⚠ **Caution** Don’ t mark on the model and other components with pen or leave printed materials contacted on their surface.
Ink marks on the models will be irremovable.

M43B

Lumbar Puncture Simulator Ⅱ A Instruction Manual

11348-600 / 600－M /600-D

Contents




- **Before You Begin**

This lumbar puncture simulator has been developed for the training of medical professionals only.
Any other use, or any use not in accordance with the enclosed instructions, is strongly discouraged. The manufacturer cannot be held responsible for any accident or damage resulting from such use.
Please use this model carefully and refrain from any unnecessary stress or wear.
Should you have any questions regarding this simulator, please feel free to contact our distributor in your area or KYOTOKAGAKU at any time. (Our contact address is on the back cover of this manual)

- **Features**

The contents of the instruction manual are subject to change without prior notice.
No part of this instruction manual may be reproduced or transmitted in any form without permission from the manufacturer. Please contact the manufacturer for extra copies of this manual which may contain important updates and revisions.
Please contact the manufacturer for any discrepancies, typos, or mistakes in this manual or product feedback.
Your cooperation is greatly appreciated.

Before you start

Today, medical professionals have ready access to advanced imaging technologies such as CT, MRI and ultrasound scans that clearly enhance the quality of medical care. However, despite its use for more than 100 years, the lumbar puncture remains indispensable for the rapid diagnosis of meningitis, encephalitis or fever of unknown origin. The lumbar puncture also remains important for the diagnosis and treatment of numerous conditions seen by emergency care, primary care, neurology, oncology and anesthesia services.

Thus, even today, medical competency requires skillful performance of this procedure.

In the past, medical students could practice lumbar punctures on live patients in order to develop the requisite technical skills. However, for good reasons, this is no longer the case. Although medical schools and residency training programs recognize the need for formal procedural skills training, there are limited opportunities for such programs to teach and assess procedural competency.

This unfortunate situation has now changed. Keio University Medical School, in partnership with Kyoto Kagaku, has created a realistic lumbar puncture simulator that allows students and medical professionals to practice frequently and achieve high levels of procedural competence without placing any patients at risk of harm.

By all means, please try this innovative lumbar puncture simulator. Through practice on this special equipment, students at all levels of training can increase their procedural comport, competence and efficiency.

We wish you, and your patients, well.

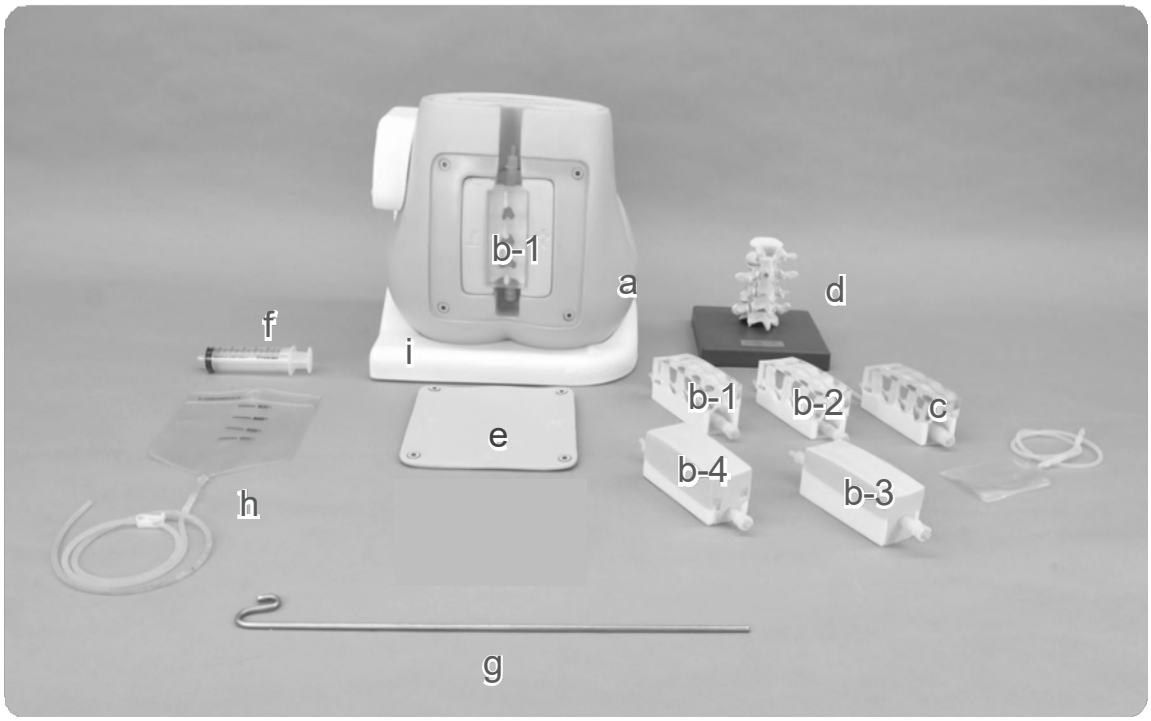
Takahiro Amano, MD
Professor and Head,
Medical Education
Center
Gregory A. Plotnikoff, MD,
MTS Associate Professor
Keio University Medical School

