Ultrasound Phantoms

KKAmerica

KYOTO KAGAKU

Ver.2
For optimal application of ultrasound in medicine

Kyoto Kagaku started preparing for coming age of medical ultrasound as early as turning of the century. At the beginning, there was two streams to pursuit: development of material for ultrasound phantom that is not only close to human tissue under ultrasound but also stable and long-life, construction of three-dimensional anatomical representation that facilitate improving interpretation skills of trainees. With the passage of time, application of ultrasound in medicine has developed and also the phantoms. Now Kyoto Kagaku phantoms cover the field of QA, training in examination and ultrasound guided procedures, and serving the range of health care specialties.

Our ultrasound phantoms are presented at exhibitions such as RSNA, ECR, AIUM, SDMS and IMSH.

For the latest information please visit:

Product Lineup Website  www.kyotokagaku.com/lineup/
Corporate Website  www.Kyotokagaku.com
Facebook  www.facebook.com/KyotoKagaku/
Abdominal ultrasound examination phantom with pathologies “ABDFAN”

Abdominal ultrasound examination phantom “ECHOZY”

Unique high-fidelity ultrasound phantoms that facilitate effective training in abdominal ultrasound scanning with your own clinical devices.

Features
1. Detailed hepatobiliary, pancreatic and other abdominal anatomy
2. Eight Couinaud’s hepatic segments can be localized.
3. ABDFAN has various simulated lesions to offer different variety of training options.

Training Skills
- Basics of abdominal sonography:
  - Cross sections and sonographic anatomy
  - Sonographic demonstration of each individual organ
  - Localization of hepatic Couinaud’s segments

Pathologies (ABDFAN only)
- Hepatic lesions (cystic and solid)
- Gallbladder and bile duct stones
- Pancreatic tumors
  (one invading the portal vein)
- Splenic lesions
- Both kidney lesions
- Left adrenal tumor

Anatomy
- Liver
  (segmental anatomy, portal and hepatic venous systems, ligamentum teres and ligamentum venosum)
- Biliary tract
  (gallbladder, cystic duct, intrahepatic and extrahepatic bile ducts)
- Pancreas (pancreatic duct)
- Spleen / kidneys
- Detailed vascular structures
  (aorta, vena cava, celiac artery and its branches, portal vein and its branches, superior mesenteric vessels, renal vessels, and more.)

Specifications:

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1 ultrasound phantom “ABDFAN”</td>
<td>1 ultrasound phantom “ABDFAN”</td>
<td>1 ultrasound phantom “ECHOZY”</td>
<td>1 ultrasound phantom “ECHOZY”</td>
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</tr>
<tr>
<td>1 set positioning pillows</td>
<td>1 set positioning pillows</td>
<td>1 set positioning pillows</td>
<td>1 set positioning pillows</td>
<td></td>
</tr>
<tr>
<td>1 anatomical model “ECHO-ZOU”</td>
<td>1 storage case</td>
<td>1 set positioning pillows</td>
<td>1 storage case</td>
<td></td>
</tr>
<tr>
<td>1 tutorial manual (DVD)</td>
<td>1 storage case</td>
<td>1 storage case</td>
<td>1 storage case</td>
<td></td>
</tr>
</tbody>
</table>

Phantom Dimensions:
9.8 x 7 x 11 in. / 25 x 18 x 28 cm

Product Supervision
Junji Machi, MD, PhD
University of Hawaii at Manoa and Kuakini Medical Center

Dr. Hitoshi Asai, Director
Osaka Kyoiku University, Health Administration Center
Dr. Shigeru Nakamura
Nagayoshi General Hospital, Clinical Examination Department
**US-5**  
**FAST/Acute Abdomen Phantom**  
"FAST/ER FAN"

**Conduct “FAST” assessment to save a trauma patient!**

**Features**
1. An innovative phantom for repetitive training of FAST as an adjunct to the ATLS primary survey
2. Pathologies include cholecystitis, an aortic aneurysm and a lesion on the colon

**Training Skills**
- Internal hemorrhage at perihepatic, perisplenic, pelvis and pericardium area
- Sonography for acute patients

**Anatomy**

![Cardiac Tamponade](image1)

![Right Upper Abdominal Bleeding](image2)

![Aneurysm](image3)

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**US-8**  
**Pediatric FAST/Acute Abdomen Phantom**

**Ultrasound training for pediatric FAST procedures**

**Features**
1. The phantom of 2-year-old, thoracoabdominal organs, a bone structure, free-fluid to learn FAST procedures and pathologies that are commonly seen in pediatrics.
2. With this phantom, trainees can acquire skills in basics of pediatric abdominal ultrasound as well as FAST/Acute sonography.

