How-to videos

SimMan 3G PLUS

LAERDAL

User Guide

20-18071 Rev B

Introduction

- Introduction to the Patient Simulator
- Operating Software
- Network Connectivity
- Items Included

SimMan 3G PLUS is a realistic interactive Training Simulator for simulating a wide range of advanced clinical skills and assessment including use with real clinical equipment.

It is tetherless, Wi-Fi operated, with the flexible control solution Laerdal Learning Application (LLEAP) depending on training needs. The simulator responds to clinical intervention, instructor control, and pre-programed scenarios for effective practice of diagnostic skills and patient treatment.

Refer to **SimMan 3G PLUS Quick Setup Guide (QSG)** and **LLEAP Help Files** for more information on operation and connection.

Read the **Important Product Information** booklet before use.

Refer to the Laerdal Global Warranty for terms and conditions. For more information visit www.laerdal.com.

Operating Software

The Simulator is operated and controlled by LLEAP - Laerdal Learning Application.

Laerdal Simulation Home

Laerdal Simulation Home is located in the Laerdal Medical folder under the Windows start menu.

LLEAP, LLEAP Help files and other Laerdal programs related to patient simulation are accessed through Laerdal Simulation Home.

LLEAP

LLEAP is the instructor's application from where the simulation session is run, controlled, and monitored. Installed on a laptop, PC or tablet, LLEAP can be operated in Automatic or Manual mode. Automatic mode is used for pre-programed scenarios while Manual mode allows the instructor full manual control over the simulation session. Running simulations in Manual mode generally requires some medical expertise to create clinically sound simulations.

Other Applications

The following applications are available in conjunction with the simulation sessions:

- The Patient Monitor application emulates a typical hospital patient monitor. It is the learner's console and can be set up and controlled by the instructor, as well as by the learner, through on-screen touch menus.
- Voice Conference Application (VCA) transmits all vocal sounds used during simulation. It enables the instructor to communicate through the simulator during the session.
- Session Viewer, SimView Server and SimView Mobile are applications that record video and patient monitor screen captured during simulation, in addition to providing an interface to debrief your session. After a session is ended, log files generated in LLEAP are transferred and merged with the video files in Session Viewer, SimView Server, SimCapture and SimView Mobile for the debriefing.
- License Manager for handling program licenses.
- Simulator Firmware & Network Wizard for updating the firmware of the simulators or troubleshooting network problems.
- SimDesigner for configuring your own pre-programed scenarios. It can also be used to analyze and print out a graphical representation of a scenario. SimDesigner must be installed to allow conversion of legacy instructor application files to LLEAP compatible file formats.
- Network Selector in Laerdal Simulation Home helps users connect LLEAP and Patient monitor to a wireless network and even host a network (Windows Hosted Network).

For a full overview of all applications and their help files, start Laerdal Simulation Home.

Opening Laerdal Simulation Home

Watch "How-to video"

Click on link or scan QR code to watch the "How-to video"

SimMan 3G PLUS provides 3 network connectivity options to ensure uninterrupted sessions wherever a simulation is taking place.

Option 1 Enterprise Network

The standard network connectivity is delivered by the integrated USB Wi-Fi dongle. The dongle connects to a local enterprise IT network for improved speed and signal strength.

Option 2 Router

If a local or ad-hoc network is required, a router (Laerdal or user's own) can be used.

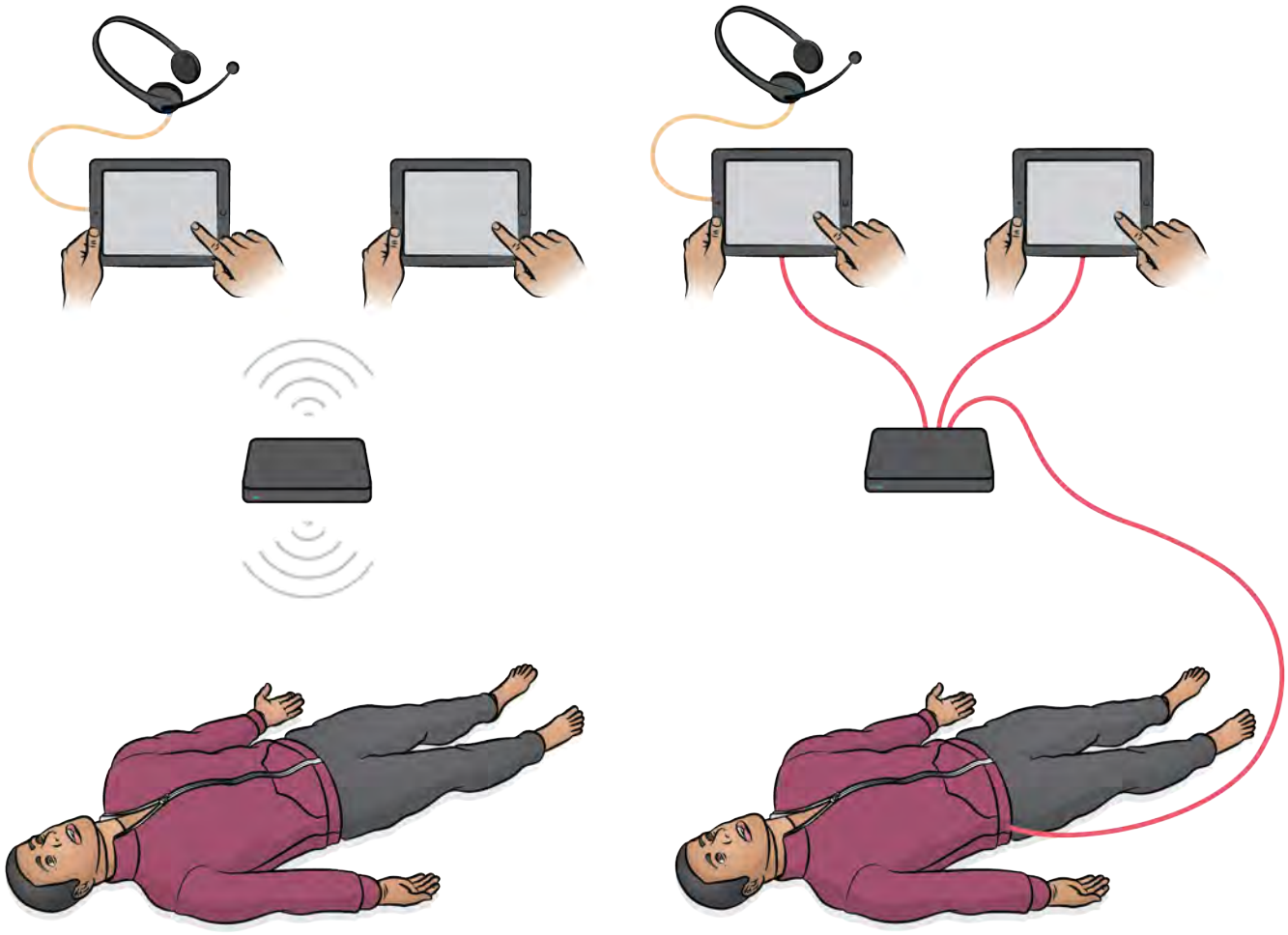
Option 3 Mobile Router

A portable, battery-operated router can be used for outside simulation sessions where an enterprise network may not be available.

For more information on network setup, connectivity and available routers contact Laerdal Help Desk.

Wi-Fi Setup or Wired Setup

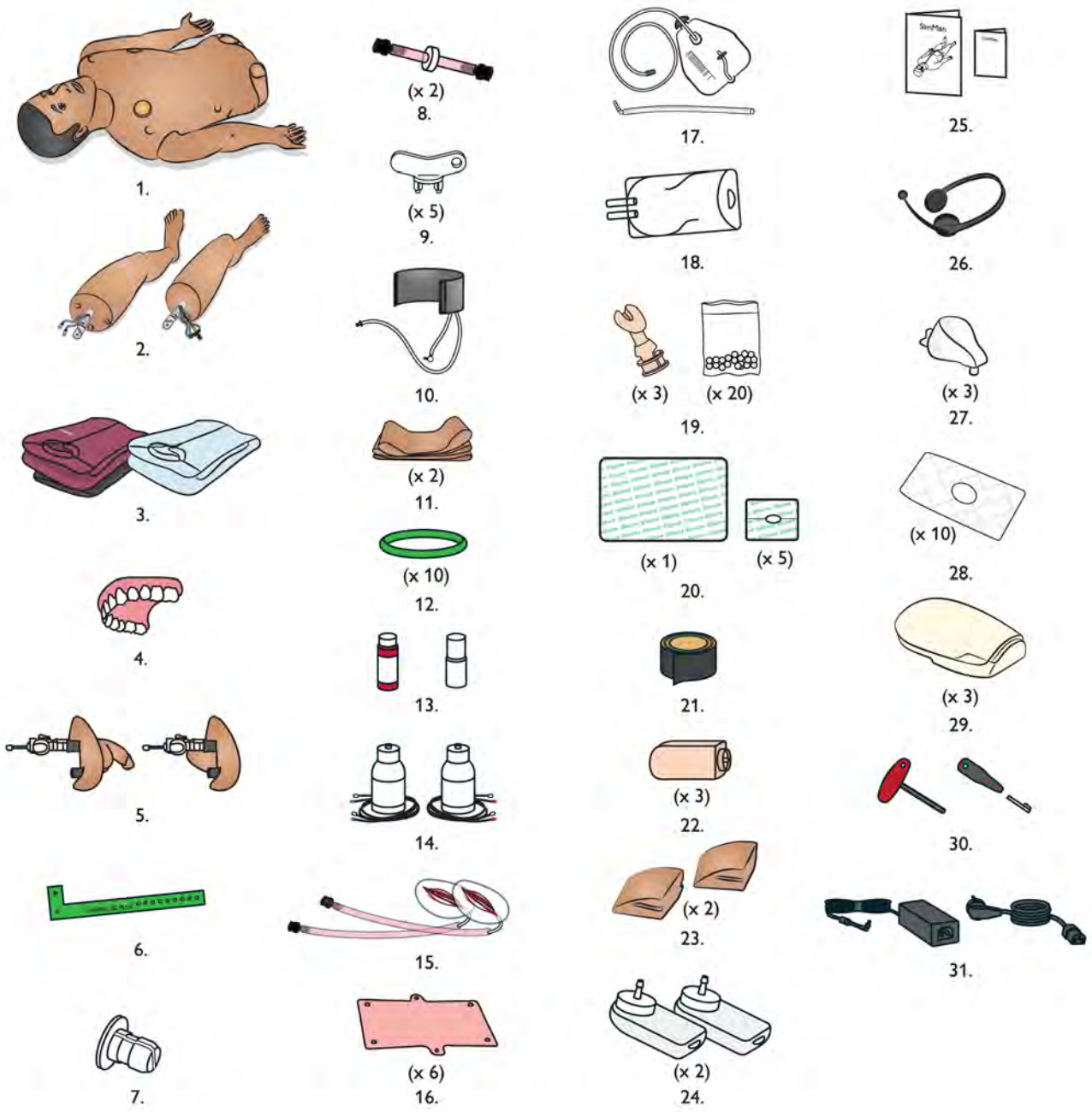
The Patient Simulator can have a Wi-Fi setup or wired setup, depending on simulation requirements.