Before you start

Set includes/Dos and Don’ts

Set Includes

Before your first use, ensure that you have all components listed below.



a. Lumbar Region Model……..1
b. CSF Puncture Blocks（4 variations 5 pieces）
b-1. Normal CSF……..2
b-2. Obesity CSF……1
b-3. Senior CSF……1
b-4. Senior Obesity OSF……1
c. Epidural Puncture Block……...1
d. Lumbar Spine Model……1
*the blue base is not included in the set

e. Skin Cover……1
f. Syringe……1
g. Irrigator Pole……1
h. Irrigator Bag……1
i. Supporting Stand (Two Way)……1

⚠ DOs and

DOs

Handle the manikin and components with care.
Talcum powder may be used on the manikin after use to preserve suppleness of the skin and prevent oils from staining the surface.
Store the manikin in its storage case when not in use. Storing in a dark, cool area will keep the manikin skin from fading.
The manikin skin may be cleaned with a wet cloth and mildly soapy water or diluted detergent.

DON’Ts

Please do not let ink from pens, newspapers or other sources come in contact with the manikin, as they cannot be cleaned off the manikin skin. Never use ethanol or organic solvent such as paint thinner to clean the skin, as this will cause deterioration of the skin.

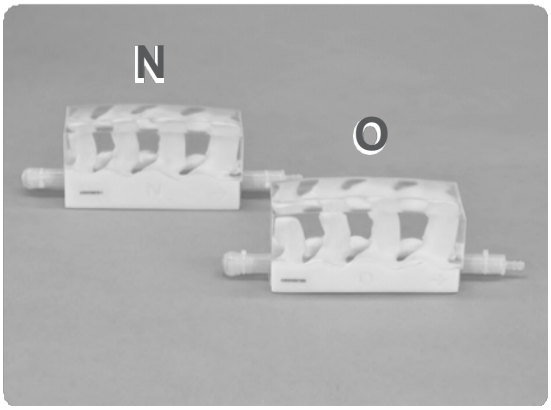
Preparation for spinal tap

1 Prepare the stand

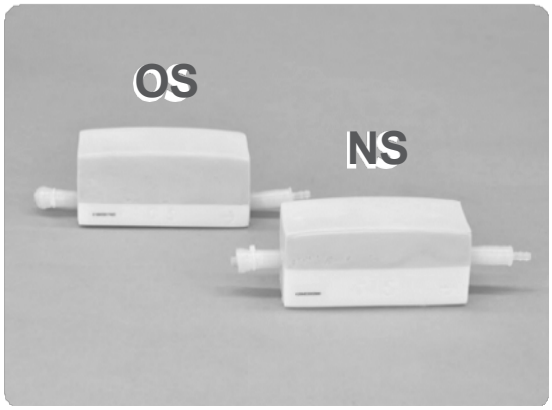
1. Assemble the stand.

2. Hang the irrigator bag to the stand.

2 Variation of puncture

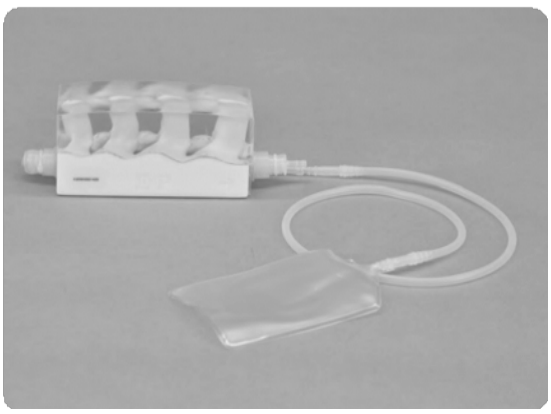


N: Normal CSF O: Obesity CSF CSF

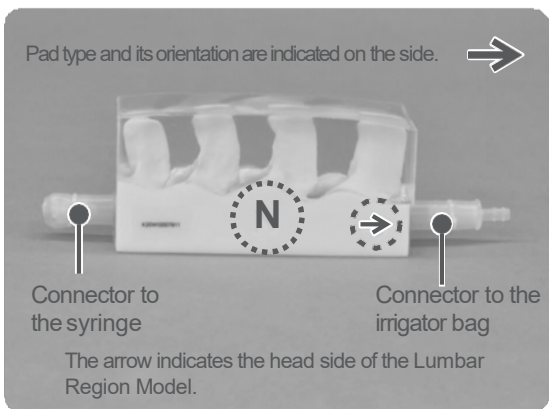


OS: Senior Obesity CSF NS: Senior

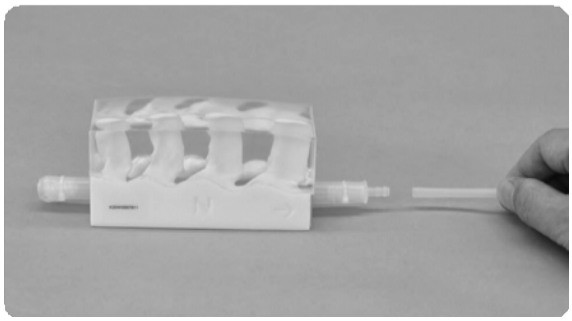
*Obesity type has the lumbar spine in a deeper position.
Senior type has a different tissue resistance and bone shape.