**Training Skills**
- FAST procedures: Internal hemorrhage at perihepatic, perisplenic, pelvis, and pericardium area
- Sonography for acute pediatric patient: Bowel intussusception, appendicitis and biliary dilatation

**Anatomy**

![Pleural Hemorrhage](image4)

![Hydronephrosis](image5)

![Appendicitis](image6)

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**Specifications**:

**Set includes:**
- 1 ultrasound phantom with storage case
- 1 tutorial manual (DVD)

**Phantom Dimensions:**
- 21 x 12 x 9 in. / 62 x 30 x 24 cm

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**Specifications**:

**Set includes:**
- 1 ultrasound phantom
- 1 storage case
- 1 tutorial manual (DVD)

**Phantom Dimensions:**
- 16 x 6 x 6 in.
- 41 x 15 x 15 cm
World’s First Ultrasound Neonatal Head Phantom

Cranial or head ultrasound is one of the most difficult scanning skills, and trainees have few opportunities for training. This head model features accurate depiction of newborn’s cerebral anatomy, and facilitates realistic user experience with its life-like soft touch.

Training Skills

- Scanning of brain anatomy in Sagittal (Angled Parasagittal), Coronal and Transverse planes via any fontanel.
- Palpation of anterior, posterior and mastoid fontanels

Anatomy

- Skull
- Anterior fontanel
- Posterior fontanel
- Mastoid fontanel
- Cerebrum
- Cerebellum
- Septum lucidum
- Cingulate gyrus
- Choroid plexus
- Brain-stem
- Lateral ventricles
- Third ventricle
- Fourth ventricle

Specifications:

<table>
<thead>
<tr>
<th>Set Includes</th>
<th>Phantom Dimensions</th>
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</thead>
<tbody>
<tr>
<td>1 ultrasound phantom</td>
<td>5.1 x 5.1 x 6.7 in.</td>
</tr>
<tr>
<td>1 storage case</td>
<td>13 x 13 x 20 cm</td>
</tr>
<tr>
<td>1 instruction manual</td>
<td></td>
</tr>
</tbody>
</table>

World’s First Ultrasound Neonatal Head Phantom with Hydrocephalus

This head phantom is designed to demonstrate Hydrocephalus, the shape of the skull is deformed due to intracranial pressure.

Training Skills

- Scanning of brain anatomy in Sagittal (Angled Parasagittal), Coronal and Transverse planes via any fontanel.
- Palpation of fontanels

Anatomy

- Skull
- Anterior fontanel, Posterior fontanel
- Hypertrophied lateral ventricles

Specifications:

<table>
<thead>
<tr>
<th>Set Includes</th>
<th>Phantom Dimensions</th>
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</thead>
<tbody>
<tr>
<td>1 ultrasound phantom</td>
<td>5.1 x 5.5 x 7.8 in.</td>
</tr>
<tr>
<td>1 storage case</td>
<td>13 x 14 x 20 cm</td>
</tr>
<tr>
<td>1 instruction manual</td>
<td></td>
</tr>
</tbody>
</table>
US-6 Breast Ultrasound Examination Phantom
"BREASTFAN"

Features
1. State-of-the-art breast phantom with ultrasound anatomy
2. Skills required for ultrasound breast screening can be greatly advanced with practice.
3. Excellent ultrasound image quality

Training Skills
- Skills to scan full area of breast systematically
- Visualization of key anatomical landmarks
- Tracking galactophore
- Visualization and differentiation of typical pathologies
- Localization and measurement of cysts and tumor