Items included

1. Upper Torso
2. Legs
3. Clothes
4. Hard Upper Teeth
5. Male & Female Genitalia
6. ID Band
7. SimMan Arm Adapter
8. Inline Filter Blood
9. ECG/Defib Tightener
10. NIBP Cuff
11. Neck Skin
12. Lung Compliance O-ring
13. Blood Concentrate and Airway Lubricant
14. Fill and Drain Bottles
15. Wounds Kit
16. Chest Drain Pleura
17. External Reservoir Bag (2000 ml) & Tube with elbow connector
18. IV Bag
19. IV Port & Seal
20. Silicone Dressing Base
21. Cricothyroid Tape
22. Tibia Pads & Bone
23. Pelvis IM Pads
24. Pneumothorax (bladder)
25. Quick Setup Guide & Important Product Information
26. Headset
27. Arm IO Bone
28. Absorbent Sheet
29. Arm IM Pad
30. Tools
31. External Power Supply

Visit www.laerdal.com for accessories overview.



Features & Overviews

- Features Overview
- Panels Overview
- Articulation Overview
- Injection Sites Overview

Features Overview 1

Airway and Breathing

- Configurable Airways (including tongue edema, pharyngeal swelling, laryngospasm)
- Head Tilt, jaw thrust and chin lift
- Spontaneous Breathing
- Chest rise and fall

Assessment Capabilities

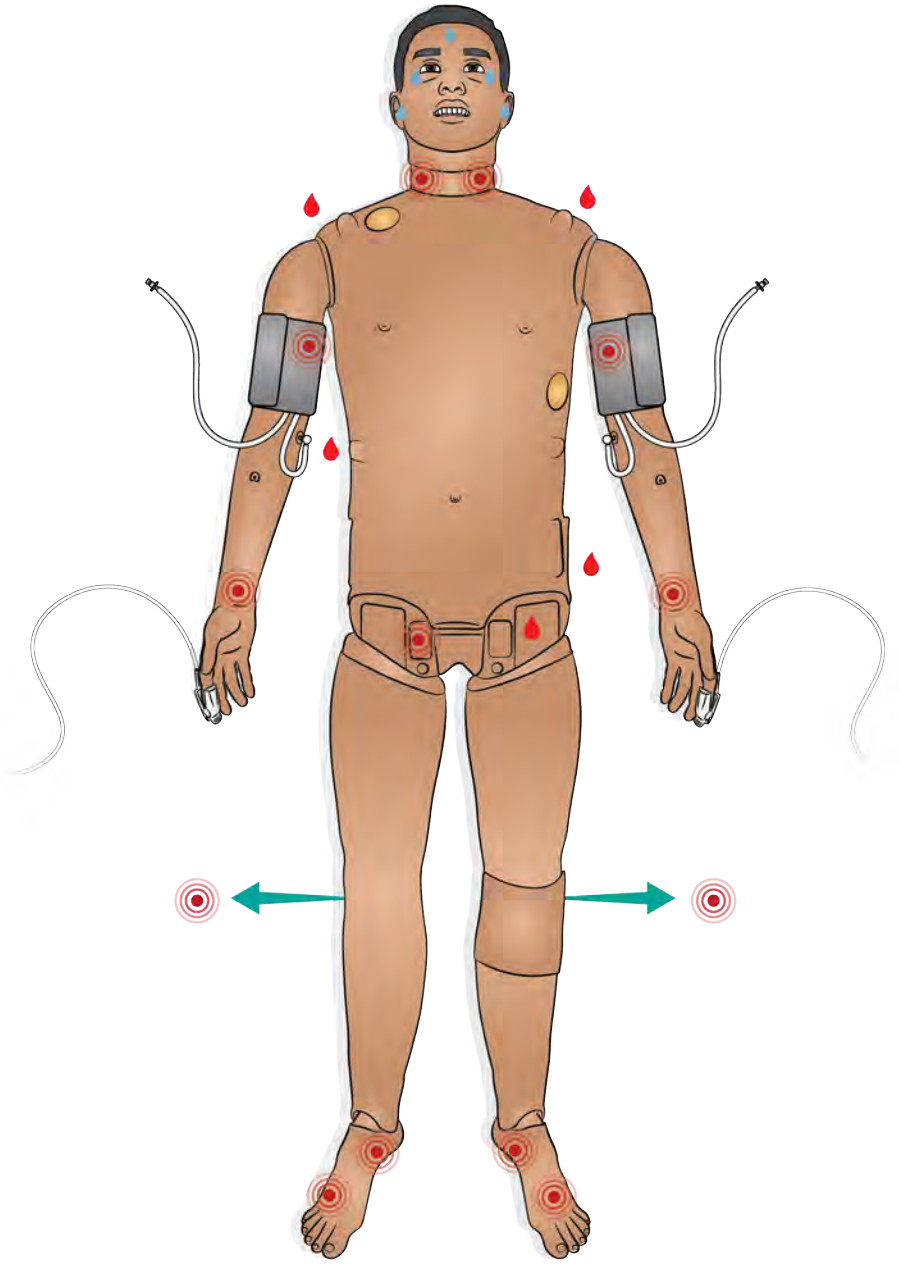
- Automatic Non-Invasive Blood Pressure (NIBP)
- Bilateral Carotid, Brachial, Radial, Femoral, Popliteal and Pedal Pulses
- SpO_2 monitoring
- Configurable eye, eyelid and pupil settings
- Heart, lung, bowel and vocal sounds

Clinical Interventions

- Bag Valve Mask (BVM) ventilation
- Laryngeal Mask (LMA) placement
- Oral, nasal and endotracheal intubation
- Suctioning (oral & nasopharyngeal)
- Cricothyrotomy
- Pneumothorax Needle Decompression and Chest tube insertion
- Bilateral Intramuscular (IM), Intravenous (IV) and Intraosseous (IO) injection
- Catheterization

Immersive Simulation

- More diverse patient representation
- Fully articulating arms and legs
- Palpable skin and anatomical landmarks
- Anatomically correct male and female genitalia
- Bleeding Simulation
- Secretion Simulation



Features Overview 2

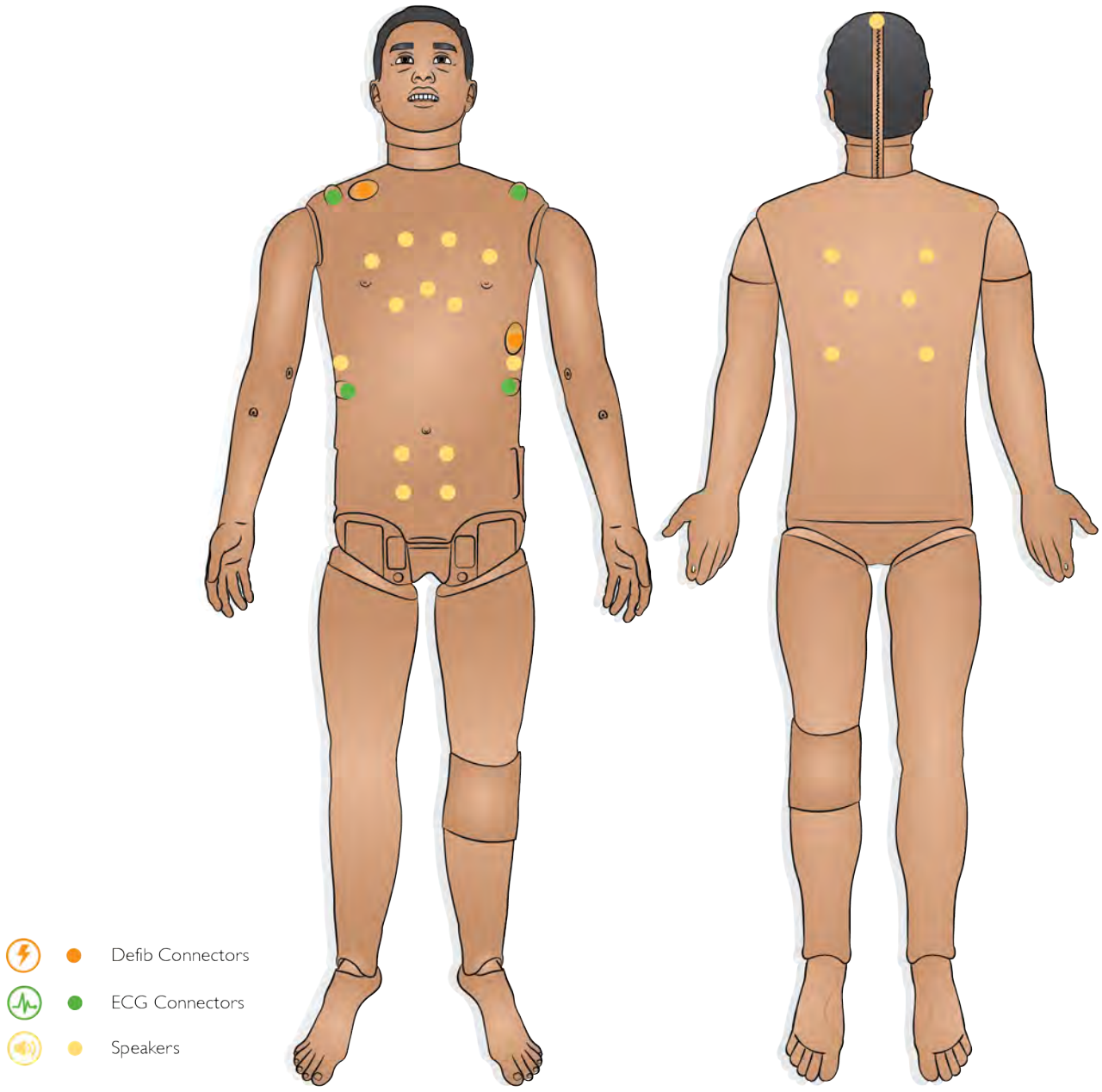
Cardiac and Resuscitation

- LiveShock skin for defibrillation options
- Cardioversion
- ECG rhythm monitoring
- External pacing
- CPR capable