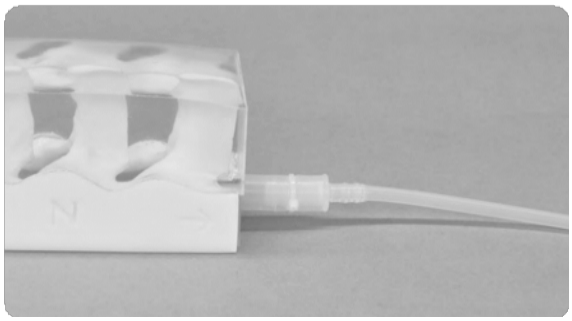


EP: Epidural



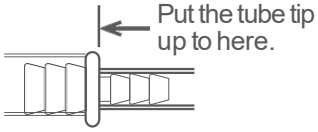
3 Preparation of a CSF

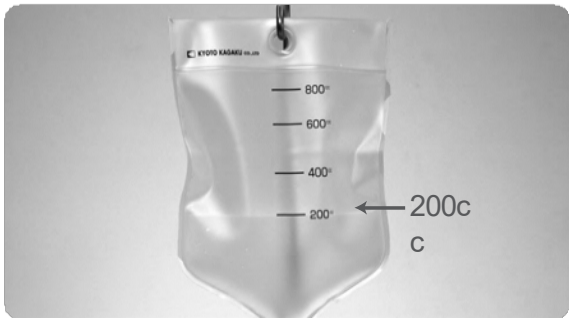




1. Connect the puncture block with the irrigator bag.

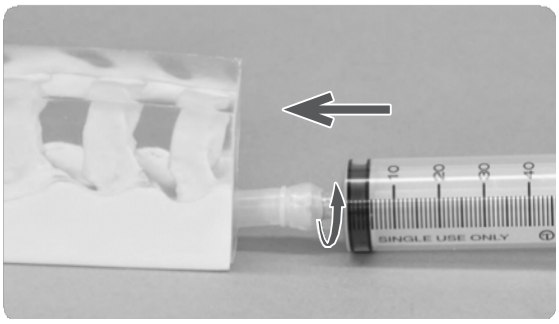
Connect the tip of the tube from the irrigator bag to the connector at the head-end of the puncture block.
Insert the tube completely to secure it into position.





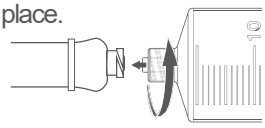
2. Fill the irrigator bag.

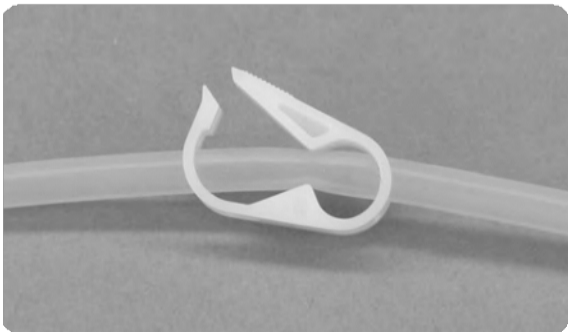
Fill the irrigator bag with water until the surface reaches to the 200ml line.



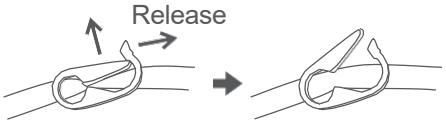
3. Connect the syringe to the block.

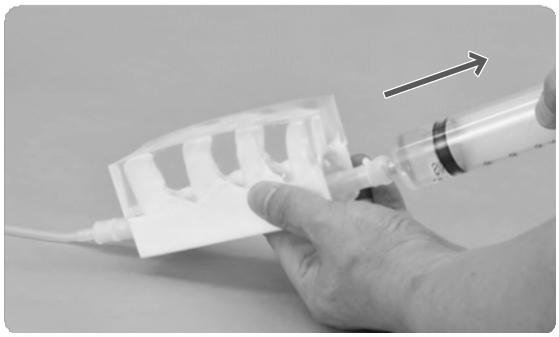
Connect the syringe to the plug at the opposite end. Insert, turn clockwise and lock the syringe in place.





4. Release the clamp.





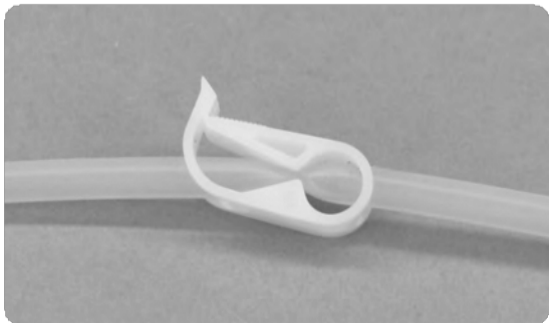
5. Fill the puncture block with water.

