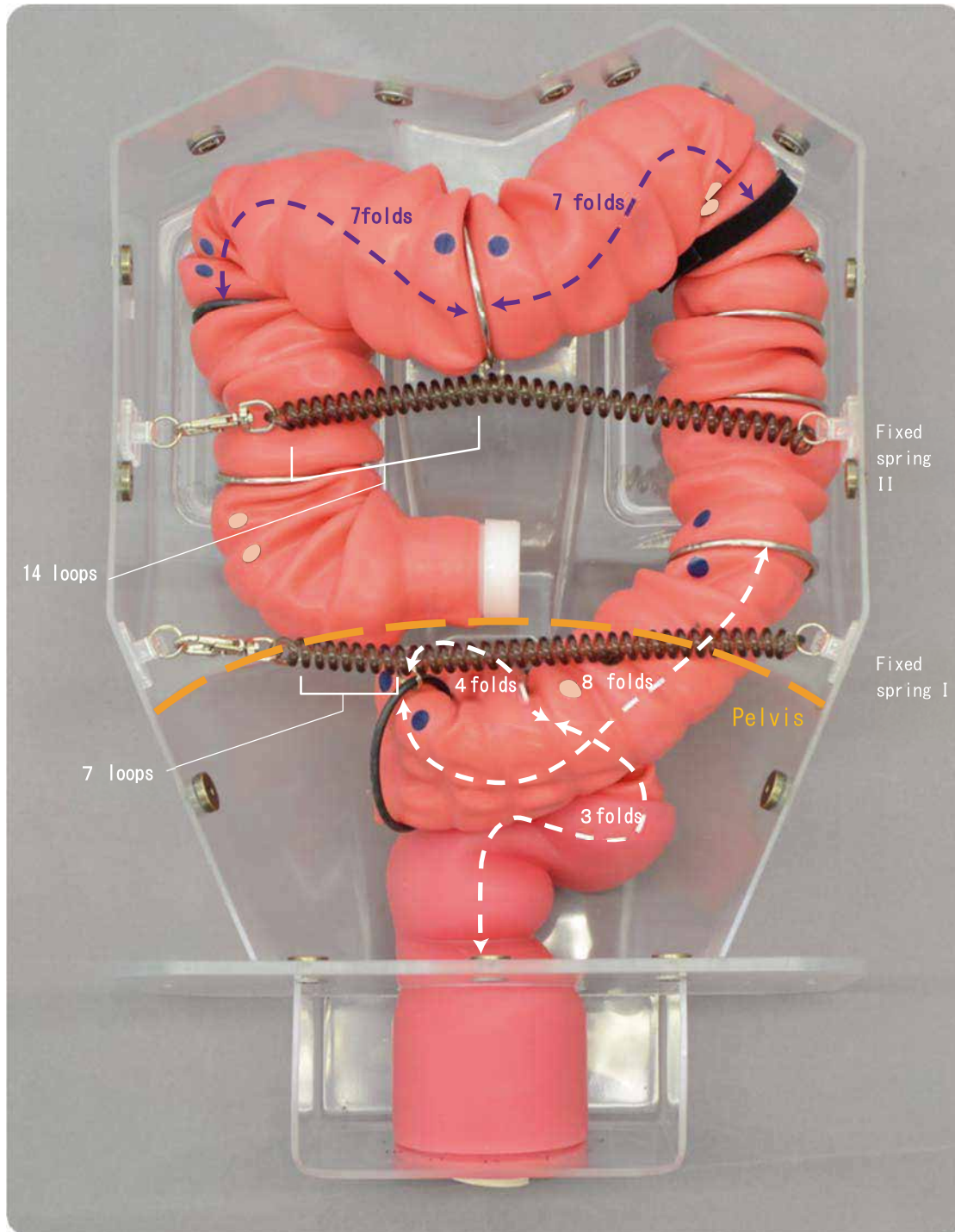
### Case No. 1: Short $\alpha$ Loop

Basic layout (Default position upon delivery)