Note

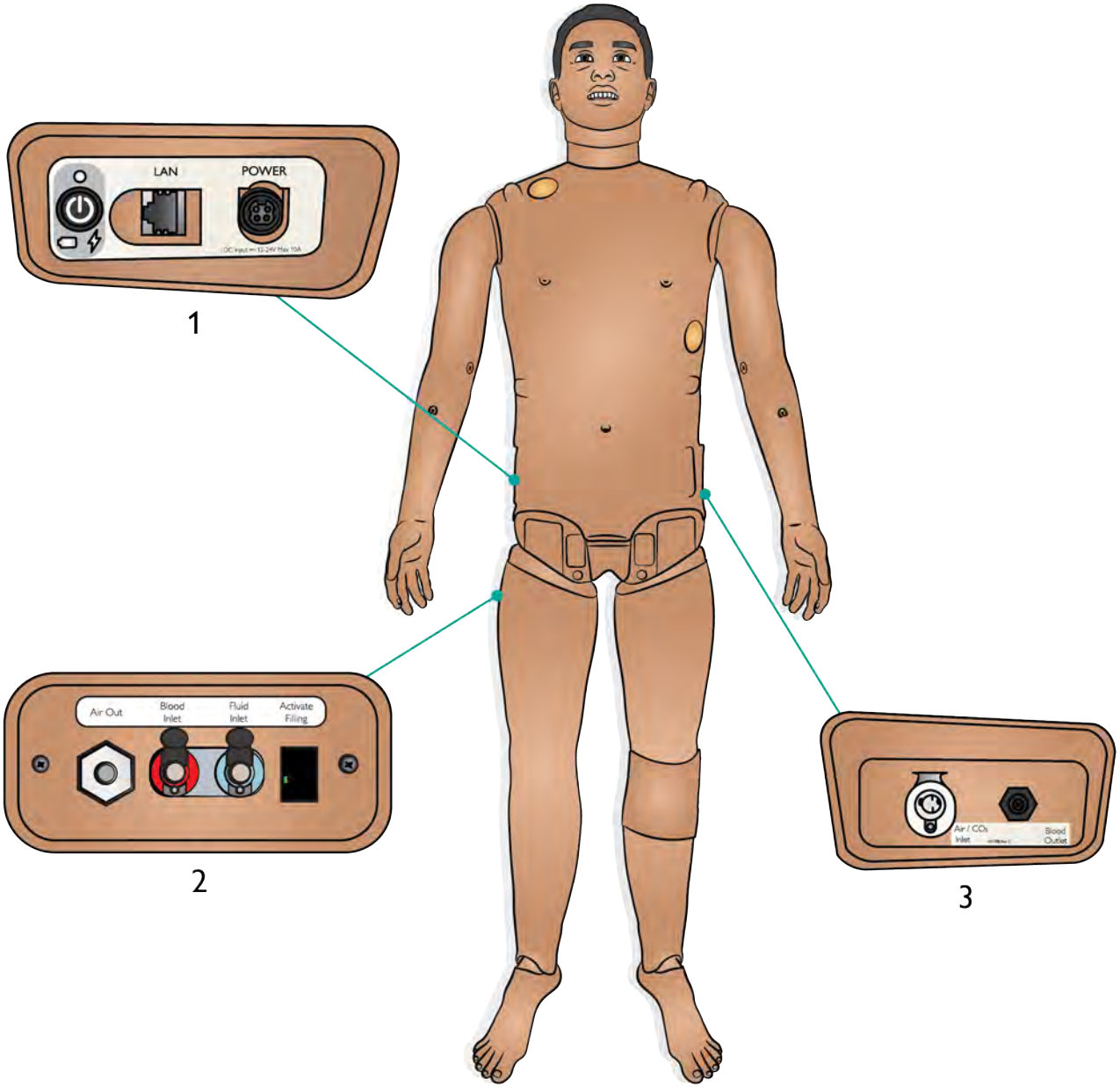
SimMan 3G PLUS provides CPR measurement and feedback compliant with AHA 2020 guidelines. LLEAP provides real-time feedback on the quality of depth, release and frequency of CPR. CPR compressions generate palpable pulses, blood pressure wave form, and ECG artefacts.

Refer to **LLEAP Help Files** for more information. SimMan 3G PLUS has been verified for use with the LUCAS 2 Chest Compression System.



Panels Overview

1. Power Panel
2. Fluid Fill Panel
3. Air/CO_2 Panel



Power Panel Overview

1. Power Status

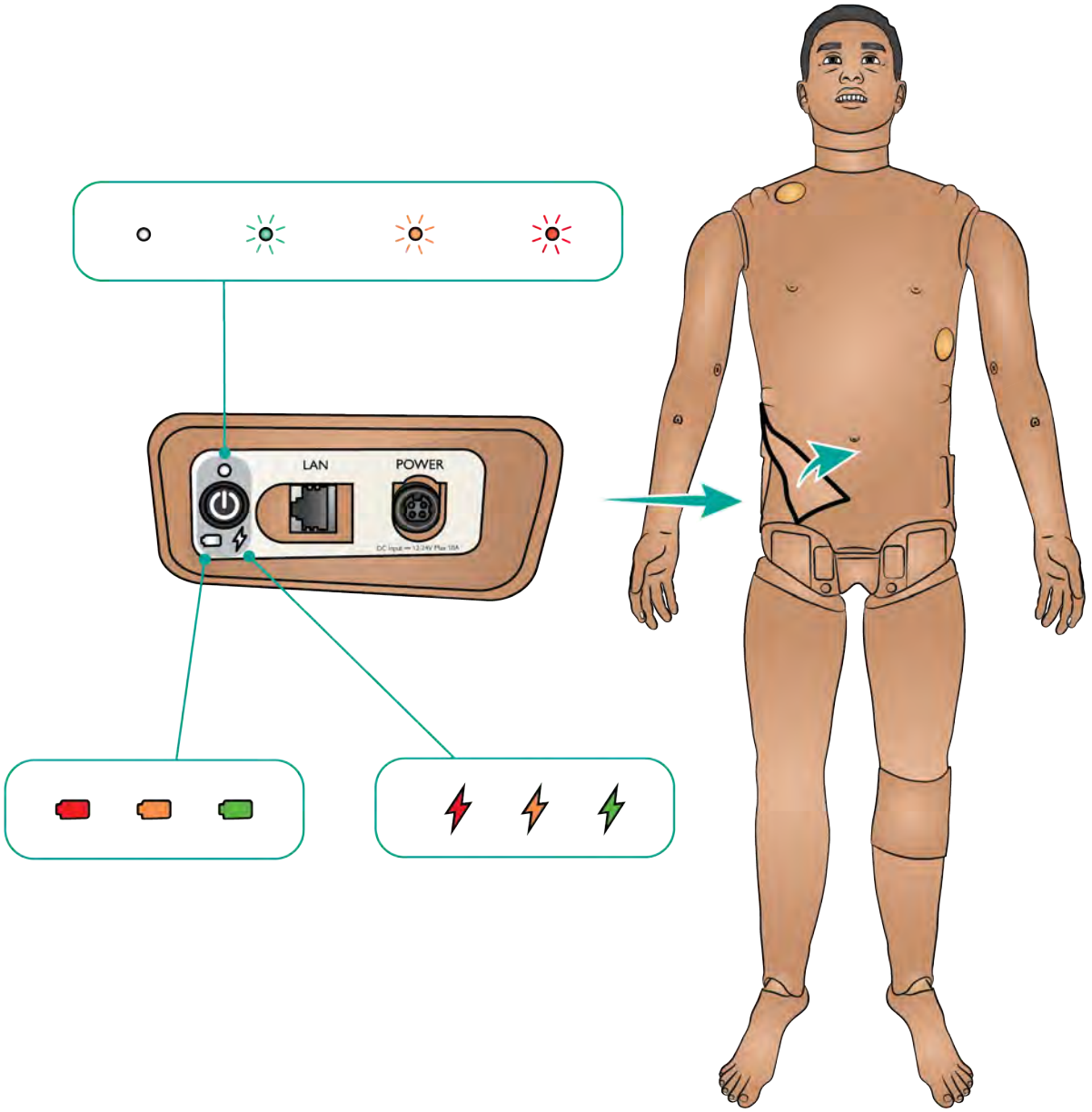
- No Light - Power Off
- Green - Power On
- Orange - Start-up
- Flashing Red - Power Save

2. Battery Status

- Red - 0 - 20%
- Orange - 20-70%
- Green - 70-100%

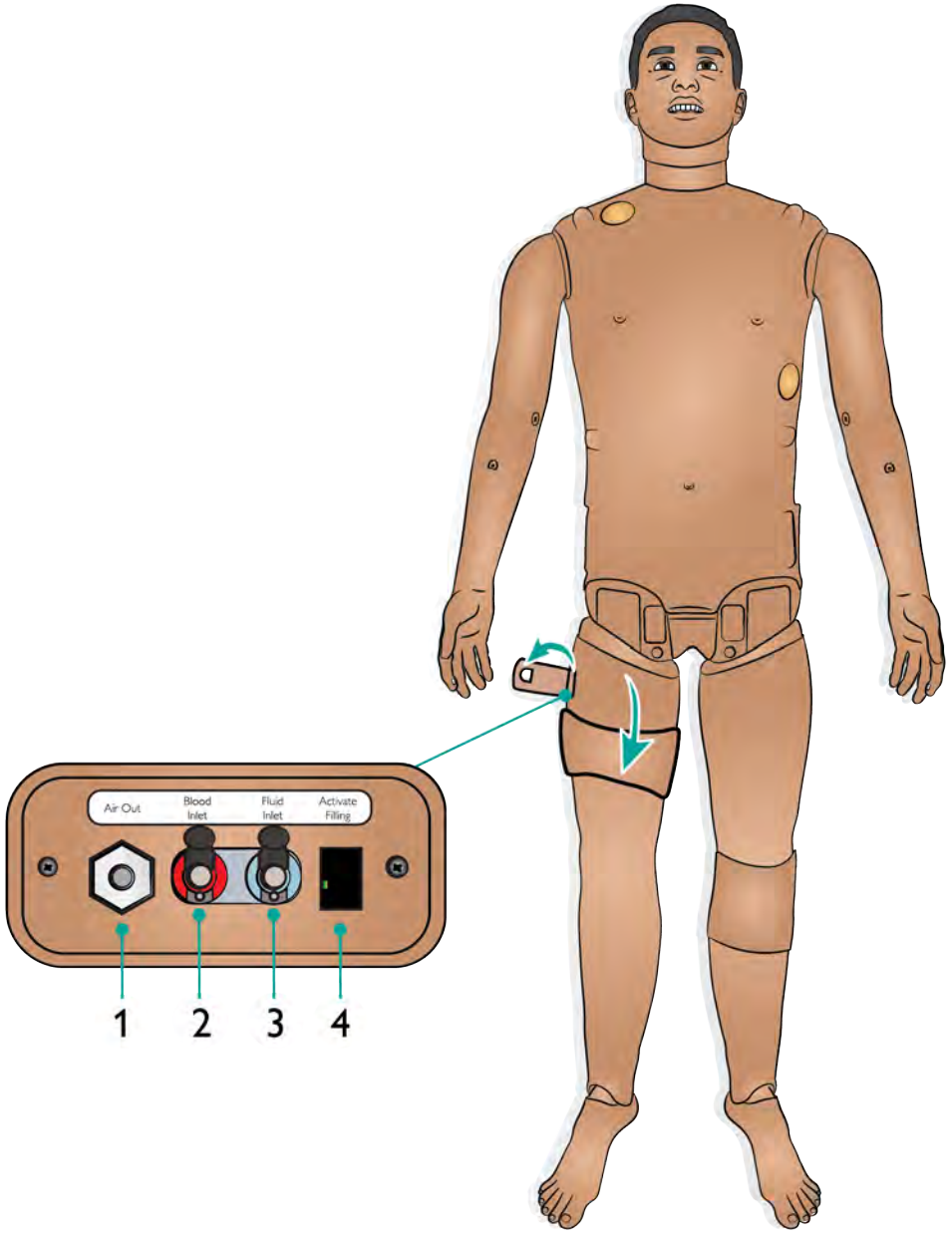
3. Charge Status

- Red - Not charging (check batteries)
- Orange - Charging in Progress
- Green - Charging almost complete



Fluid Panel Overview

1. Air Out
2. Blood Inlet
3. Fluid Inlet
4. Activate Filling



Air/CO_2 Panel Overview

The Air/CO_2 panel is located on the left side of the Patient Simulator's torso. Access the panel by lifting up the skin flap and removing the protective covering.