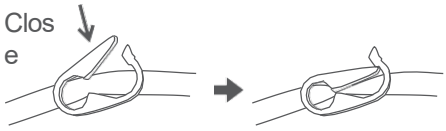
Tilt the puncture block and aspirate water with the syringe until only water remains in the tubing.

⚠ Caution

If bubbles are in the tubing, the water may not flow out even when the puncture is successful.

3 Preparation of a CSF block





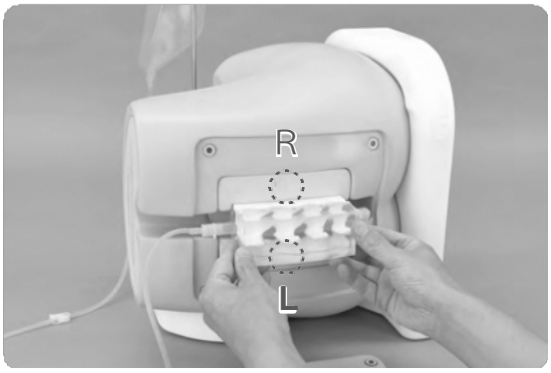
Caution

Keep the clamp closed while the session is NOT in action.

6. Close the clamp.

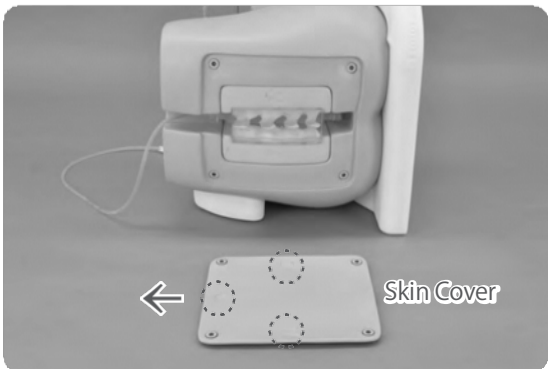
4 Set the puncture block in the model

Insert the block into the Lumbar Region Model.



Removing the block holder from the Lumbar Region Model helps smooth fitting.

Noting the marks at the back of the skin cover (L,R,↑) attach it to the Lumbar Region Model.



The setting process is the same for the sitting position.

Caution

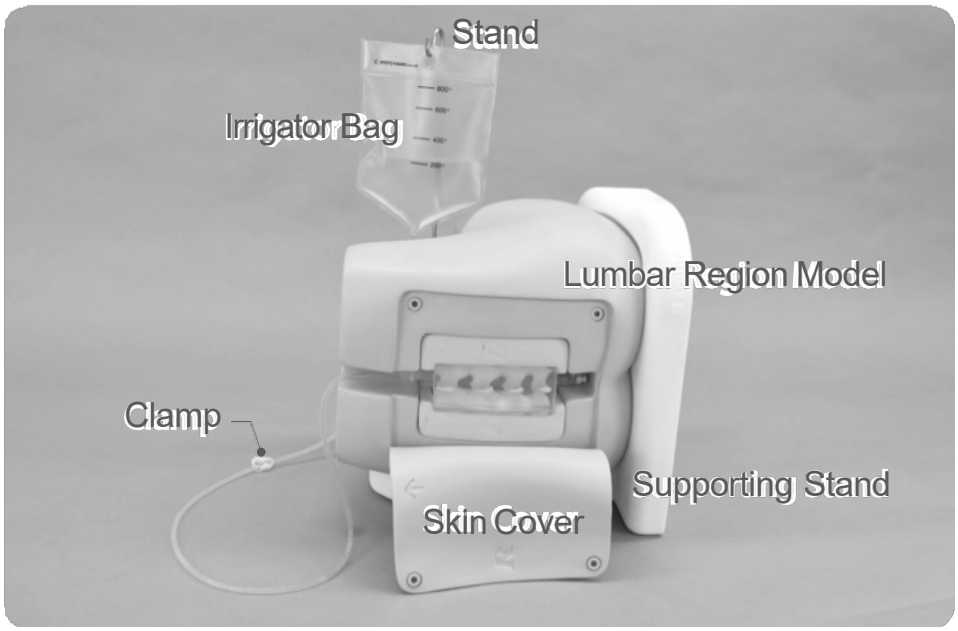
Do not fold the tube.

