

Advanced Scope Trainer™ - AST - Overview & Applications

Applications

The AST utilises a clear acrylic casing making it perfect for the demonstration properties of a flexible ureteroscope. The placement of a nephroscope through a percutaneous tract used to refill the kidney with stones is translucent providing sufficient visibility to track stone placement.

The manoeuvrability of the flexible ureteroscope can be seen clearly through the casing, enabling both trainer and trainee to observe and learn the technique of diagnostic ureterorenoscopy, stone fragmentation and retrieval.

It incorporates features such as distensible bladder, a realistic ureteric orifice and a ureter, which follows the same anatomical course as the adult male, thus providing a realistic alternative to training in patients.

In addition the AST has one enlarged kidney and a distorted ureter allowing the trainee ureteroscopist to develop a feel for the difficulties that may be encountered during real-life procedures in patients with tortuous or abnormal ureters. The length of the ureter has been carefully designed to permit the trainee to learn and practice guide wire and ureteric stent placement as well as stent removal using either a flexible or rigid ureteroscope.

A key feature of the Advanced Scope Trainer is that it provides the operative with the ability to re-charge each kidney with stones via the two external ports when the existing stones are removed or destroyed.

This, with the fluoroscopic properties of the model and its carefully designed collecting system, enables the performance and manoeuvrability of flexible ureteroscopes to be assessed and demonstrated in a brilliantly clean, clear and simple manner.

Features

- Designed for multiple uses
- Meets needs for basic and advanced training in rigid and flexible ureteroscopy
- Distensible bladder
- Rechargeable stones
- Realistic ureteric orifice for both ureters
- Realistic alternative to skills acquisition using cadaveric, porcine or digital simulators
- Only requires saline or water for use with holmium laser pneumatic litho clast
- Suitable for practising flexible cystoscopy, stent insertion and removal techniques

Instructions & Care for your Mediskills Advanced Scope Trainer - AST

Please familiarise yourself with the model prior to use (see figure 1) reading all instructions thoroughly.

Lubricating the Model

The advanced scope trainer (AST) is manufactured with high tensile elastomeric silicone, however, model damage can occur from insufficient lubrication. There are two ways the AST can be used '**Wet**' or '**Dry**'. The wet method requires the AST to be fully irrigated, please see section **How to Irrigate the AST Model**. The wet method does not require extra lubrication but some KY jelly will assist entry into the urethra. It is important to understand the original concept and design features of the AST model. In order to view the organs internally, the model has been created with upper translucent components, bladder and collecting systems, which are structured on a horizontal plane. The AST has specific deliberate anatomical distortions for example the right ureter is deliberately made 'S' shaped and enlarged including the collecting system. Therefore, flexible instruments are best suited to this model.

How to Lubricate the AST Model

To use the AST Model using the **Dry** option, careful lubrication is important. The silicone components are designed to accept most instruments but the AST model is best suited for flexible scopes (as mentioned above). Please remember that sufficient lubrication is absolutely paramount, as silicone will naturally grip any instrument. It is advisable to never force an instrument into the model even if lubrication has been used. With adequate lubrication the instrument should glide into the model with some degree of natural resistance, strong resistance suggests lack of lubrication.

To use the model **dry** lubricate the instrument generously with KY jelly and insert the instrument in via the urethra. Articulate the scope to the entrance of the ureteric orifice and deposit jelly around the opening. Then remove instrument and reload with jelly, the second entry should allow the instrument to travel into the ureteric orifice with ease, and if not please reload a third time. Ensure the instrument is lubricated the full length as tightness can be experienced when the instrument passes through the urethra and ureteric orifice simultaneously. It is advisable not to use silicone oil as this will impair the silicone and dramatically affect the mechanical properties of the silicone over a long term period.

How to Irrigate the AST Model

To water fill the AST model it is best to use the drain tube connection at the front of the model (8mm internal diameter). Plug the urethra and attach the drain tube to the water supply and allow the model to fill. Check that the bladder vent tap and the collecting system vent taps are in the open position. Looking through the bladder window shut off the bladder vent tap when the bladder is full. Then check the collecting systems, looking through the windows shut off the left and right collecting system vent taps when the water enters the bottom of the stone chutes. Finally unplug the urethra in order to insert the endoscopy instrument. To drain the model open the drain tap, discharge the water into an empty container. Then open the bladder vent tap and the collecting system vent taps. In order to thoroughly empty the collecting systems hold the model vertically and shake, the water will discharge through the ureters and into the bladder. Lay the model in a horizontal position to allow residual water to drain. Store the model with all vent taps open to allow air circulation this will reduce the chances of potential mould build-up.

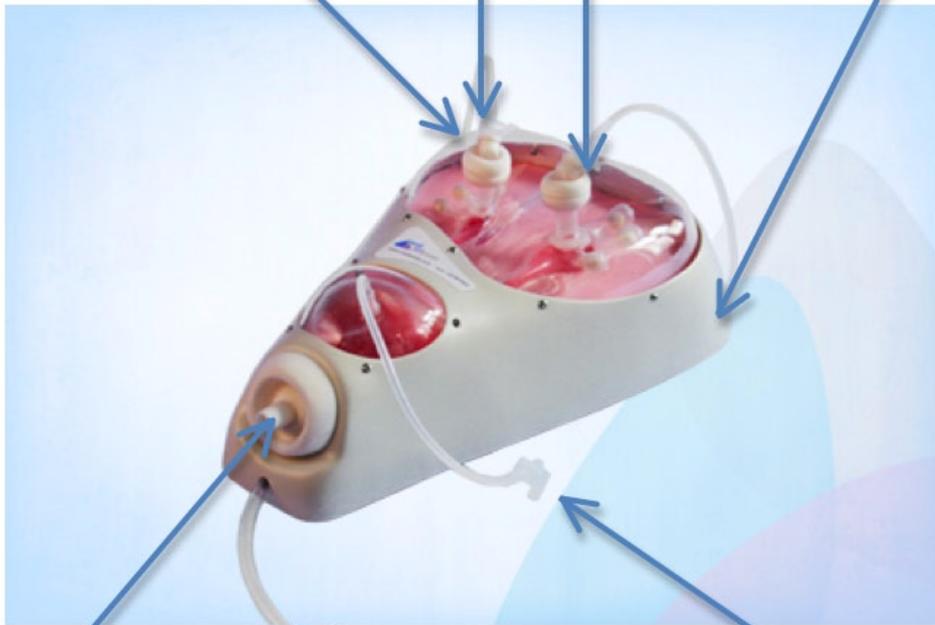
Recharging Kidney Stones

Kidney stones are recharged through the stone chutes these are accessed by removing the caps. Kidney stones can only be positioned in the collecting system pelvis area by dropping stone in through the top of the chutes. Stones can only be repositioned in each individual calyx with use of an endoscopy instrument internally within the model. To assist placement of the kidney stones, use a covering of KY jelly to ease the passing of the stone through the stem of the calyx.

Stone Chute Caps
Left and Right

Collecting System
Vent Tap (left)

Collecting System
Vent Tap (right)



Urethra

Bladder vent tube Tap

Figure 1

Drain Tube Tap