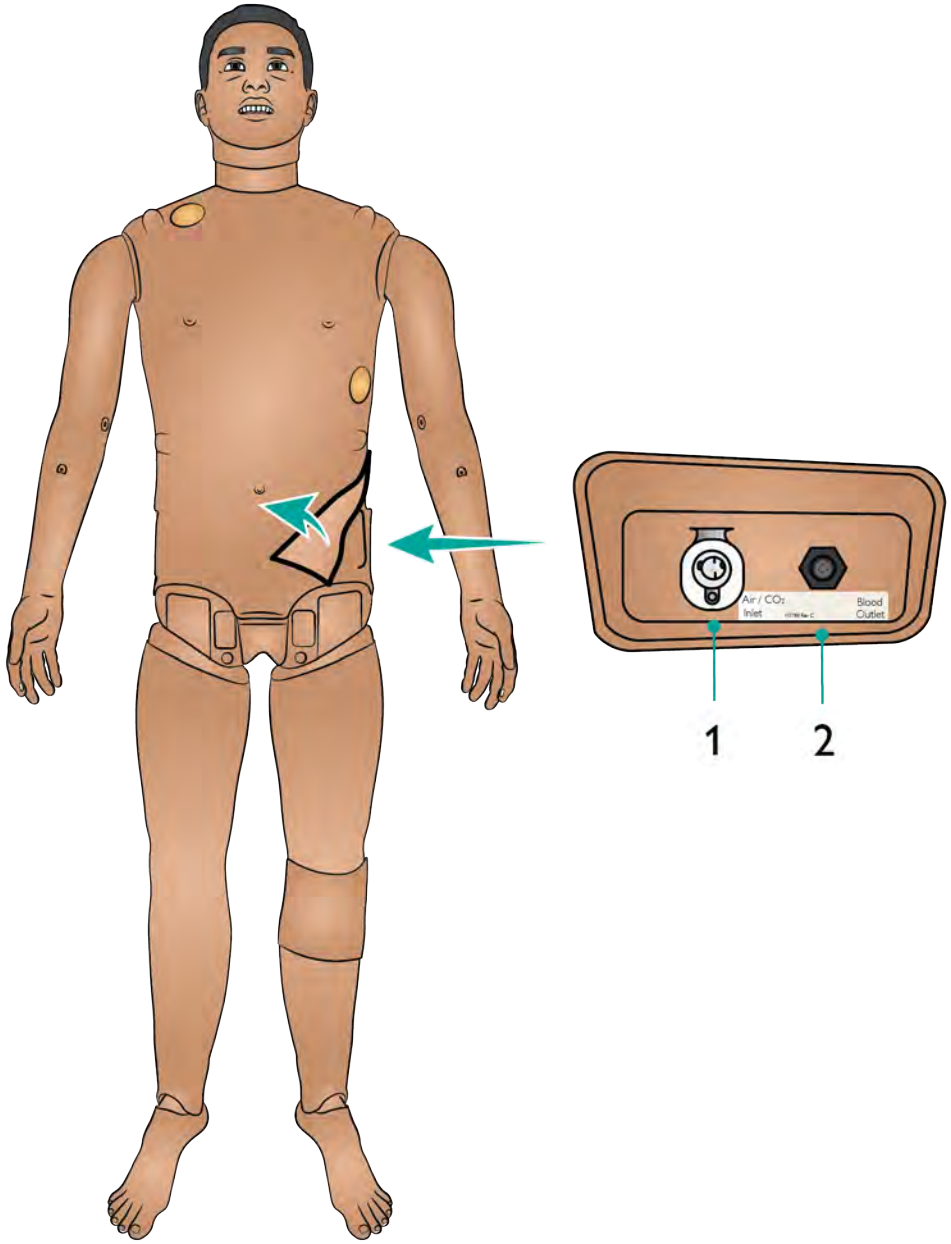
If the Patient Simulator is required to exhale CO_2 with each ventilation, connect an external CO_2 supply. An external supply of compressed air can be connected when the Patient Simulator is stationary over extended periods.

Connect a suitable CO_2/external air source to a Laerdal external compressor or regulator panel.

Connect a Laerdal double-lumen Air/CO_2 tube from the external compressor or regulator panel to the Air/CO_2 inlet on the panel.

Refer to the **Important Product Information** booklet for information on maximum external air and CO_2 connection limits.

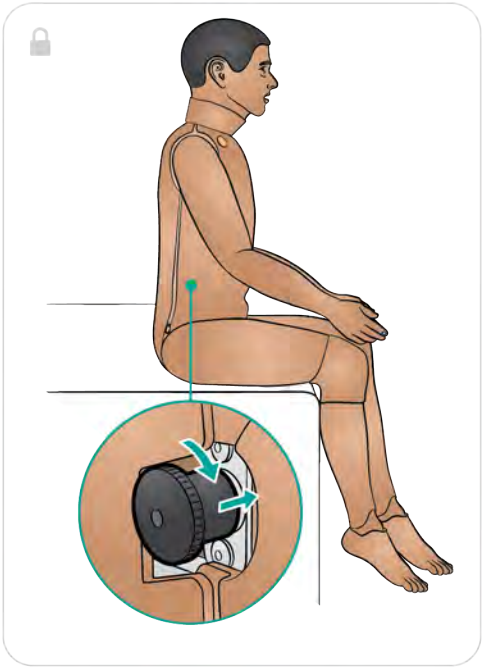
For more information on external compressors and regulator panels compatible with SimMan 3G PLUS, contact your local Laerdal representative.

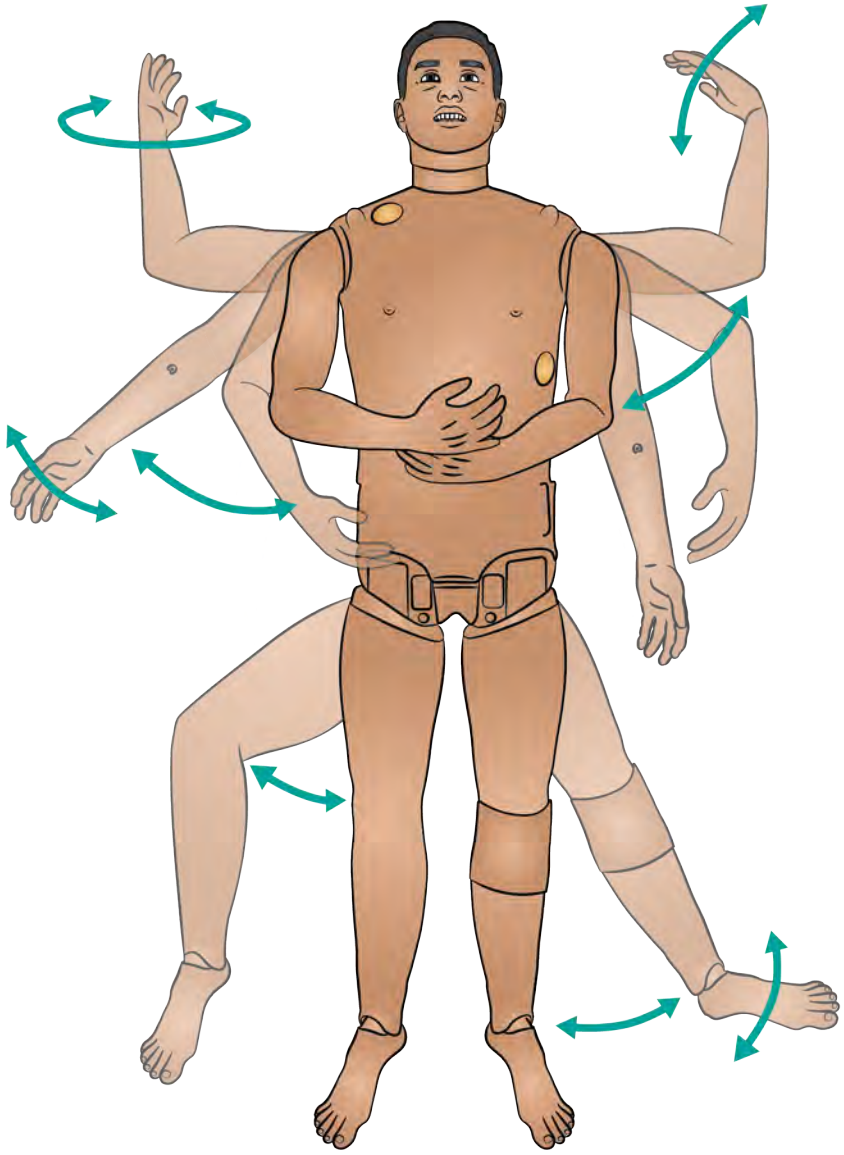


Articulation Overview

The Patient Simulator has a range of limb and joint articulation providing immersive patient handling.

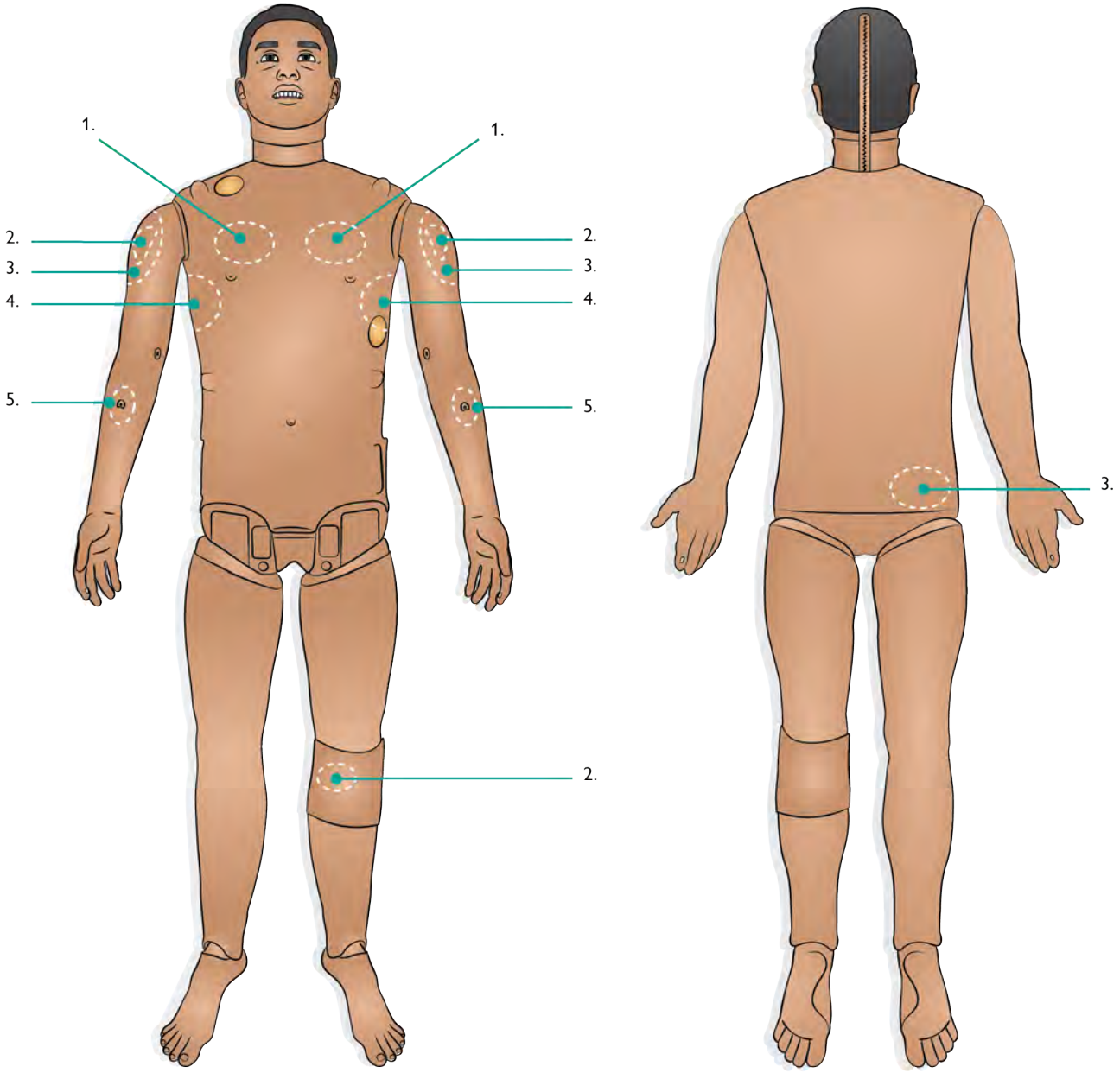
Joint	Range of Mobility
Neck	3-axis movement of the head
Shoulder	At least: 160° flexion of arm 30° extension of arm 70° abduction of arm 90° medial rotation
Elbow	At least 90° flexion; 90° medial rotation
Thumbs	Free mobility
Wrist	Radial flexion and ulnar flexion
Lumbar	1-axis rotation
Hip Joints	3-axis rotation
Knees	1-axis rotation
Ankles	1-axis rotation