Caution

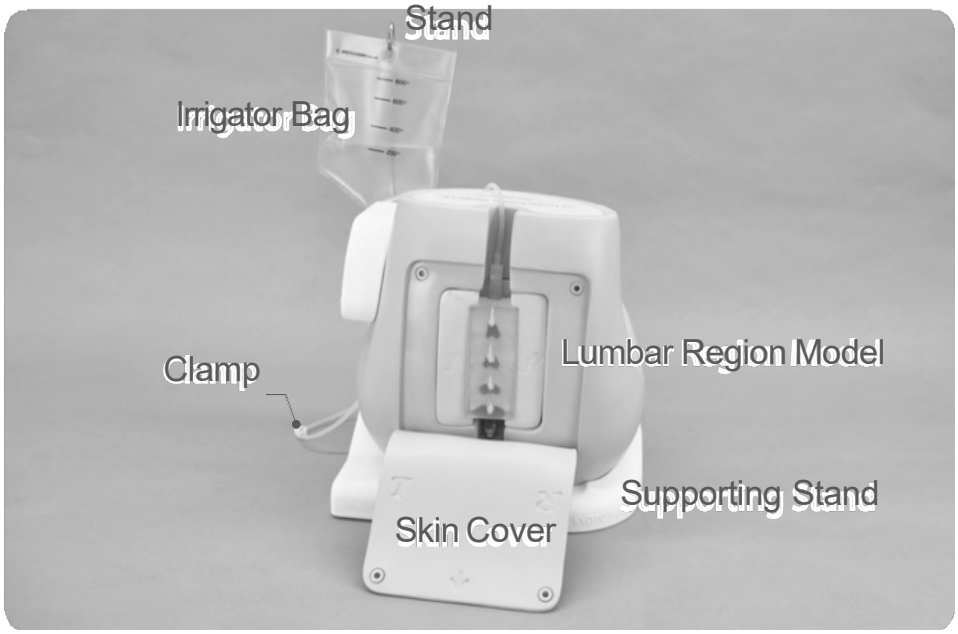
The orientation marks come on the inner side of the skin cover.

5 Ready

●The simulator is ready for training (with the normal CSF block).



Lateral position



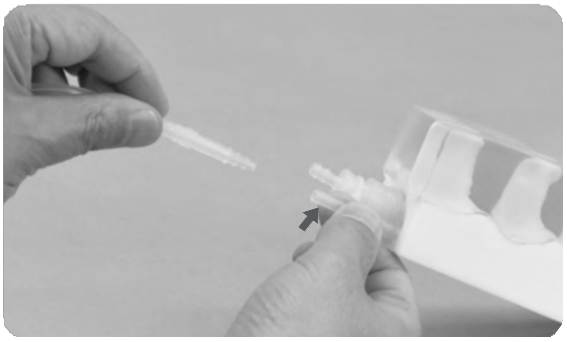
Sitting position

*In the photos, the skin cover is opened to show internal components.

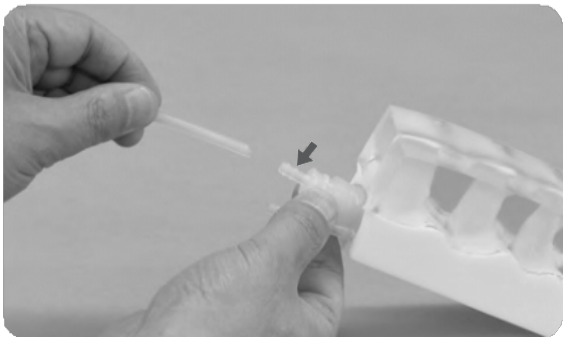
⚠ Caution

CSF pressure can be adjusted by changing the height of the irrigator pole.

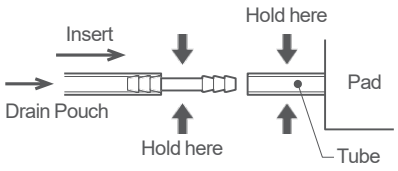
1 Preparation of the epidural block

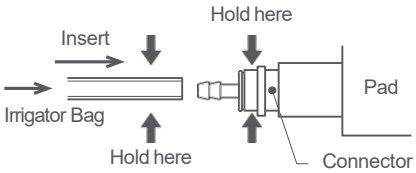


Empty the drain pouch completely.



Connect the tube tip from the drain pouch to the side connector tube.
Then set the block to the simulator with the same process as the CSF block.