Anatomy
- Subcutaneous adipose
- Mammary gland
- Galactophore
- Cooper's ligament
- Retromammary adipose
- Costae
- Clavicle
- Pectoralis major
- Lung
- Lymph nodes at axilla

Pathologies
Cyst, mammary ductal ectasia, malignant tumor, benign tumor

Specifications:
Set Includes: Phantom Dimensions:
1 breast phantom 7.6 x 8.8 x 2.8 in.
1 storage case 33 x 45 x 11 cm
1 tutorial manual (DVD)

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US-7a Fetus Ultrasound Examination Phantom
"SPACE FAN-ST"

Features
1. SPACE FAN-ST provides high quality training for routine second trimester screening.
2. The oval shape phantom abdomen can be set in four different positions

Training Skills
- Fetal size assessment: BPD, AD, AC and FL
- Measurement of amniotic fluid volume
- Determination of fetus presentation (cephalic or breech)
- Assessment of each body part
  - Head: skull and brain
  - Spine and limbs
  - Cardiac chambers, blood vessels, and lungs
- Assessment of umbilical cord and placenta position
- Determination of sex (This phantom represents a male fetus)

Anatomy
- Uterus: amniotic fluid, placenta, umbilical cord, and a 23-week fetus (10.2 in)
- Fetus: skeletal structure, brain with septum lucidum, lateral ventricles and cerebellum, heart with four chambers, lungs, spleen, kidneys, aorta, UV, UA, and the external genital

Pathologies
Cyst, mammary ductal ectasia, malignant tumor, benign tumor

Specifications:
Set Includes: Phantom Dimensions:
1 mother body torso 16 x 11.6 x 8.8 in.
1 ultrasound pregnant uterus phantom 40 x 29 x 22 cm
1 fetus demonstration model
1 storage case
1 tutorial manual (DVD)

---

Ideal hands-on training tool for OBS and Midwifery

Features
1. SPACe FAN-ST provides high quality training for routine second trimester screening.
2. The oval shape phantom abdomen can be set in four different positions

Training Skills
- Fetal size assessment: BPD, AD, AC and FL
- Measurement of amniotic fluid volume
- Determination of fetus presentation (cephalic or breech)
- Assessment of each body part
  - Head: skull and brain
  - Spine and limbs
  - Cardiac chambers, blood vessels, and lungs
- Assessment of umbilical cord and placenta position
- Determination of sex (This phantom represents a male fetus)

Anatomy
- Uterus: amniotic fluid, placenta, umbilical cord, and a 23-week fetus (10.2 in)
- Fetus: skeletal structure, brain with septum lucidum, lateral ventricles and cerebellum, heart with four chambers, lungs, spleen, kidneys, aorta, UV, UA, and the external genital

Pathologies
Cyst, mammary ductal ectasia, malignant tumor, benign tumor

Specifications:
Set Includes: Phantom Dimensions:
1 mother body torso 16 x 11.6 x 8.8 in.
1 ultrasound pregnant uterus phantom 40 x 29 x 22 cm
1 fetus demonstration model
1 storage case
1 tutorial manual (DVD)
**US-11 Scrotal Ultrasound Phantom**

Repeated training to acquire skills in safe and painless examination

**Features**
1. Two types of interchangeable scrotums: normal and pathology
2. Excellent ultrasound image quality

**Training Skills**
- Patient positioning and preparation for examination
- Scrotal ultrasound screening
- Visualization of testicular cancer

**Anatomy**

- Normal Phantom:
  - scrotum, testicle, epididymis and penis

- Pathological Phantom:
  - scrotum, testicle, epididymis and penis
  - Testicular cancer (each one in left and right testis, 10mm dia.)