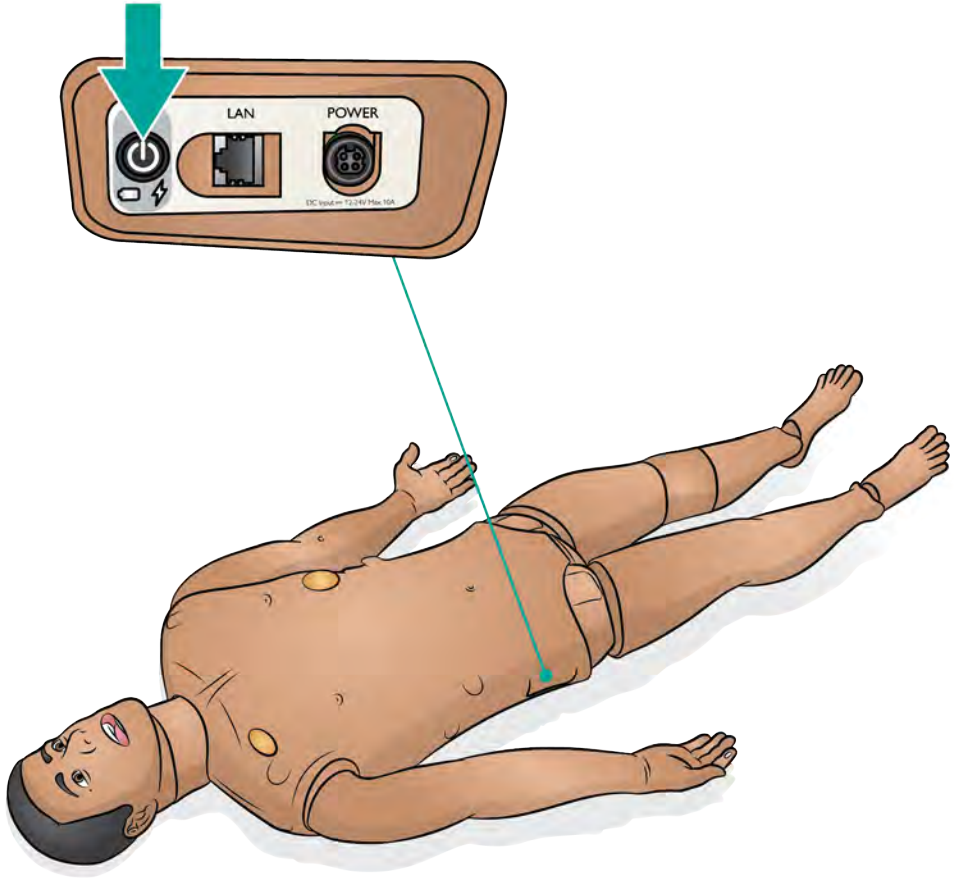
Injection Sites Overview

1. Tension pneumothorax with needle decompression can be performed at the bilateral mid clavicle line, second intercostal space.
2. Intraosseous (IO) simulation with needle insertion is possible through the left tibia and humeral in both arms.
3. Intramuscular (IM) injections can be simulated in both deltoid arm areas and upper hip.
4. Chest tube insertion can be simulated at left or right mid-axillary line in the fourth and fifth intercostal space.
5. Intravenous (IV) fluids can be simulated on both Patient Simulator arms.



Turning On

To turn on, press the power button and the power status indicator will turn orange. The Patient Simulator will say "Simulator started", the eyes will blink and there will be visible chest rise.



Charging & Battery

- Charging the Patient Simulator
- Setup Batteries
- Charging Batteries Externally

Viewing Battery Status in LLEAP

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"

Charging the Simulator

Battery

SimMan 3G PLUS is powered by 2 Laerdal Lithium Ion (Li-Ion) batteries. Always use 2 batteries together to power the Simulator and ensure that they are connected properly. Refer to Setup Batteries.

Charging

- Battery charging time is approximately 3 hours. Once fully charged, the batteries can last for up to 4 hours.
- Connect the Patient Simulator to the external power supply. Turn the Patient Simulator on to charge the batteries.
- Battery and power status can be viewed on the Patient Simulator's power panel and the Simulator Status window in LLEAP.

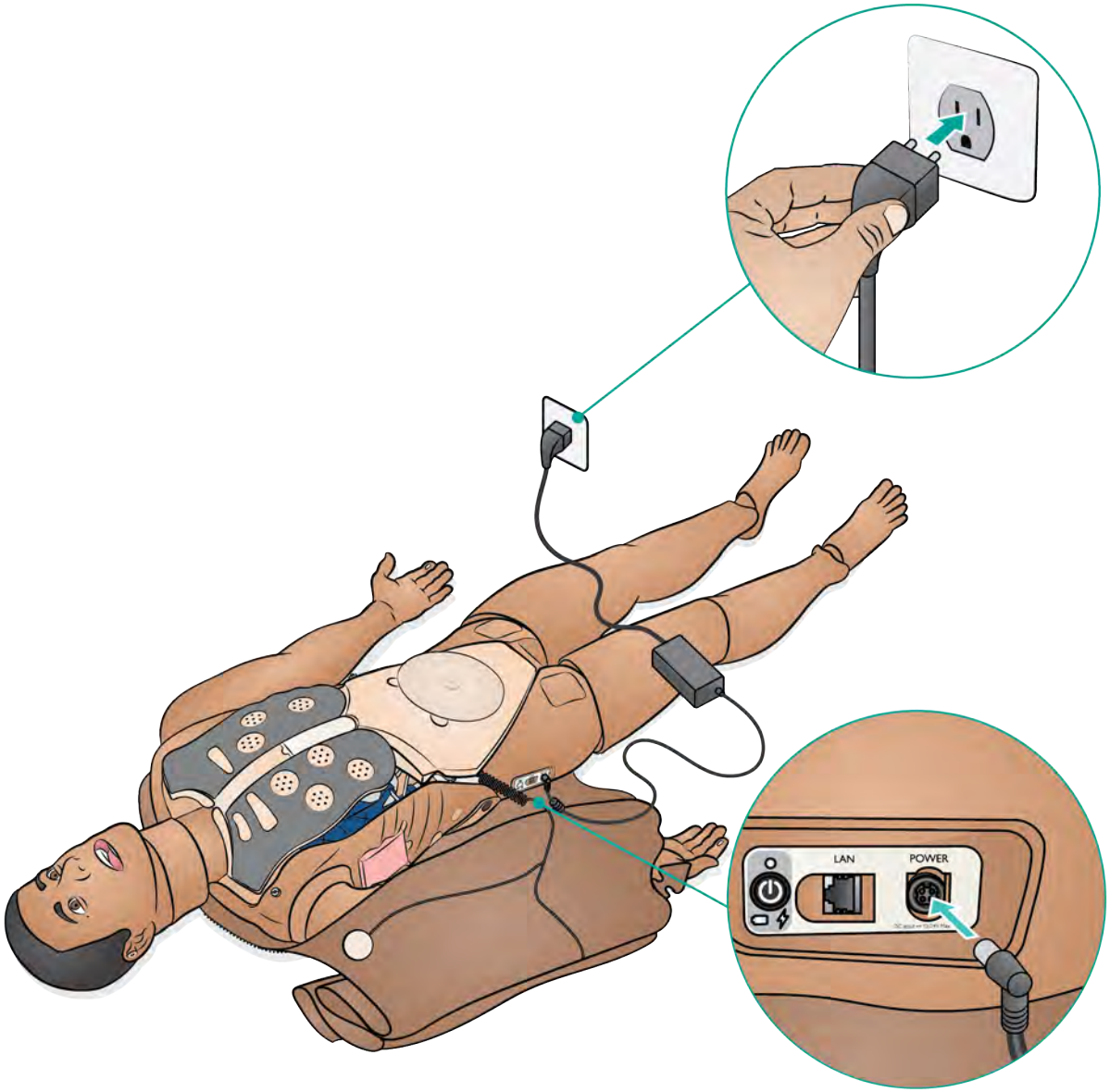
Notes

- *On approximately every 30th charge cycle, drain the battery completely before recharging. To drain the batteries, run the Patient Simulator on both batteries until automatic shutdown.*
- *The Patient Simulator will automatically shut down if battery temperature rises above 60 °C (140 °F) or the remaining charge falls below 6% on one of the two batteries.*
- *If both batteries are removed while the simulation is paused, the Patient Simulator will shut down and simulation data will be lost.*

Cautions

- *Do not run the Patient Simulator for more than 1 minute on a single battery.*
- *After the Patient Simulator is turned off, wait 20 seconds before restarting or the Patient Simulator may not function properly.*
- *Never store fully charged batteries for longer than a month.*
- *Only use the SimMan Family (except SimMan ALS) external power supply and batteries.*
- *The external battery charger is for indoor use only.*
- *Never store the batteries inside the Patient Simulator.*

Refer to the **Important Product Information** booklet for further information on battery care and specifications.