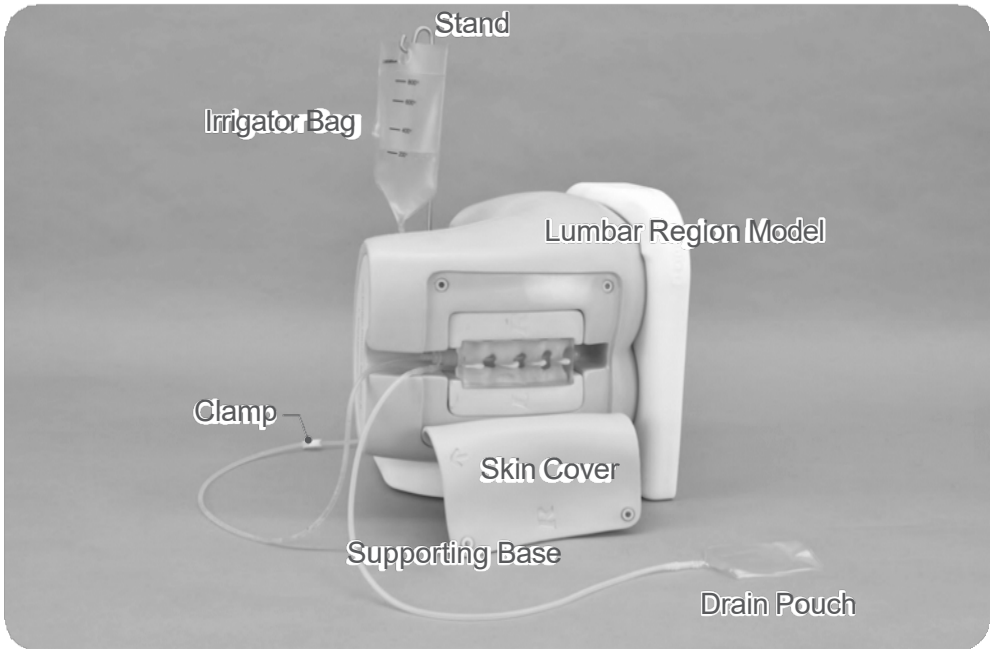


Caution

Hold the tube at the end of the pad as shown above and connect it with the tube from the irrigator bag.

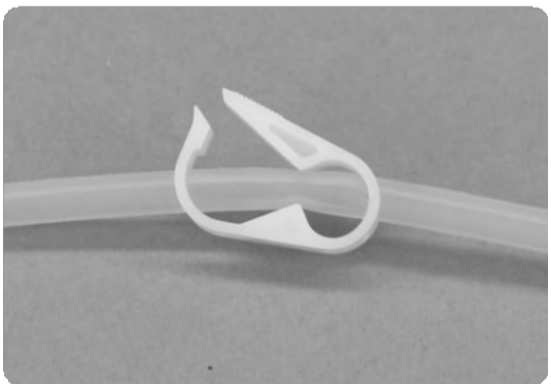
2 Ready

The simulator is ready for training (with the epidural puncture block)

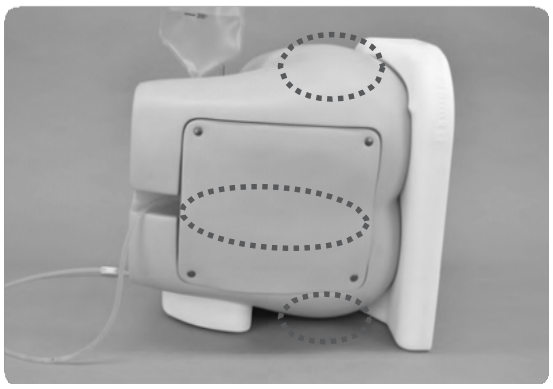


1 During your training session

Release the clamp

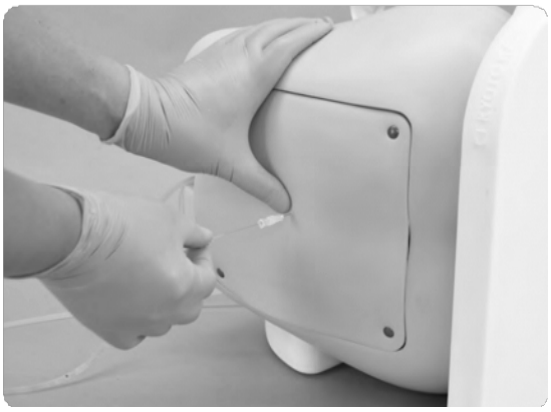


Find the landmarks



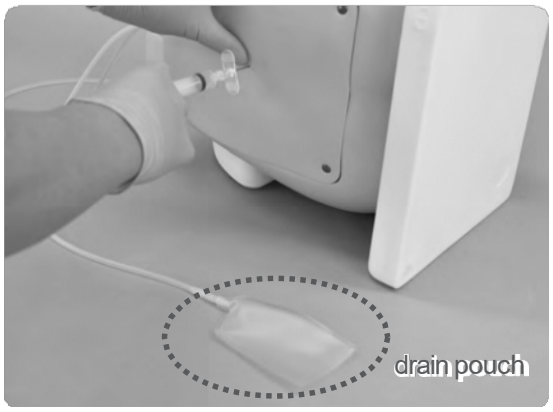
Landmarks can be palpated.

CSF collection



When the needle tip reaches the subarachnoid space, water (simulated CSF) can be collected.