**Specifications**

<table>
<thead>
<tr>
<th>Set includes:</th>
<th>1 normal scrotum unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 pathological scrotum</td>
<td>1 storage case</td>
</tr>
</tbody>
</table>

**Phantom Dimensions:** 13.4 x 13 x 9.5 in. / 34 x 33 x 24 cm

**Replacement Parts:**
- (41911-010) 1 normal scrotum unit
- (41911-020) 1 pathological scrotum unit

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**US-10 Female Pelvic Ultrasound Phantom**

Two interchangeable inserts to cover basic OB-GYN ultrasound

**Features**
1. Both transvaginal and transabdominal scanning are possible.
2. Two types of interchangeable phantom inserts with different pathologies
3. Realistic view of female external genital
4. Excellent ultrasound image quality

**Training Skills**
- Handling and manipulation of transvaginal and transabdominal transducers
- Interpretation of sonogram
- Visualization and localization of anatomies and pathologies

**Anatomy**

- Normal Phantom
  - scrotum, testicle, epididymis and penis

- Pathological Phantom
  - endometrial cancer, uterine fibroid, dermoid cyst of ovary, blood in pouch of Douglas

- Ectopic Phantom
  - ectopic pregnancy in a fallopian tube, blood in pouch of Douglas

**Specifications**

<table>
<thead>
<tr>
<th>Set includes:</th>
<th>1 lower torso manikin</th>
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<tbody>
<tr>
<td>1 ultrasound ectopic pregnancy unit</td>
<td>1 ultrasound pathology unit</td>
</tr>
<tr>
<td>1 ultrasound pathology unit</td>
<td>1 storage case</td>
</tr>
</tbody>
</table>

**Phantom Dimensions:** 13.4 x 13 x 9.5 in. / 34 x 33 x 24 cm

**Set Variations:**
- (US-10a) Female Pelvic Ultrasound Phantom with 3 units
  - includes a normal pregnancy unit, an ectopic pregnancy unit and a pathology unit

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**Product Supervision**
Charlotte Henningsen, MS, RT(R), RDMS, RVT, FSDMS, FAIUM
Chair & Professor - Sonography Department
Adventist University of Health Sciences
**US-3**

**Abdominal Intraoperative & Laparoscopic Ultrasound Phantom “IOUSFAN”**

**Effective training tool for abdominal intraoperative ultrasound examination**

Innovative phantom simulating abdominal open intraoperative and laparoscopic ultrasound examination

**Features**

1. Soft phantom materials allow realistic probe manipulation.
2. Various simulated lesions including biliary stones and cysts, solid tumors (hypoechoic, hyperechoic and target-appearance) in the liver, pancreas, spleen and kidneys
3. Detachable stomach and duodenum allows various scanning methods of the bile duct and pancreas.

**Training Skills**

- Abdominal intraoperative ultrasound examination
- Laparoscopic ultrasound examination

**Anatomy**

- Liver
  (segmental anatomy, portal and hepatic venous systems, ligamentum teres and ligament venosum)
- Biliary tract
  (gallbladder, cystic duct, intrahepatic and extrahepatic bile ducts)
- Pancreas (pancreatic duct)
- Spleen / kidneys
- Detailed vascular structures
  (aorta, vena cava, celiac artery and its branches, portal vein and its branches, superior mesenteric vessels, renal vessels, etc.)

**Specifications**

<table>
<thead>
<tr>
<th>Set includes:</th>
<th>Phantom Dimensions:</th>
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<tbody>
<tr>
<td>1 upper abdomen ultrasound phantom</td>
<td>12 x 15 x 7 in.</td>
</tr>
<tr>
<td>1 stomach ultrasound phantom</td>
<td></td>
</tr>
<tr>
<td>1 phantom container</td>
<td>30 x 38 x 17.5 cm</td>
</tr>
<tr>
<td>1 tutorial manual (DVD)</td>
<td></td>
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</tbody>
</table>

**US-17**

**Rheumatoid Hand Phantom**

Ultrasound examination is a key skill for early diagnosis on rheumatoid arthritis.

**Features**

1. For skills training in ultrasound examination on rheumatoid arthritis
2. Synovial thickening and increased synovial fluid are simulated on middle and ring finger.

