

Tips and tricks for use with the TD Box and silicon models

Training is fun, beneficial and stimulates team spirit. We have listed a number of tips and tricks for you here to get optimal results from training.

General tips:

TD Box's storage function.

Are items regularly misplaced? Use the TD Box for storage. The box contains various storage areas to store your training samples and thus ensure that you are prepared for the next training session.

Installation in the endoscopy room

Place the TD Box on a solid surface. It is key that the therapeutic workspace is stable when you are scoping, you want to be able to fully focus on the image.

Anti-slip stickers are placed on the underside of the four corners of the therapeutic workspace. The black bubble mat can be used for additional stability.

Make sure that the endoscope is supported during scoping, to a minimum of about 20 cm. This prevents the endoscope from slipping out of the swivel. If possible, use the examination table to achieve this.

Use of lubricant

Using sufficient water-based lubricant in the models is essential for good insertion and progress during the training. This can be done as it would be in daily practice; lubricating the endoscope before introduction and then inserting it into the model.

Tip: should friction occur, relubricate the endoscope.

NOTE: Training sessions with suturing techniques are an exception to the use of lubricant. Requiring a good grip on the wall of the model, lubricant would be counterproductive.

Affixing the models

It is important that the models remain stable for many types of training sessions. It is possible to use a self-adhesive Velcro to fix them to any desired place in the tray, depending on where support is needed.

This can be adjusted during the training as needed.

Use case studies during training

Case studies can be used to enhance the training and to go through the steps that are also taken in a patient setting. We currently have a number of case studies on the website and have plans to further expand these in the near future.

Interested? Create a login, download the pdf files and get started!

Clinical reasoning

In addition to the skills that are trained, it is also possible, for example, to look at the patient's parameters, medication, and to ask questions about treatment methods. In this way, endoscopy as a whole can be discussed, augmenting the training.

Stenting

The upper-GI model is extremely suitable for training with self-expandable stents. Depending on the goal and level of the participants, one can choose between the transparent or opaque variants.

Various esophageal stents can be placed, and removed, by making a short (pinpoint) constriction in the esophagus. It has an internal diameter of 17 mm.

Pylorus/duodenum

The Pylorus has an internal diameter of 15 mm. The duodenum has a diameter of 20 mm

Metal stents can be placed when the duodenoscope is positioned in front of the papilla. The bile duct entrance has an inner diameter of 8 mm and tapers to 4 mm.

The ends of the bile ducts are capped. These caps are easy to remove if, for example, you want to extend a guidewire or place a longer stent.

Three bile ducts with various constrictions (Bismuth classification 1, 2 and 3) are included in the bile-duct set. These bile ducts can all be passed with stents.

Foreign body removal

For foreign body removal training, you can either push the relevant objects into the models prior to the training, or simply insert an object by removing the model from the swivel during the training.

Tip: connect the model to the large swivel; the esophagus is more firmly clamped around it and you can remove larger objects through this swivel and also use the overtubes available on the market.

Tip: Fix the model directly on the esophagus/stomach transition; in this way you can create enough counter pressure to use the hood.



ERCP

The upper GI model is designed to support skills training. The insertion of a duodenoscope through the esophagus and stomach goes smoothly and simulates a normal introduction. The stomach has a smooth surface on the inside and therefore provides no reference to determine the exact location. The intubation from the stomach to the duodenum does not simulate reality. The moment one is in the duodenum, one can assume a correct position for the papilla.

Tip: one can stretch the stomach in order to obtain a better position for the papilla. This reduces the sharp transition from the stomach to the duodenum to provide, and maintain, better access.

Depending on the purpose of the training and the level of the participants, choose the transparent or flesh-colored model. Position the endoscope in front of the papilla.

From this starting position you can go through the steps of an ERCP, place a feeding wire, perform cannula/papillotomy, place plastic stents, perform stone extraction.

Tip: the models are made of silicone. Depending on which materials you combine with it, it may become stiff and give resistance.

For example, it is important to lubricate a stone extraction balloon before using it in the bile ducts. Also attach the bile ducts with the self-adhesive Velcro to counteract the considerable pulling forces against them.



The model cannot be used in combination with electrosurgery. Silicone absorbs heat. One can, of course, use a papillotome to influence the direction of the feed wire.

Location/position model: ERCP procedures are usually performed in a prone position with the patient's head looking to the side. This means that the starting position of the stomach has to be adapted to the patient's position. When in the prone position, the model will be arranged as shown above.

In the case of the supine position, it will be placed in the normal anatomical position. Discuss this with the training attendees prior to beginning.

Stone extraction: the bile duct kit includes a bile duct with ample dilatation. There are also a few stones in the kit. These can be pushed into the bile duct prior to training and can be removed with a (lithotripsy) basket.

The models have not been tested for full mechanical lithotripsy: these are performed at one's own discretion and own risk.

Advanced ERCP

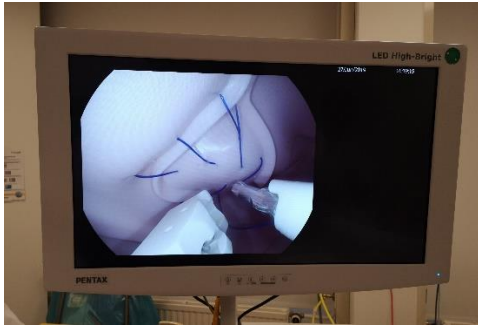
Medical training tools also offers opaque bile ducts. Diagnostics of the bile ducts are developing rapidly. These are ideal if one has an endoscope that can be function in the bile ducts.



Sutures and suturing techniques

The models are very suitable for placing sutures and training suturing techniques. The quality silicone is easy to pierce, but it is also strong enough to pull tension on the sutures. As noted before, use of lubricating gel is not suggested for suture training.

Tip: if the upper GI model is used to train these techniques, the duodenum side can be attached to the opposite swivel. To do this, carefully open it and slide it onto the swivel.

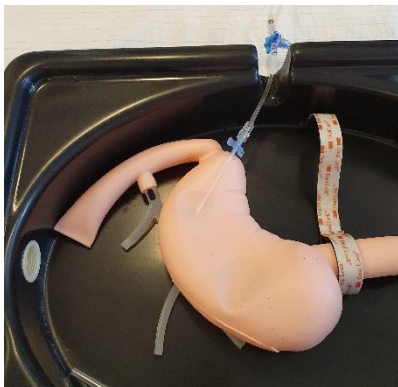


Bleeding and complication management

Nitinol clips. Several nitinol clips are available on the market. These clips can be used for training as well as for safe removal. The front and back of the models have thinner pieces of silicone where, for example, a perforation can be made and treated with the clips.

Conventional clips. Ridges are provided on the inside in three places on the upper-GI model. Clips can be placed on these ridges.

Tip: to simulate bleeding, a needle with an infusion system with dye added to the infusion bag connected to it can be punctured through the wall of the upper GI model. The regulation knob on the infusion system can be used to adjust the rate of flow.



Endoloop

One can perform an endoloop training in the upper-GI model. Make a small incision (in a shape of a cross) in the model, just large enough for a bile duct branch to be pushed through it. Push it through the incision so that it sticks out about 2 centimeters, this can now be treated a 'polyp'.



If you have any additional tips, ideas, or additions you would like to share with us, please do not hesitate to send us an email at info@medicaltrainingtools.com.