Epidural puncture



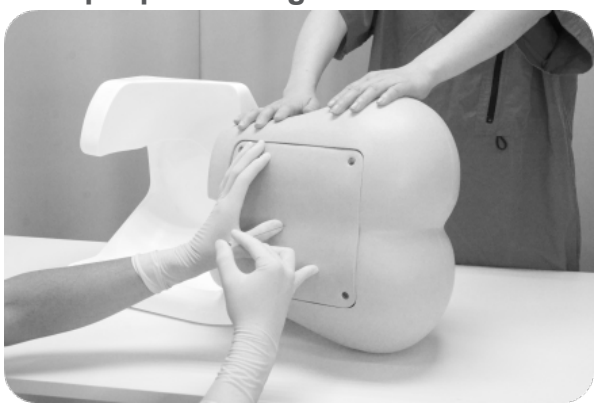
Make sure that the needle is not in the subarachnoid space (no water flows out), and then inject water (simulated saline) or air into the epidural space. Successful performance can be confirmed by observing the injected air/water flows into the drain pouch.

⚠ Caution

Empty the drain pouch after each trial.
When the puncture pad Is worn out, water/air may be able to be injected even if the needle tip has not reached the epidural space. When this occurs, change the puncture site or replace the pad with a new unit.

1 During your training

Two people training



Team-based training with one participant maintaining the patient's position while the other performs the puncture.

Remove the lumbar region model from the supporting stand.

Place the stand in the sitting position and put your fingers under the lumbar region model. Then draw the model to disengage it from the stand.

The dismounted stand and the lumbar region model.

After Training

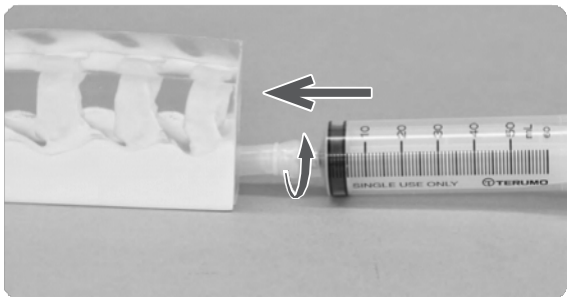
1 Remove the block from the model

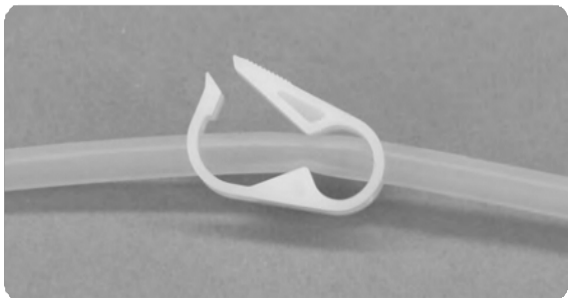
Remove the model skin cover and remove the puncture block from the Lumber Region Model, holding it by its base.

⚠ Caution

Do not pull on the tube.

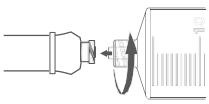
2 Drain the water



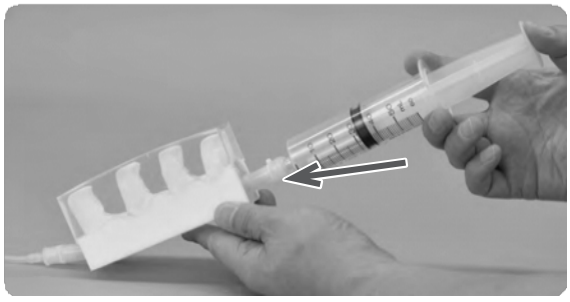


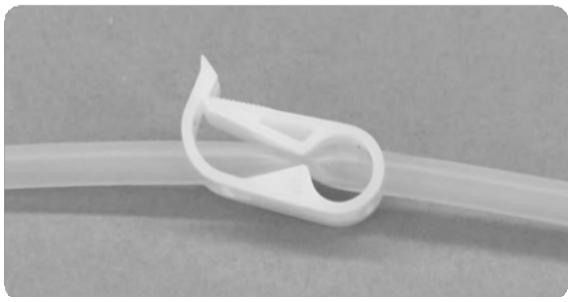
1. Connect the syringe to the puncture block.

   Pull back the syringe's piston to at least the 50ml mark. Lock the syringe onto the connector on the block by turning clockwise.



2. Release the clamp.



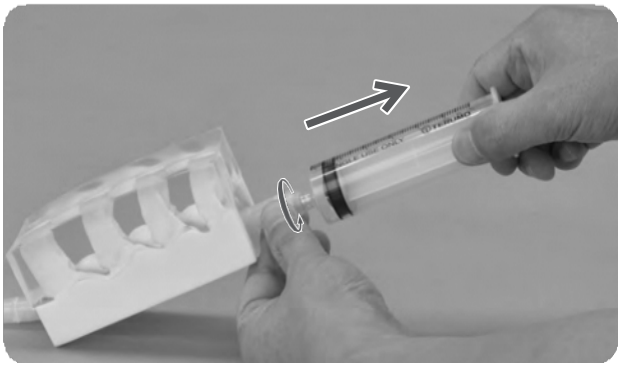


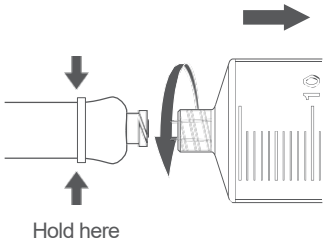
3. Inject air into the tubing.