**Training Skills**

- Ultrasound examination on rheumatoid arthritis

**Specifications**

<table>
<thead>
<tr>
<th>Set includes:</th>
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<tbody>
<tr>
<td>1 hand manikin</td>
<td>1 storage case</td>
</tr>
<tr>
<td>1 instruction manual</td>
<td></td>
</tr>
<tr>
<td>Phantom Dimensions:</td>
<td>6 x 2 x 8 in. / 17 x 5 x 21 cm</td>
</tr>
</tbody>
</table>

**Synovial thickening**
**M93UB**  
CVC Insertion Simulator II  
CVC Insertion Simulator III

Great practice simulator for CVC insertion with a variety of methods

**Features**

1. Realistic ultrasound-guided CVC  
2. Landmark puncture pad with anatomically correct vein bifurcations simulates mechanical complications include pneumothorax, mislodging and artery puncture  
3. Transparent anatomical block for anatomical understanding and guide wire manipulation  
4. Introductory ultrasound training block to acquire basics of ultrasound guided venous access  
5. Both internal jugular and subclavian (axillary) veins are accessible  
6. Realistic venous collapse

**Anatomy**

- Internal jugular vein  
- Carotid artery  
- Subclavian vein & artery  
- Superior vena cava  
- Ribs  
- Sternum  
- Lung

**Specifications**:

<table>
<thead>
<tr>
<th>Set includes</th>
<th>M93UB CVC II</th>
<th>M93C CVC III</th>
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<tbody>
<tr>
<td>1 male upper torso manikin</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>1 landmark puncture pad</td>
<td>○</td>
<td>-</td>
</tr>
<tr>
<td>1 ultrasound puncture pad</td>
<td>○</td>
<td>-</td>
</tr>
<tr>
<td>2 CVC placement pads</td>
<td>-</td>
<td>○</td>
</tr>
<tr>
<td>1 transparent anatomical block</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>2 plastic jars</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>1 introductory training block</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>1 red coloring powder</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>1 blue coloring powder</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>1 irrigation bottle</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>2 syringe (2.5ml, 50ml 1 each)</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>1 sample needle</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Phantom Dimensions:</td>
<td>16 x 18 x 13 in. / 40 x 20 x 34 cm</td>
<td></td>
</tr>
</tbody>
</table>

**Replacement Parts (common):**

- (11347-119) 2 landmark puncture pad  
- (11347-170) ultrasound puncture pad (set of 2)  
- (11347-210) 2 REAL VESSELS  
- (11347-260) 1 pulsation unit (for M93UB)

For a sequence of procedural skills from the needle insertion to catheter placement, including Seldinger technique.

**Features**

In addition to features of CVCII:

1. Repeated insertion:  
   The frictionless tissue of the pad allows Seldinger technique and repeated insertion and removable of the catheter with less needle marks left on the surface of the pad.
2. Both Landmark and ultrasound-guided CVC in one.  
   *mislodging to left subclavian cannot be simulated in CVC III

**Training Skills**

- Ultrasound-guided CVC  
- Landmark guided CVC  
- Ultrasound-guided venous access  
- Prevention of mechanical complications

**Product Supervision**

Masahiro Tanabe, M.D., Ph.D., Professor Director General Medical Education Center Chiba University School of Medicine  
Kinya Sando, M.D., Ph.D., Professor Director Department of Human Dietetics  
Masanori Hoki, M.D., Ph.D., Professor Department of Human Dietetics  
Graduate School of Human Science Osaka Shoin Women’s University  
Joho Tokumine, M.D.Ph.D., Department of Anesthesia, Kawatetsu Chiba Hospital  
*Common for both CVCII and CVCIII

**11347-210** Introductory Ultrasound Training Block  
"REAL VESSEL"

Provides training in hands-eye coordination and basic skills in ultrasound-guided venous access.

**Features**

1. 2 simulated vessel lines: straight and curve.  
2. Lines have slope to represent vessels with different depth.  
3. Vessel wall yields under pressure of a needle tip.

**Training Skills**

- Visualization and localization of the vessels  
- Transducer manipulation  
- Basics for ultrasound-guided vascular access

**Set includes:**

- REAL VESSEL Introductory ultrasound training block (a set of 2)
Comprehensive hands-on training for PICC insertion

This model provides training in full procedural skills from needle insertion, manipulation of the PICC to the placement of the distal tip in the SVC. Both basilic and cephalic veins are accessible for different levels of difficulty in cannulation. Replaceable puncture pad is ultrasound-compatible. Anatomically correct bifurcation of the vein provides realistic resistance on its outer walls and simulates complications such as catheter malpositioning.