Setup Batteries - 1/2

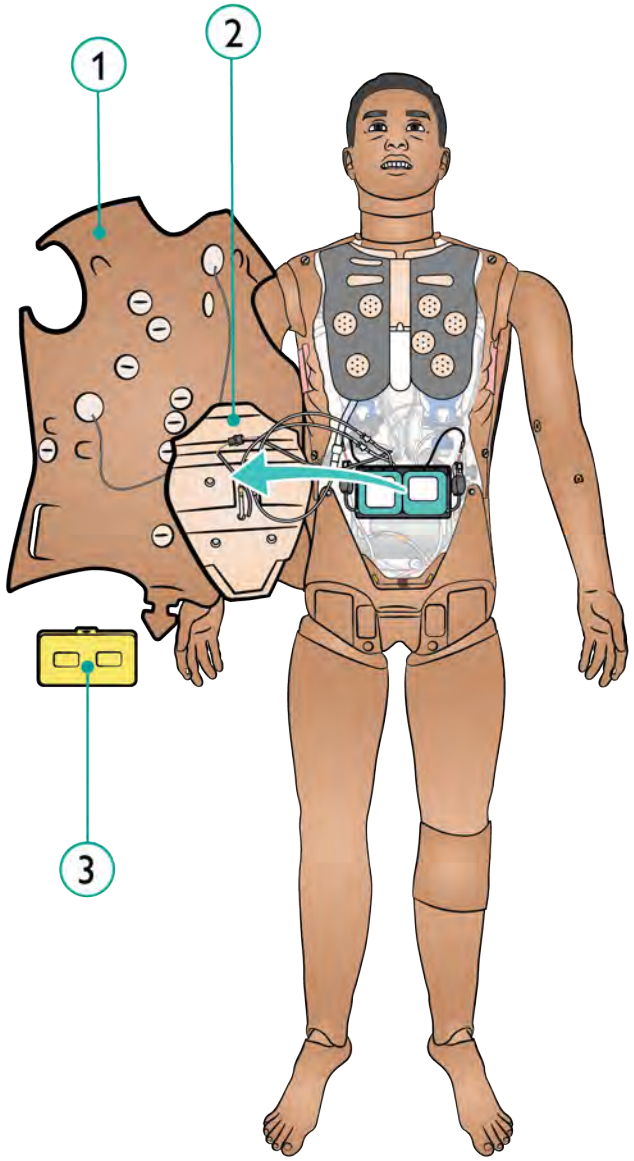
Ensure the Patient Simulator is switched off.

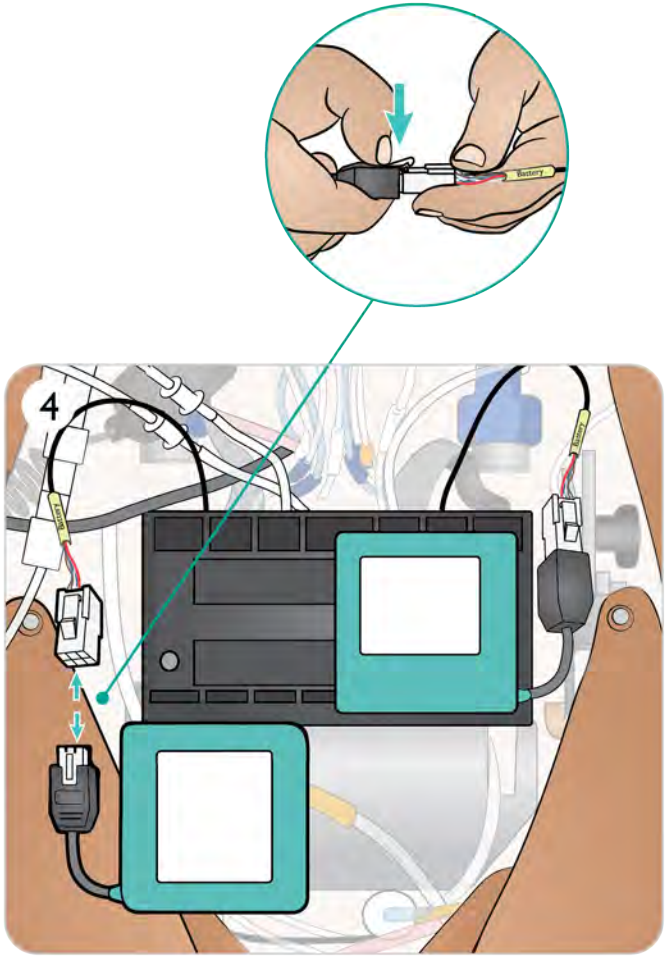
1. Unzip the skin at shoulders and torso and place to one side.

Note

Ensure the LiveShock cable has been disconnected.

2. Move the stomach foam carefully to one side to avoid pulling on connecting tubes and cables.
3. Remove battery cover.
4. Disconnect the battery cable from the torso cable as shown.





Setup Batteries - 2/2

5. **a.** Charge battery
   b. If battery(ies) are damaged, dispose or recycle in accordance with local regulations, and replace with a new battery.
6. Fully charged battery / new battery
7. Insert battery and connect battery to the torso cable as shown.
8. Replace cover once battery/batteries are connected and in place.

Note

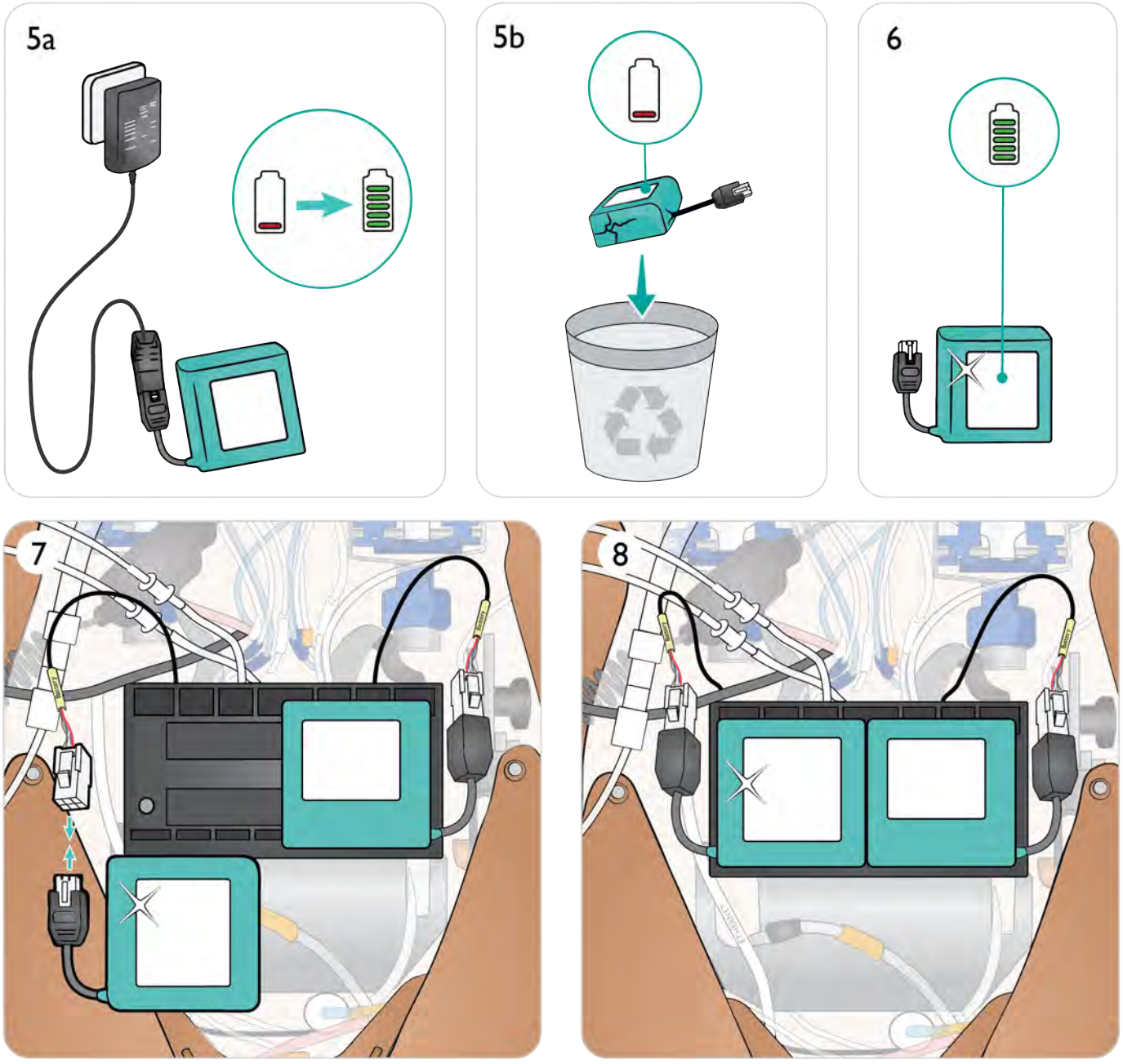
If both batteries are removed while the simulation is paused, the Patient Simulator will shut down and simulation data will be lost.

Warning

Inserting and connecting batteries incorrectly, short circuiting or exposure to fluids pose an explosion hazard.

Caution

Do not use the batteries if they are visibly damaged, malfunctioning or appear to leak electrolyte.

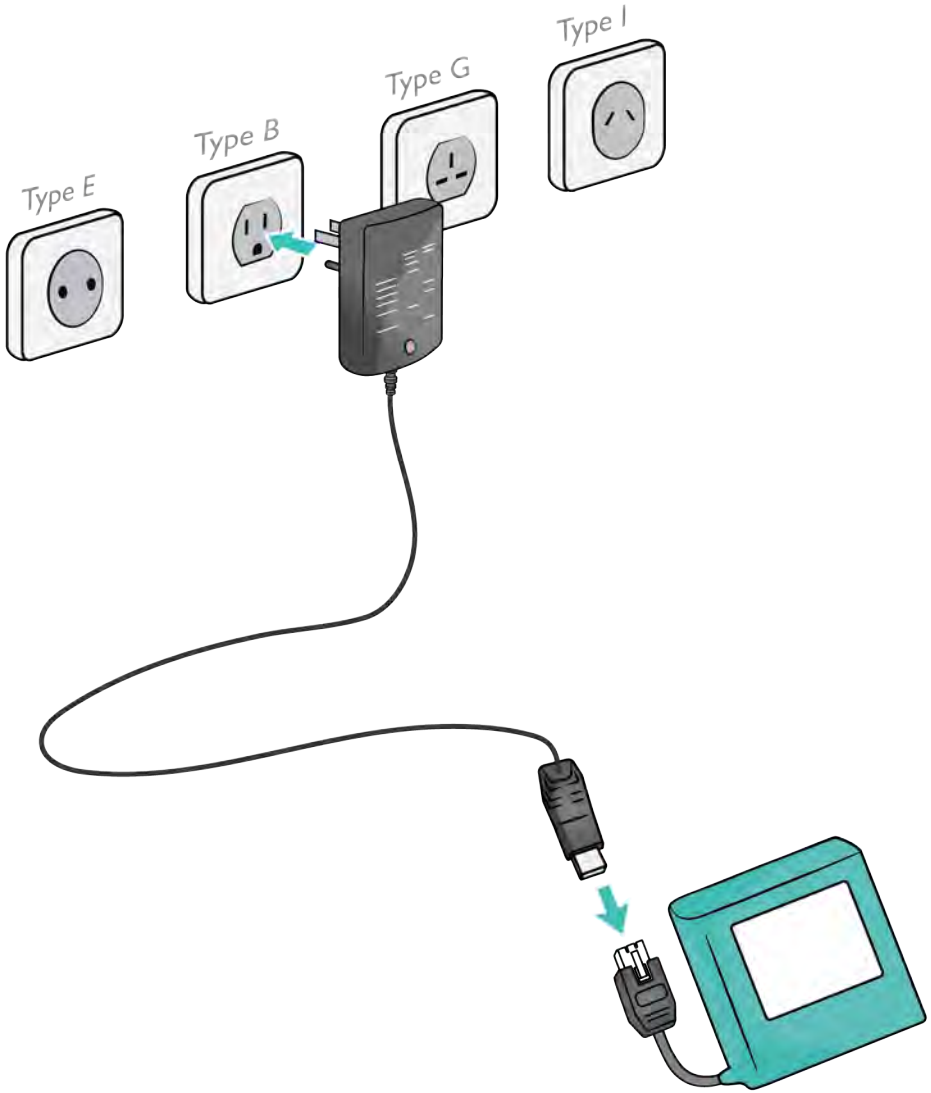


Charging Batteries Externally

The Patient Simulator battery charger comes with 5 interchangeable international plugs which can be used to externally charge batteries outside of the Patient Simulator.