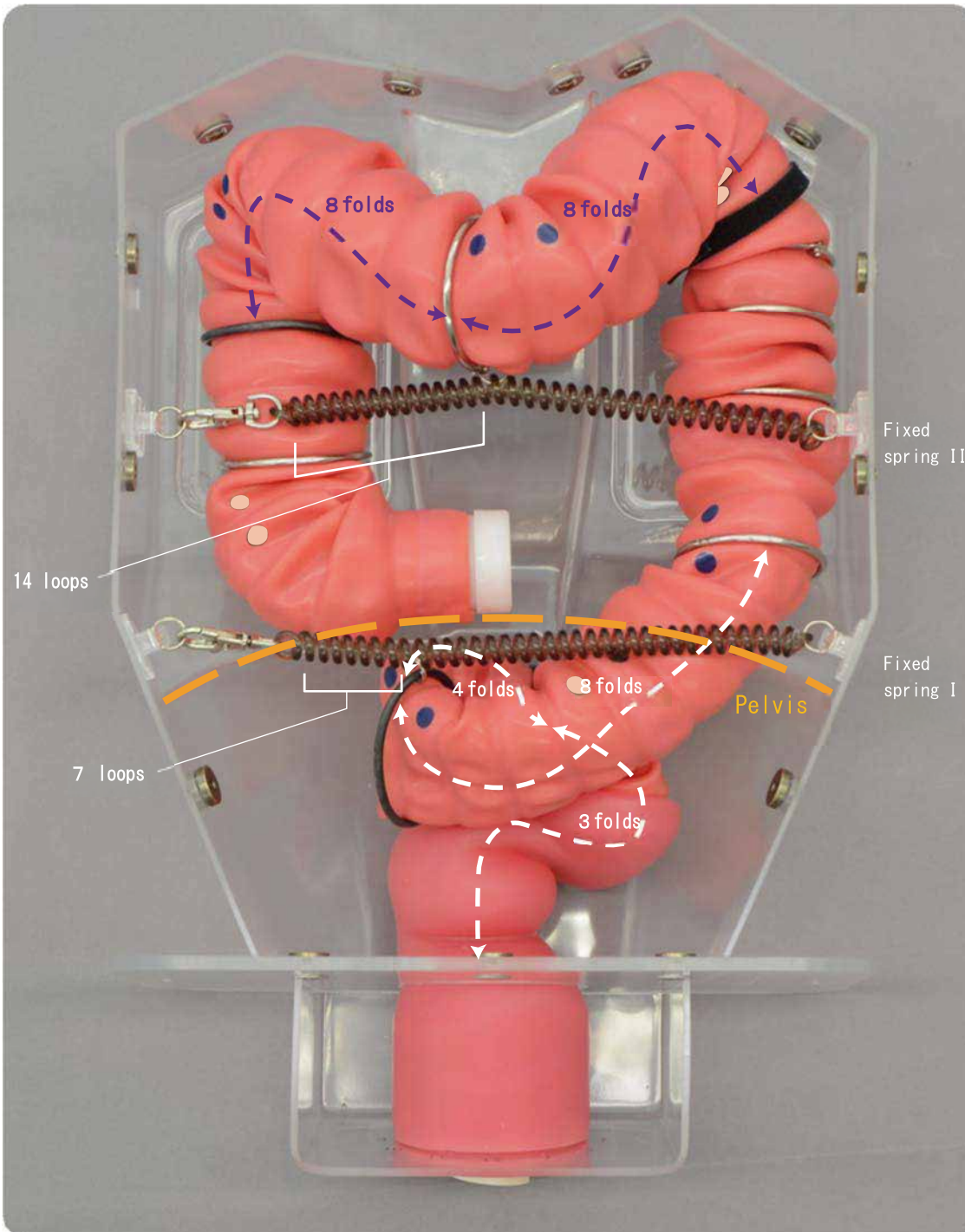
### Case No. 1: Short $\alpha$ Loop + Redundant Transvers Colon #1

Combination of No.1 Short alpha loop and the redundant transvers colon (7 folds +7 folds)