Features
1. Excellent image quality and visualization of the needle tip for ultrasound guided venous access
2. Movable shoulder to demonstrate positioning
3. Realistic flashback in needle provides confirmation for successful venous access
4. Ribs and right clavicle provide anatomical understanding of correct PICC placement
5. Anatomically correct bifurcation of the vein
6. Simulation of cannula malposition

Training Skills
• Correct needle insertion, PICC, manipulation and catheter tip placement
• Selection a puncture site under ultrasound guidance
• The Seldinger technique
• Technique for the peel-away sheath
• Advancing of the cannula into the SVC

Specifications :

<table>
<thead>
<tr>
<th>Set includes:</th>
<th>MW4</th>
<th>MW4A</th>
<th>MW15</th>
<th>MW17</th>
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</thead>
<tbody>
<tr>
<td>1 adult chest model</td>
<td>○</td>
<td>-</td>
<td>-</td>
<td>○</td>
</tr>
<tr>
<td>1 mid-axially line unit</td>
<td>○</td>
<td>○</td>
<td>-</td>
<td>○</td>
</tr>
<tr>
<td>1 mid-scapular line unit</td>
<td>○</td>
<td>-</td>
<td>-</td>
<td>○</td>
</tr>
<tr>
<td>1 pericardiocentesis unit</td>
<td>-</td>
<td>-</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>1 pillow for positioning</td>
<td>○</td>
<td>-</td>
<td>-</td>
<td>○</td>
</tr>
<tr>
<td>1 explanation model for thoracentesis</td>
<td>○</td>
<td>-</td>
<td>-</td>
<td>○</td>
</tr>
<tr>
<td>1 instruction manual</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tbody>
</table>

Accessories
-1 irrigator                                   | ○   | -    | -    | ○    |
-1 funnel                                      | ○   | ○    | -    | -    |
-1 syringes (50ml)                             | ○   | ○    | ○    | x2   |
-1 joint hose                                  | -   | -    | ○    | -    |
-1 tube with three-way stopcock                | ○   | ○    | -    | ○    |
-1 plastic jar                                 | ○   | ○    | -    | ○    |

Phantom Dimensions:
15.7 x 5.9 x 23.7 in. / 40 x 15 x 60 cm

Replacement part:
(11348-010) 2 PICC puncture pads
Lumbar puncture training with ultrasound guidance

Features
1. Ultrasonic landmarks of lumbar spine can be visualized.
2. Replacement parts are durable for multiple procedures.
3. This simulator can be positioned in the upright or lateral position.
4. Translucent block makes the needle trace visible.
5. The lumbar region model provides a platform for wide training opportunities, by adding interchangeable training blocks for landmark and fluoroscopic procedures.

Training Skills
- Ultrasound-guided lumbar puncture
- Ultrasound-guided epidural anesthesia
- CSF collection and CSF pressure measurement

Anatomy
- Lumbar spine (L2-L5) including spinous process and transverse process
- Spinal canal, epidural space

Specifications:

<table>
<thead>
<tr>
<th>Set includes:</th>
<th>Replacement parts:</th>
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<tbody>
<tr>
<td>1 lumbar region model</td>
<td>(11348-190) 1 ultrasound lumbar puncture/epidural block</td>
</tr>
<tr>
<td>1 ultrasound lumbar region skin cover</td>
<td>(11348-230)</td>
</tr>
<tr>
<td>2 lumbar region support bases</td>
<td>1 ultrasound lumbar region skin cover for M43E</td>
</tr>
<tr>
<td>1 irrigator bag/ syringe/ stand for irrigation bag</td>
<td>Phantom Dimensions: 13 x 8.3 x 11.8 in.</td>
</tr>
<tr>
<td>1 instruction manual</td>
<td>33 x 21 x 30 cm</td>
</tr>
</tbody>
</table>

Provides training in ultrasound guided breast biopsy

Features
1. Fine Needle Aspiration Biopsy (FNAB), Core Needle Biopsy (CNB) and Mammo Tom biopsy can be performed under ultrasound guidance.
2. Tissue of the breast phantom represents softness and resistance of the mammary gland.
3. Excellent image quality
4. Targets are colored to confirm successful sampling.
5. Targets are embedded in three levels to allow training in needle access with different angles and depth.
6. Transparent and opaque type phantoms provides various levels of training.
7. An inexpensive and disposable phantom that provides many attempts.

