

Scope Trainer Instructions for use

The Scope Trainer is a versatile, articulating model to aid the development of dexterity skills for flexible endoscopy. Each modular segment is 60 mm tall, containing a 6 mm 'objective hole' (see fig. 1) (allowing the passage of endoscopes of up to 5.0 mm outer diameter) and a small lateral 'target hole' (see fig. 2) to allow the passage of implements and wires etc. The standard model comprises 9 modular segments, providing a column of 45cm in height.

Horizontal and vertical stripes on the outer surface of each segment serve to guide the user as to the relative angulation and rotation between adjacent segments. The individual segments may be aligned to give a straight 'easy route' or may be angulated and rotated to provide varying degrees of difficulty (see fig. 3).



Fig. 1

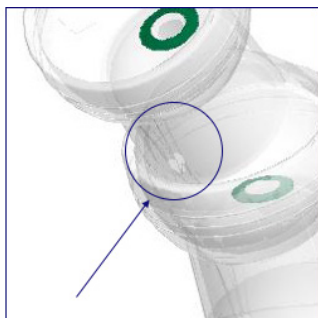


Fig. 2



Fig. 3

Assembly and storage:

The Scope Trainer is packaged within a pre-formed base plate. This has a central mounting upon which the base segment of the Scope Trainer is firmly secured prior to use (see fig. 4). After use, the Scope Trainer must be flattened on a firm surface and flexed to approximate the curvature of the storage compartment. Orientate the base segment of the Scope Trainer in the correct end of the storage compartment (see fig. 5) to allow the lid to fit snugly.

It is recommended that the Scope Trainer be used with an endoscope attached to CCTV and external light-source for optimal viewing.

N.B. In bright ambient light the Scope Trainer may be used without any endoscopic light-source at all.

Transparent Training Model:

This has a polished mid-section which affords the trainer the benefit of an external view of the progress of the trainee's endoscope towards the objective and target holes. This allows the trainer to offer guidance and to assess skill level. Note that the material used for the 7-segment 'Transparent Training Model' is less durable compared to the material of the Standard Scope Trainer. Consequently, the working life expectancy is reduced. Care should be taken, as the product ages, to assess its rigidity to ensure correct functioning of the device.

Care and cleaning:

Wipe outer surface with a damp cloth. Do not immerse or use any detergents. Do not take apart. Do not use gel or silicone lubricant on the endoscope or within the Scope Trainer. **DO NOT LUBRICATE THE JOINTS OF THE SCOPE-TRAINER.**

Cautions

Avoid 'Clicking on Exit': if the Scope Trainer has been flexed to create a 'difficult route,' straighten the Scope Trainer before withdrawing endoscope to avoid 'clicking' as the scope tip passes up through each segment. Avoid flexing individual junctions beyond the third horizontal line as this will result in increased friction between endoscope and Scope Trainer.

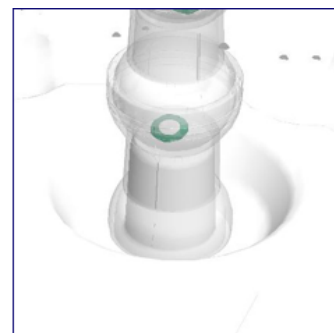


Fig. 4

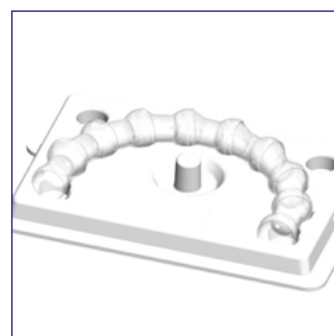


Fig. 5

Scope Trainer Instructions for use

Basic routes:

These tasks test the basic endoscopic dexterity skills of tip deflection and rotation. Horizontal and vertical lines on the outer surface of each segment serve to indicate the relative angulation and rotation between adjacent segments. Prepare the Scope Trainer as follows before commencing endoscopy:



Fig. 6



Fig. 7

- Before attaching the Scope Trainer to its base plate, ensure that the segments are aligned, straight and in neutral rotation.
- Maintaining the neutral rotation of adjacent segments, create a gradual uniform curve in a single plane by bending each junction up to the first horizontal line (see fig. 6).
- Increase the curvature in a single plane by bending each junction further up to the second horizontal line (see fig. 7).
- Create an 's-bend' in a single plane.

See videos of basic and advanced techniques at www.breathesafe.uk.com

Advanced routes:

These tasks test advanced dexterity skills and additional techniques, such as the passage of catheters through the lateral target hole via the scope working channel.

- Arrange the Scope Trainer into curvatures in more than one plane.
- Rotate segments sequentially to provide a spiral series of objective holes.
- Do both! (See fig. 8.)
- 'Target Practice:' pass either a 16G epidural catheter or a suitable braided wire into the working channel of the endoscope before inserting the scope into the Scope Trainer. Find a lateral target hole and pass the tip of the epidural catheter out through the hole.
- 'Laryngeal Over-steer' Manoeuvre: note that if the tip of the endoscope is flexing in one direction to see the objective hole, the tip will need to be actively flexed in the opposite direction to pass easily through the hole – passive straightening is insufficient. Approach as close as possible to the 'far side' of the hole initially – this is analogous to the 'laryngeal over-steer' manoeuvre employed clinically.
- 'Retrograde Wire-Guided Endoscopy:' pass a 140cm braided wire through a lateral target hole near the base of the Scope Trainer, as described above. Leaving the wire in place, remove the endoscope. Thread the top-end of the wire back into the distal end of the endoscope and through the top of its working channel, ensuring that the bottom end of the wire is not pulled into the Scope Trainer. Then, keeping the wire taut, advance the endoscope over the wire into the Scope Trainer. Beware that tip deflection is now much impaired; do not force the bending mechanism of the endoscope as damage may result.

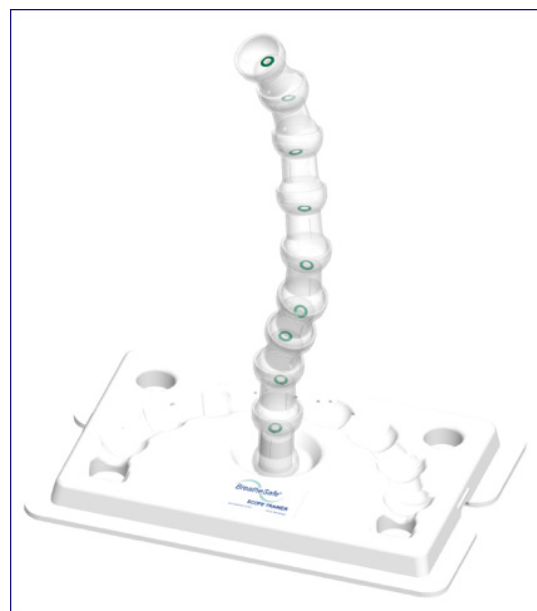


Fig. 8

See videos of select advanced techniques at www.orag.co.uk

Acknowledgments

Inspired by the original 'Oxford Box' created by Lionel Gale, Mansukh Popat and Atul Kapila ca. 1995. The Scope Trainer was developed by Shaun Scott with help from Andy Atkinson and Paul Wightman.

BreatheSafe® Scope Trainer

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