Note

The charger should only be used with Laerdal Li-ion batteries.



Pre-Simulation Setup

- Prepare Air/CO_2
- Prepare Simulated Blood and Fluids
- Prepare Blood System
- Prepare Fluid System
- Prepare Secretions, Sweat and Urine in LLEAP
- Prepare Genitalia and Catheterization
- Prepare Head Skin
- Prepare Teeth
- Prepare Wound Kit
- Trauma Modules (Accessories)
- Prepare Trauma Arms (Accessory)
- Prepare Trauma Leg (Accessory)

Prepare Air/CO_2

The Air/CO_2 panel is located on the left side of the Patient Simulator's torso. Access the panel by lifting up the skin flap and removing the protective covering.

If the Patient Simulator is required to exhale CO_2 with each ventilation, connect an external CO_2 supply. An external supply of compressed air can be connected when the Patient Simulator is stationary over extended periods.

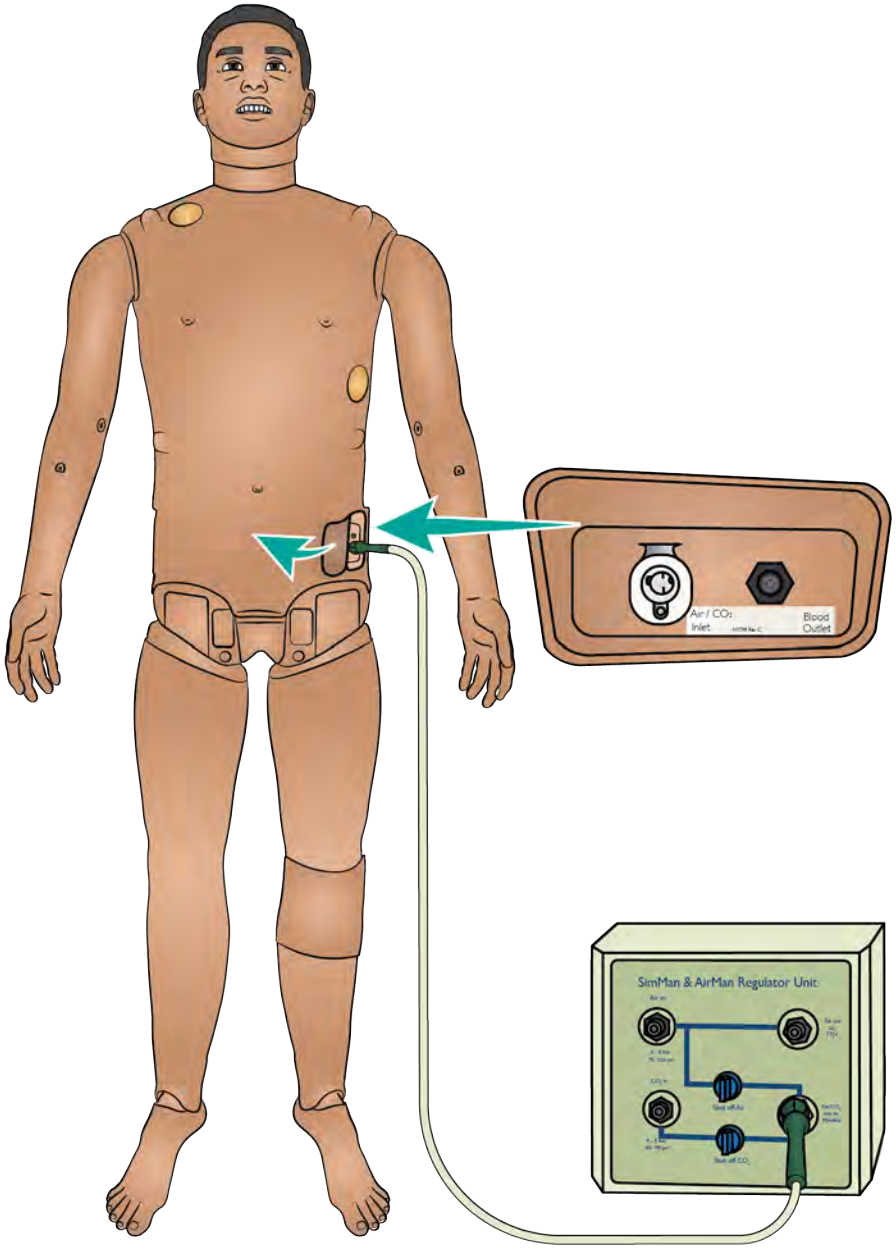
1. Connect a suitable CO_2/external air source to a Laerdal external compressor or regulator panel.
2. Connect a Laerdal double-lumen Air/CO_2 tube from the external compressor or regulator panel to the Air/CO_2 inlet on the panel.

Note

Exhaled CO_2 can be detected with a CO_2 detection device.

Refer to the **Important Product Information** booklet for information on maximum external air and CO_2 connection limits.

For more information on external compressors and regulator panels compatible with SimMan 3G PLUS, contact your local Laerdal representative.



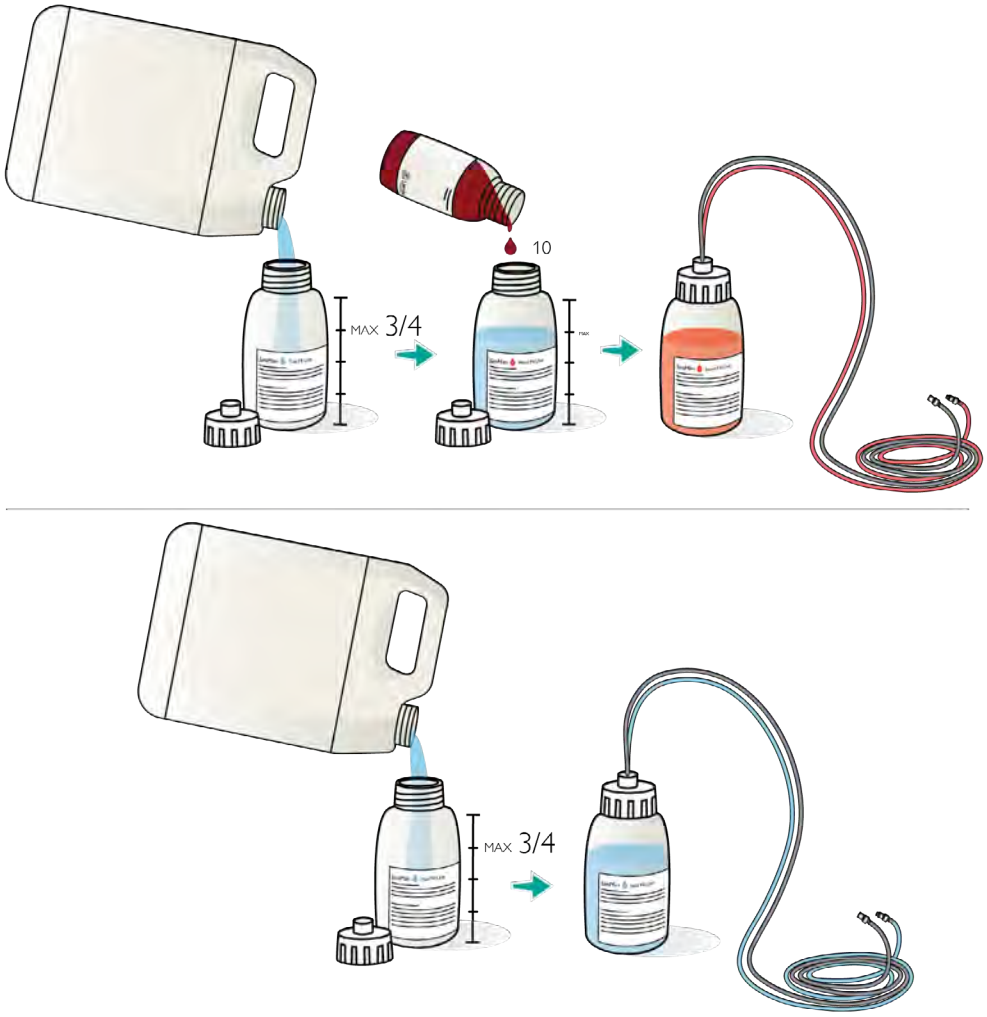
Prepare Simulated Blood & Fluids

Preparing Simulated Blood

1. Fill blood fill bottle with approximately 500 ml distilled water.
2. Add approximately 10 drops of Laerdal Blood colored concentrate.
3. Tighten the cap and mix.

Preparing Clear Fluids and Secretions

1. Fill fluid fill bottle with approximately 500 ml distilled water.
2. Tighten the cap.



Prepare Blood System

Blood and Fluid Systems

The Patient Simulator has two internal tanks, one for simulated blood and one for fluids. The fluid fill panel is located at the top of the right leg.

Filling the Internal Tanks

Ensure the Patient Simulator power is on.

1. Roll the right leg skin down to expose the fill panel. Lift the panel cover.
2. Connect the blood fill bottle tubes to the relevant inlet and the air outlet in the right leg panel.
3. Turn on the Activate Filling. The button will light up and blood will flow into the Patient Simulator.
4. When the flow stops, disconnect the fill bottle.
5. Turn off the Activate Filling.