### Case No. 1: Short $\alpha$ Loop + Redundant Transvers Colon #2

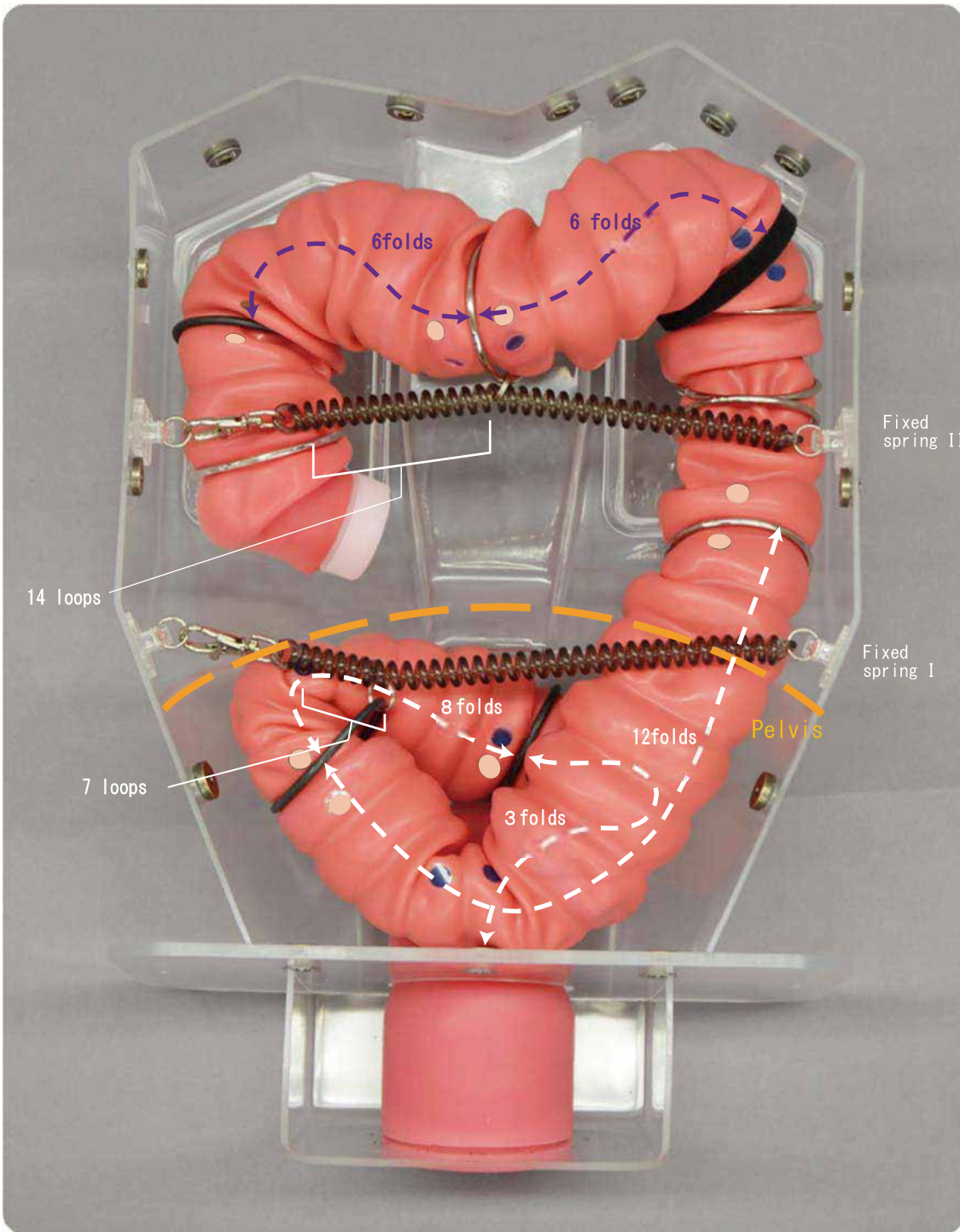
Combination of No.1 short alpha loop and the redundant transvers colon (8 folds +8 folds)





