Knee Aspiration & Injection Trainer with Ultrasound Capability

Product No: 70103
**Knee Aspiration & Injection Trainer with Ultrasound Capability**

**70103**

An anatomically accurate adult knee model for injection and aspiration of synovial fluid from the knee joint, from both the lateral and medial aspects, using ultrasound-guidance or palpation.

**Skills**

- Injection into joint cavity
- Aspiration of synovial fluid from both the lateral and medial aspects
- Competence using ultrasound technology to perform systematic scanning techniques and examination of the knee joint
- Identification of anatomical landmarks using ultrasound guidance or the palpation method
- Patient positioning and management
- Recognition of joint effusion
- Ballottement

**Features**

- 1000+ stabs per module with 21 gauge needle
- Precise, palpable anatomy with bony landmarks
- Robust, sealed knee unit that holds all anatomy
- Key internal landmarks visible under ultrasound
- Compatible with all standard ultrasound machines, however image quality will depend on the grade and condition of the machine being used
- Eco-lucent material allows aspiration and injection under ultrasound-guidance or using the palpation method
- Suitable for Undergraduate and Postgraduate medical study
- Knee skin is watertight

**Package supplied**

- 70104 1 Ultrasound Knee Module for Aspiration & Injection
- 70105 1 Leg Unit, including Removable Supports
- 70106 1 Fluid Bag and Stand
- 70107 1 Synovial Fluid, including Syringe
- 70108 1 Needle Set – 3 Green (21 gauge) Needles, 1 Syringe, 1 Sharps Bin
- 70109 1 Carry Case for Knee
- BKS1846195004 Joint and Soft Tissue Injection (5th Edition)

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When practicing injecting be careful to remove the needle in the same straight line as the injection. Removing the needles at an angle or dragging the needle on the skin can cause the knee skin to split.
**Components**

Ultrasound Knee Module  
Product No: **70104**

Fluid Flag & Stand  
Product No: **70106**

Synovial Fluid  
Product No: **70107**

Needle Set  
Product No: **70108**

Leg Unit  
Product No: **70105**

Joint and Soft Tissue Injection (5th Edition)  
Product No: **BKS1846195004**

**Replacement Parts**

Leg Supports (Thigh and Calf)  
Product No: **70110**

Fluid Bag Only  
Product No: **70111**
Plugging in the 2 Leg Supports

1. Locate the two slots on the underside of the Leg Unit (1 at the thigh end and 1 at the calf end).

2. Plug each support into the relevant slot. Both leg supports have writing on the underside indicating where they should be placed (THIGH and CALF).
Insert the Ultrasound Knee Module

1. Push the two tubes extending from the back of the Ultrasound Knee Module through the hole at the back of the Leg Unit.

2. Fit the Ultrasound Knee Module into the Leg Unit.

3. Ensure that the Ultrasound Knee Module is fitted correctly. You may need to run your finger along the edge of the Leg Unit skin to ensure it sits over the end of the Knee Module.

4. The Ultrasound Knee Module is now in place.
**Filling the Fluid Bag with Synovial Fluid**

1. Place the syringe into the synovial fluid bottle and fill the syringe with synovial fluid.

2. Put the syringe into the opening of the Fluid Bag and fill the bag with the synovial fluid from the syringe. If you need more synovial fluid, repeat this process until you reach the Max Fill Level line on the Fluid Bag.

The Fluid bag is now ready to be connected to the Knee.
Connecting the Knee to the Fluid Bag

1. Once the Knee Module is fitted to the Leg Unit, the two tubes extending from the back of the Knee Module can be fitted to the Fluid Bag.

2. Take the tube with the small white connector on the end, and ensure that the clip on the tube is closed.

3. Place the small white connector at the end of the tube into the small hole that sits just underneath the main opening of the Fluid Bag.

4. The tube is now in place.
Take the tube with the blue buttoned connector on the end, and ensure that the clip on the tube is closed

Connect the tube with the blue buttoned connector on the end to the connector on the Fluid Bag

The Fluid Bag is now connected to the Knee

Open the clips on both of the tubes to allow the synovial fluid to circulate around the Knee
9. After a couple of minutes, the Knee should be primed and ready to use.

10. Gently tap the side of the Knee once it is primed to remove any air bubbles.

* If using the Knee to aspirate fluids, ensure that once the Knee is filled with fluid, the clips on both tubes are closed.
Emptying the Synovial Fluid from the Knee

1. Close the clips on both tubes

2. Press the blue button on the tube with the blue buttoned connector and remove the connector from the Fluid Bag

3. Remove the tube with the small white connector from the Fluid Bag

4. Put the syringe into the opening of the Fluid Bag, and remove all of the synovial fluid from the Fluid Bag
5. Pour the fluid from the syringe back into the synovial fluid container.

6. Remove the Ultrasound Knee Module from the Leg Unit feeding the tubes back through the hole in the back of the Leg Unit.

7. To drain the knee of the excess fluid, place the Ultrasound Knee Module upside down in a sink, or hold as shown. The silicone tube with connector now needs to be attached to the blue buttoned connector. The fluid will drain from the knee.

*Please ensure the Knee is wiped clean of any ultrasound gel using a clean cloth.
Removing/Re-attaching the Fluid Bag

If the Fluid Bag needs to be removed from the stand, gently pull the holes in each corner of the fluid bag over the white pegs that secure the Fluid Bag to the stand.

To re-attach the Fluid Bag, push the holes in each corner of the Fluid Bag over the white pegs on each corner of the stand.
The following key anatomical landmarks are clearly visible under ultrasound:

- Skin
- Subcutaneous fat, quadriceps tendon & patellar ligament
- Prefemoral fat pad
- Suprapatellar fat pad
- Hoffa (Infrapatellar) fat pad
- Femur
- Medial & lateral collateral ligament
- Tibia
- Patella
- Joint space & synovial recess
- Meniscus
- Muscle mass of quadriceps
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