   Slowly depress the piston and push air into the water-filled block until all the air has been injected.

4. Close the clamp.

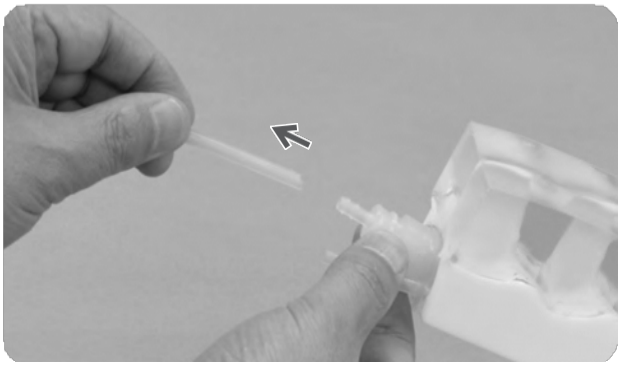
3 Take out the syringe and the drain pouch



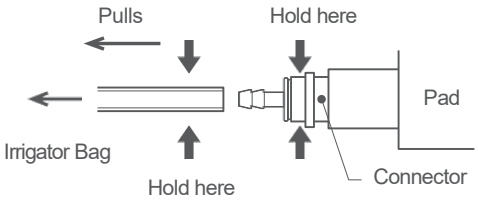


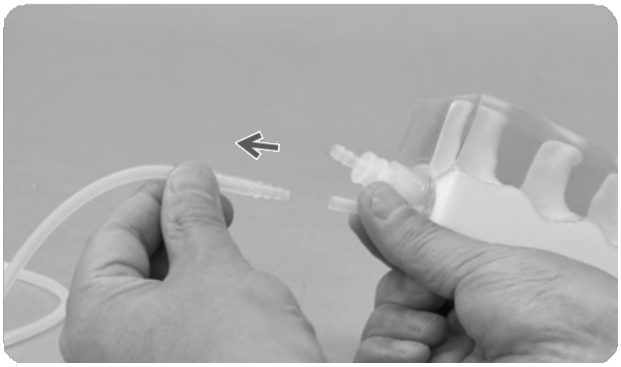
Remove the syringe.

Turn the syringe counter-clockwise to remove it from the block.
Disconnect the reservoir tube from the block.

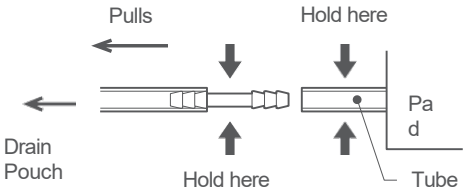


Take out the irrigator Bag





Take out the drain pouch



Take out the drain pouch.

Disconnect the drain pouch from the epidural block and empty the pouch.

Caution

Hold the tube at the end of the pad as shown above and connect it with the tube from the irrigator bag.

* If you wish to continue the session, return to P6 and set a new block.
When your session is finished, empty the irrigator bag and dry all used components naturally and store them in room temperature, avoiding direct sunlight or exposure to elements.

Trouble shooting

Quick check-up before calling the customer service. Use the table if you have problems using the simulator. Look in this section for a description of the problem to find a possible solution.

FAQs

Q, Water does not come out even if the needle tip is surely in the subarachnoid space.

A, Is the clamp released ? Is the tube folded ?

A, Is the water surface in the irrigator bag at 200ml or above ?

A, 21G is the recommended needle size for CSF collection training with the simulator.
If you still experience the difficulties, please try with a larger needle.

A, Is your needle clogged ? Please try using a new needle.

A, Are there bubbles in the tubing? Remove the bubbles. (see P5.5)

A, The fluid comes slowly, drop by drop. Wait and see for 2-3 seconds.

Q, The soft tissue part of the puncture block is coming off when I grab the block.

A, The soft tissue and bone part of the puncture blocks are not adhered.
The soft part may look like it is coming off when you grab it too tightly. To make the blocks last longer, we recommend holding the hard part at the base when handling them.

Q, (Epidural puncture pad) Water/air can be injected even if the needle tip has not reached the epidural space.

A, The puncture block is worn out. When this occurs, change the puncture site or replace the pad with a new unit.

⚠ Caution Do not let ink from pens, newspapers, product manual or other sources contact the manikin. Ink marks on the manikin will be irremovable.

•For inquiries and service, please contact your distributor or KYOTO KAGAKU CO., LTD.

Consumables and replacement parts

Product Code	Mark	Part Name
11348-090	N	Normal CSF Puncture Block
11348-110	O	Normal Obesity CSF Puncture Block
11348-120	NS	Senior CSF Puncture Block
11348-130	OS	Senior Obesity CSF Puncture Block
11348-140	EP	Epidural Puncture Block
11348-150		skin cover Light tone for M43B/BB/PH51
11348-150-D		skin cover Dark tone for M43B/M43BB

■ Main Office and Factory (World Wide)

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FAX: + 81-75-605-2519

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