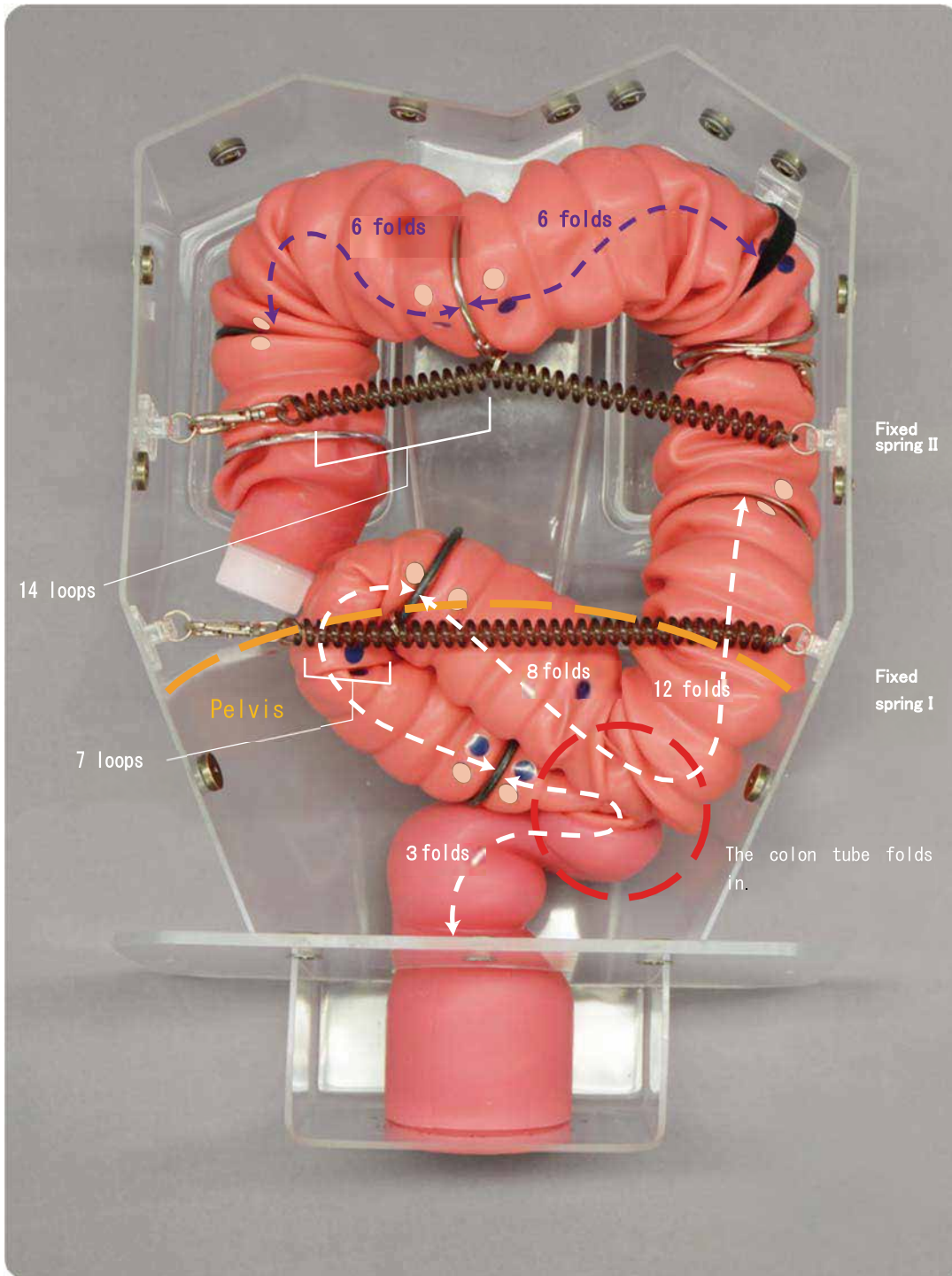
### Case No. 2: Long Alpha Loop

The sigmoid colon forms long alpha loop in the pelvis.



### Case No. 3: N Loop

Sigmoid colon forms an N shape over the pelvis.  
The colon is folding in on itself.



Technique examples on how to advance colonoscope up to Sigmoid Descending Junction (SDJ), with left lateral position.

### Pull Back Technique

Start by placing the inferior Houston's valve at 9 o'clock.

After passing the inferior Houston's valve by left deflection, the middle Houston's valve will appear at 6 o'clock.