Training Skills
- Hand-eye coordination in ultrasound biopsy
- Localization of targets under ultrasound guidance
- Sampling of target

**Basic (Transparent)**
- Hand-eye coordination
- Size of targets: 6 mm dia. and 10mm dia.
- Type of targets: Hyperechoic (blue)
- Number of targets: 12 pieces

**Advanced (Opaque)**
- Acquisition of skills in safe and reliable needle biopsy
- Size of targets: 6 mm dia. and 10mm dia.
- Type of targets: Hyperechoic (blue), Hypoechoic (red)
- Number of targets: 12 pieces

Specifications:

<table>
<thead>
<tr>
<th>Set Variations:</th>
<th>Phantom Dimensions:</th>
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</thead>
<tbody>
<tr>
<td>Duo set: (11387-000) transparent + opaque type</td>
<td>6.3 dia x 3.2 in.</td>
</tr>
<tr>
<td>Transparent set: (11387-100) 1 pair of transparent type</td>
<td>16 dia x 8 cm</td>
</tr>
<tr>
<td>Opaque set: (11387-200) 1 pair of opaque type</td>
<td>16 dia x 8 cm</td>
</tr>
</tbody>
</table>
**US-4 Breast Ultrasound QA Phantom**

Ensure highly detailed images for reliable breast cancer examinations

Ultrasound QA phantom for high precision imaging in the high frequency sonography around 10 MHz that is required in breast examination. For monthly basic quality check of ultrasound images, as well as longer term quality assurance to maintain consistency of the performance of scanners and transducers.

Mass targets block (contrast resolution)

- Specifications:
  - Set includes: 1 mass targets blocks, 1 dot targets blocks, 1 thermometer, 1 storage case
  - Phantom Dimensions: 7.2 x 3 x 4.4 in. / 18 x 7.5 x 11 cm

**US-2 Ultrasound Quality Assurance Phantom (Multi Purpose Phantom N-365)**

Durable and stable

Useful both for daily assessment and further research. Gray scale for evaluation, cyst targets with non-resonance cylinders, line targets for geometrical evaluation including close range (dead zone) resolution, axial and lateral resolution are prepared for scanning. The phantom is designed to allow scanning from all four side walls.

N-365 Multipurpose Phantom

- Specifications:
  - Set includes: 1 phantom, 1 storage case
  - Phantom Dimensions: 7.6 x 8.8 x 2.8 in.
  - 19 x 22 x 7 cm
**Materials for Ultrasound Phantoms**

Japanese patent No. 3650096

Durable, stable with homogeneous granular background reflection with excellent and controllable echogenicities

- Sonic velocity: 1434 m/sec at 25 degrees C
- Density: 0.954 g/cm³
- Attenuation rate: 0.57 dB/cm/MHz at 25 degrees C
- Acoustic impedance: 1.37 rayl at 25 degrees C

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Speed of sound (m/sec)</th>
<th>Attenuation rate (dB/cm/MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 degrees C</td>
<td>1449.5</td>
<td>0.58</td>
</tr>
<tr>
<td>25 degrees C</td>
<td>1434.1</td>
<td>0.57</td>
</tr>
<tr>
<td>35 degrees C</td>
<td>1403.9</td>
<td>0.55</td>
</tr>
</tbody>
</table>

![Graph showing temperature variation of sound velocity and attenuation rate](image)

Natori H, Igarashi T, Arakawa M. Durable fine resolution test phantom for diagnostic ultrasound system. ECR 2013 Poster C-1765

"Durable fine resolution test phantom for diagnostic ultrasound system", H.Natori 2013

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**Fundamental Ultrasound Phantom**

**Research Model for Transcranial Doppler (TCD)**

**CT-Ultrasound Fusion QA Phantom**