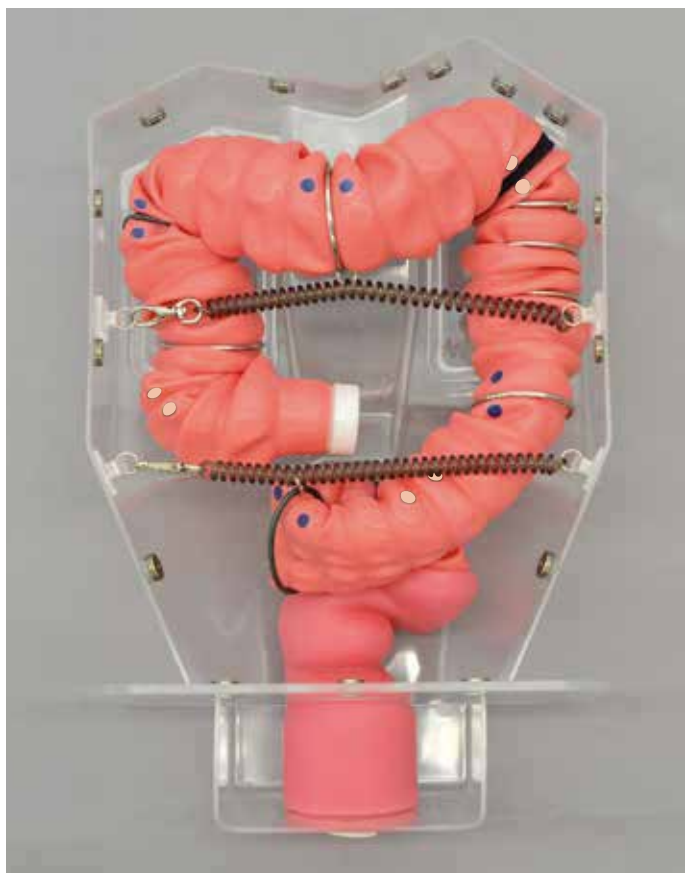
Right turn 180 degrees to place the middle Houston's valve at 12 o'clock angle.

Advance slowly with up deflection while performing a left twist or left deflection, to pass the superior Houston's valve.

The next fold (MS) appears at 4 o'clock position. Turn slowly to the right while performing down and up deflection, to pass the SDJ.

In many cases, the colon may be strongly right twisted when having passed SDJ. Straighten the scope to advance through descending colon to LCF (Left Colic Flexure).

### Case No. 1: Short $\alpha$ Loop



**Push Forward Technique**

Start by placing the inferior Houston's valve at 9 o'clock.

After passing the inferior Houston's valve by left deflection, the middle Houston's valve will appear at 6 o'clock.

Right turn 180 degrees to place the middle Houston's valve at 12 o'clock angle.

Advance slowly with up deflection while performing a left twist or left deflection, passing the superior Houston's valve. Turn right to place the next fold (MS) at 12 o'clock, and advance passing the fold with an up deflection. Then the colon cavity will appear in a tubular shape.

Push forward until you reach LCF. Place the LCF turn at 12 o'clock angle and deflect upwards to create a hook of the tip. Then pull back slowly while adding a strong right turn. Pull back until resistance prevents the scope from moving further.

Straighten the tip of the scope and make sure that movement of Colonoscopy is in tune with the video image of the colon from Colonoscopy. Straighten the twisted scope and the colon.

**Case No. 2: Long Alpha Loop**

**Push Forward and Pull Back**

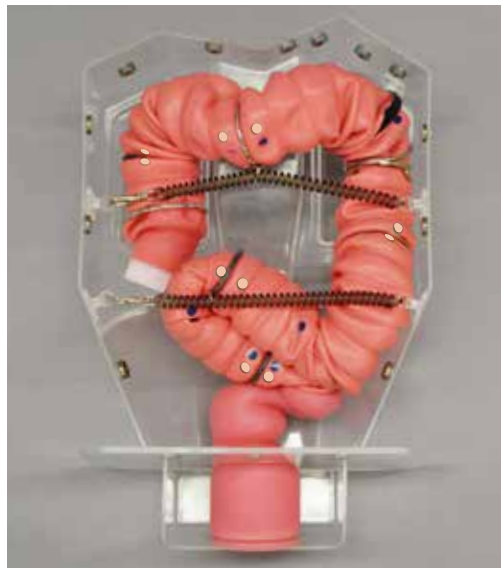
Start by placing the inferior Houston's valve at 9 o'clock.

After passing the inferior Houston's valve by left deflection, the middle Houston's valve appears at 6 o'clock. Right turn 180 degrees to place the middle Houston's valve at 12 o'clock angle. Advance slowly with up deflection while performing a left twist and left deflection, to pass the superior Houston's valve.

Turn right to place the next fold (MS) at 12 o'clock, proceed passing the fold with an up deflection and the colon cavity will appear in a tubular shape.

In case resistance is felt to the operating hand, switch to pull back technique. Draw SDJ towards scope as close as possible by suctioning, and right twist slowly with down deflection and pull back to pass SDJ.

When there is no resistance at descending colon, advance until LCF. When resistance is felt, straighten the scope to proceed to LCF.

**Case No. 3: N Loop****Advancing after SF**

When sigmoid colon is already in a straight position, scope is at its neutral state as the beginning of intubation, which allows for deeper intubation.

When the sigmoid colon is not in a straight position, apply up deflection and give a strong twist at LT to undo the loop. Next, release the deflection and pull the shaft to return the tip of the scope in the descending colon. Push forward and pull back to make sure that the colon is successfully straightened.

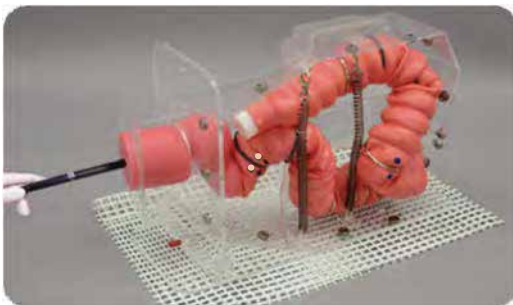
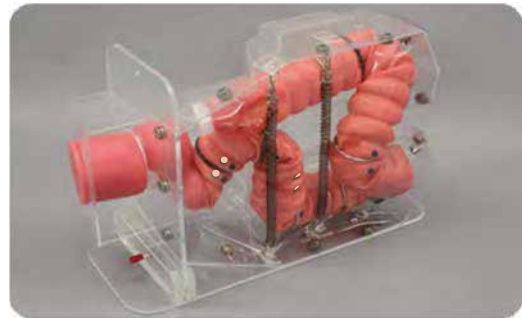
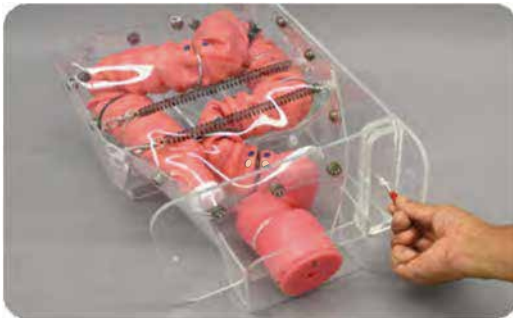
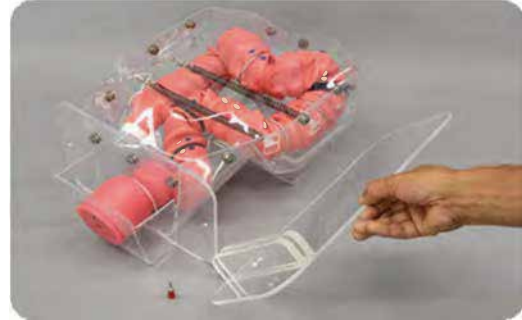
After making sure the sigmoid colon is not in a loop, advance passing MT with LR (left right) technique or DUDU (down up) technique, up to cecum.

## Training Tips

Tips to stabilize the body during the session.

1. Setting the body position
  1. Insert the panel at the side of skeleton body, into the slit of the holder on the body base.
  2. Align the holes and insert a bolt.
  3. Set body into lateral position (both right and left lateral position are possible)

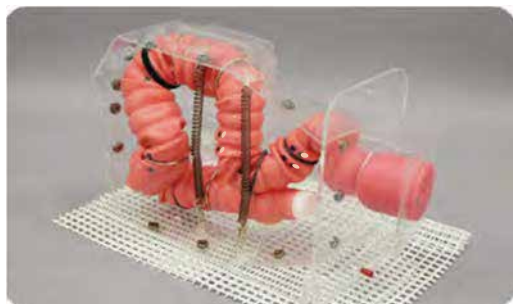
**Caution: Be sure to move the bolt in a straight line. The head of the bolt may come off by twisting.**



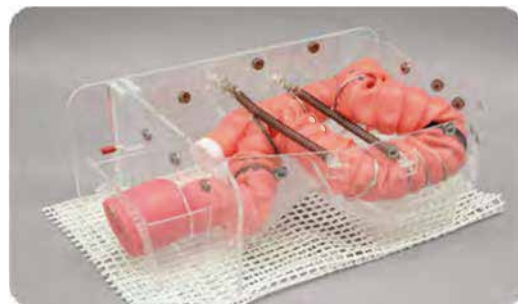
Left lateral

2. Endoscope intubation
 

When you feel strong resistance while inserting endoscope, apply included lubricant or commercially available endoscope lubricant between the anus wall and the shaft of scope.



Right lateral



Spine

**Caution: When you feel strong resistance when inserting scope DO NOT FORCE but use lubricant as described above. Forcing may damage the colon tube or the valve.**

**Note: Lay out anti slip mat when training on slippery surface.**

## Finishing and Cleaning up

### 1. Washing the colon unit

1. Release the cecum end of the colon tube from the fixation rings. Open the double cap at the cecum end. Pour water from anus hole, and leave water to flow for a few seconds to help wash out excess lubricant.
2. Repeat above process by pouring water over from the cecum end of the colon unit. Repeat until all lubricant is washed away and slimy feeling in the colon tube disappears.

**When opening and closing the fixation rings, be careful not to pinch the colon tube. This may cause damage.**

<When the water tap is high on the sink>



<When the space under the tap is limited>



Place the skeleton body so that the anus hole faces down. Stabilize the body by putting a towel to support the body on the edge of the sink. Pour running water from the cecum end of the tube.

### 2. Washing the colonoscope

Be sure to clean up the colonoscope immediately after training, following its manual and instructions.

**Left over lubricant will harden inside of the tubing of the scope and can cause malfunctioning of suction, infusion and other functions, although inviting troubles related to contamination and sterilization failure.**

## Storage

How to open carrying case

Push down button to release zipper, then open the zippers.



Do not forget to place cap on anus hole when the tube is filled with lubricant.



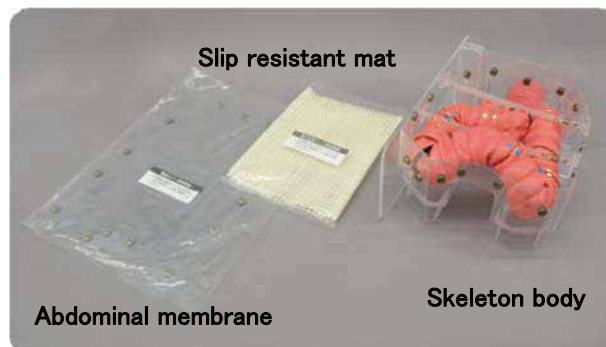
Place the assembled simulator in carrying case.

Insert packs of lubricants in the space at the sides of the skeleton body.

**Make sure to keep anus end of the colon tube upwards (towards case handle) when storing away**



**Use respective plastic bag for the abdominal membrane and slip resistant mat, making sure the parts do not come in contact with the colon tube.**



Abdominal membrane

Skeleton body

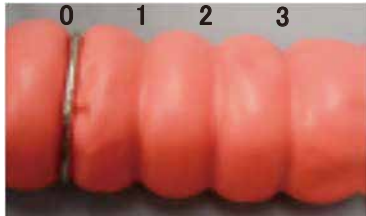


## Trouble Shooting

Quick check-up before calling the customer service

Use the table when you have problems using the system.

Look in this section for a description of the problem to find a possible solution.

Problem	Possible Cause	What to Do
There is a strong resistance when inserting colonoscope	Some part of inner surface of colon tube is not covered by the lubricant.	Spread lubricant by swinging and rotating the skeleton body gently to let the lubricant flow whole part of the tube.
	Shortage of lubricant	Add lubricant through the anus opening.
	Lack or shortage of lubrication of the colonoscope	Apply the colonoscope gel to the shaft of the scope.
The scope advances in alpha (or reverse alpha) loop when working on N loop setting.	Layout of the colon tube is wrong.	Verify that the tube forms N shape.
The endoscopic view of SDJ or MT intubation is incoherent.	The position of fixtures is altered.	Verify the position of rings hooked on fixed spring I and II, which should be 7 loops and 14 loops from the left ends respectively. Correct the position if necessary.
How the folds of colon tube be counted?		In this manual, folds are counted as shown below: 

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Consumables and Replacement parts	Code Number	Descriptions
	11403-010	Colon-rectum tube with a cap and a plug for MM24
	11403-020	Lubricant packs blue for MW24 (15x50ml)
	11403-030	Colonoscope gel for M24 (20ml each)

**For inquiries and service, please contact your distributor or KYOTO KAGAKU CO., LTD.**

The contents of the instruction manual are subject to change without prior notice.

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Please contact manufacturer for extra copies of this manual which may contain important updates and revisions.

Please contact manufacturer with any discrepancies in this manual or product feedback. Your cooperation is greatly appreciated.

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