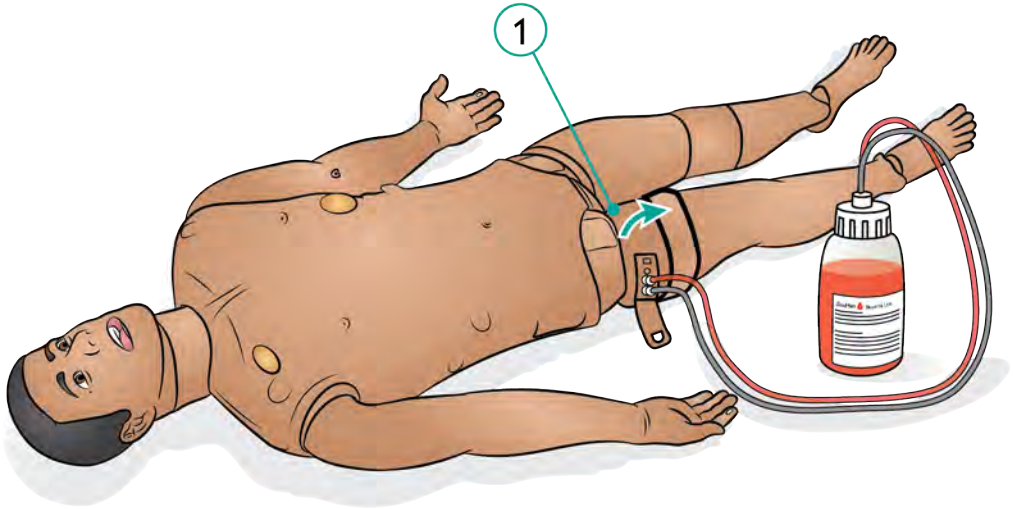
Notes

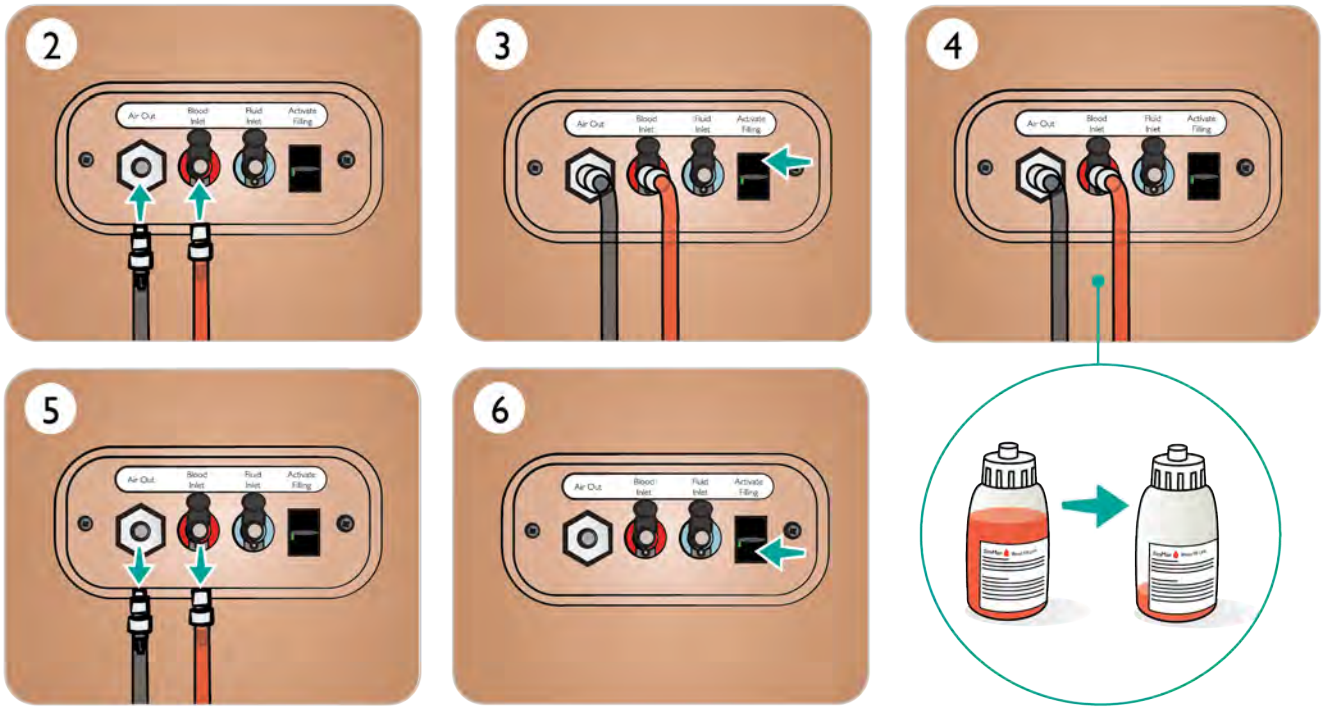
- *Disconnect tubes from the Patient Simulator before turning off the Activate Fill button. Turning the fill button off before disconnecting the tubes will initiate draining of the tank.*
- *Only one tank can be filled at a time.*

Adjusting Blood Flow in LLEAP

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"





Prepare Fluid System

Blood and Fluid Systems

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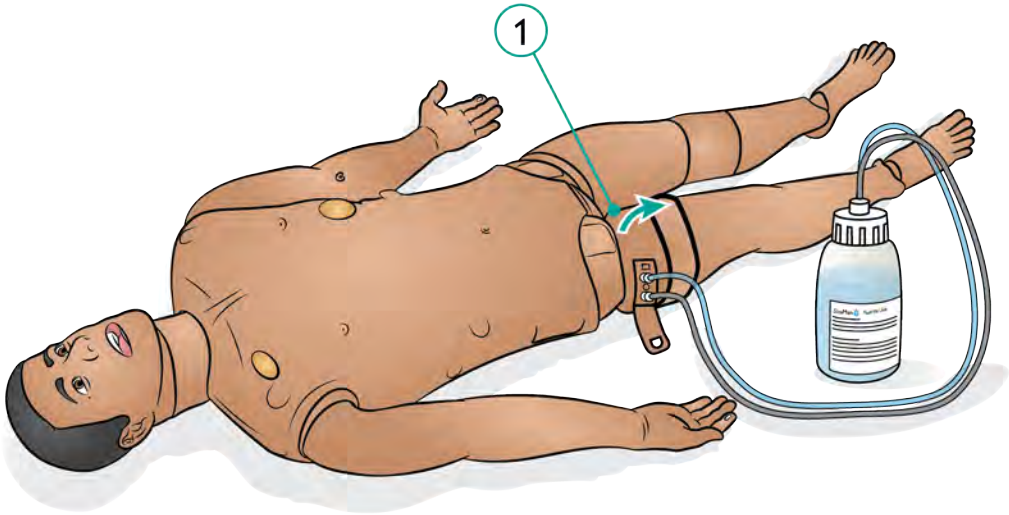
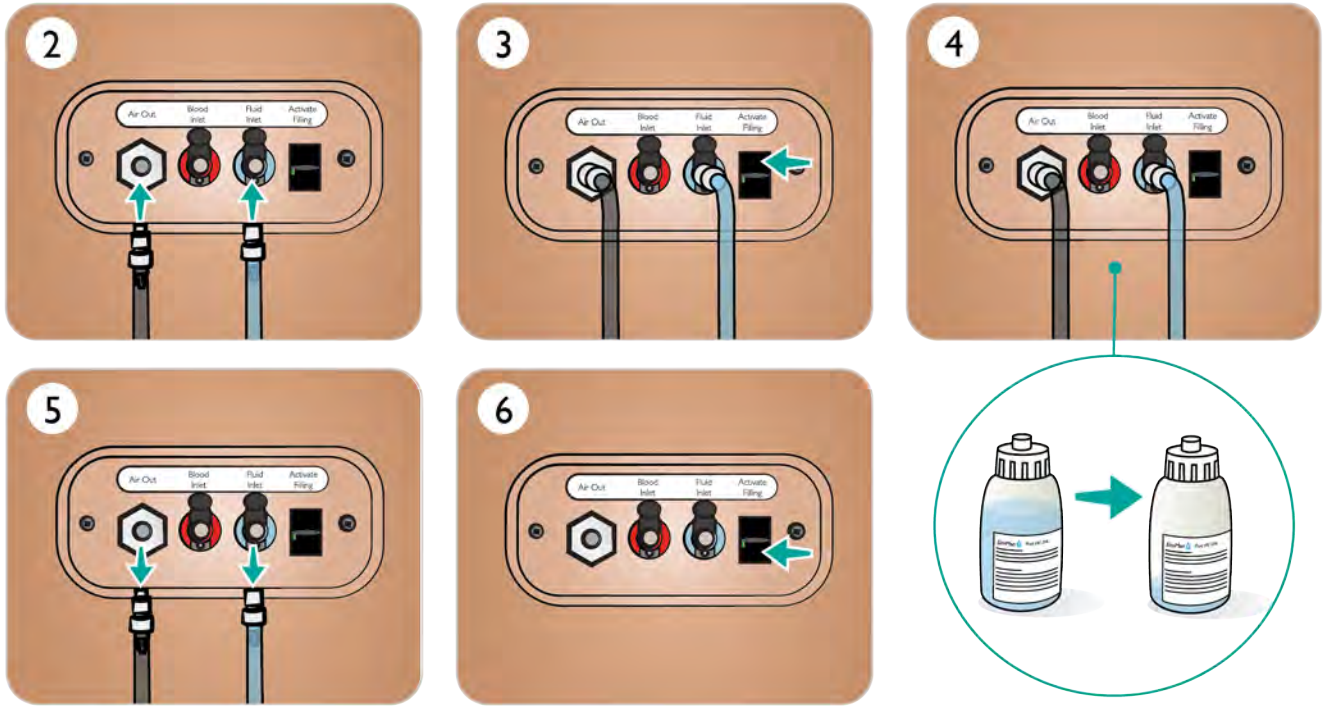




Prepare Secretions, Sweat and Urine in LLEAP

Sweat, tears, cerebrospinal fluid (CSF) and urine functions can be set and adjusted in the LLEAP Fluids tab.

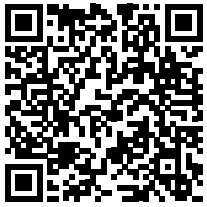
Adjusting Urine Function in LLEAP

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"

Setting Secretions in LLEAP

Watch the "How-to video"



Click on link or scan QR code to watch the "How-to video"

Prepare Genitalia and Catheterization

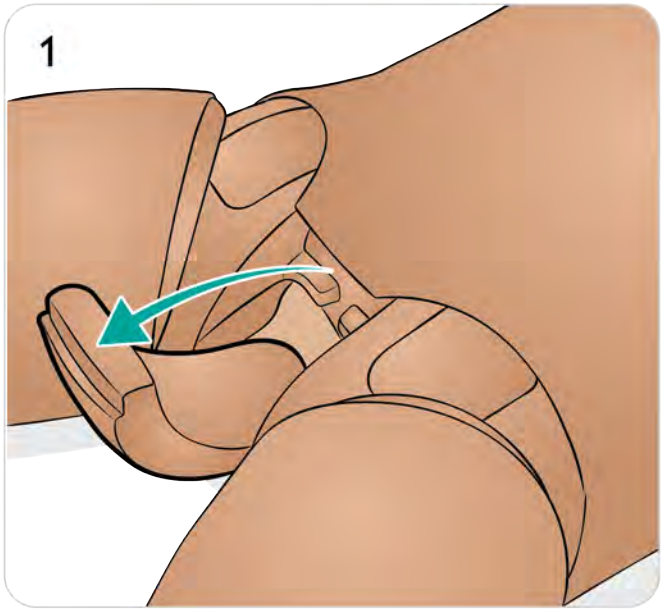
SimMan 3G PLUS is fitted with neutral genitalia. It can be replaced with the supplied male or female genitalia to simulate catheterization.

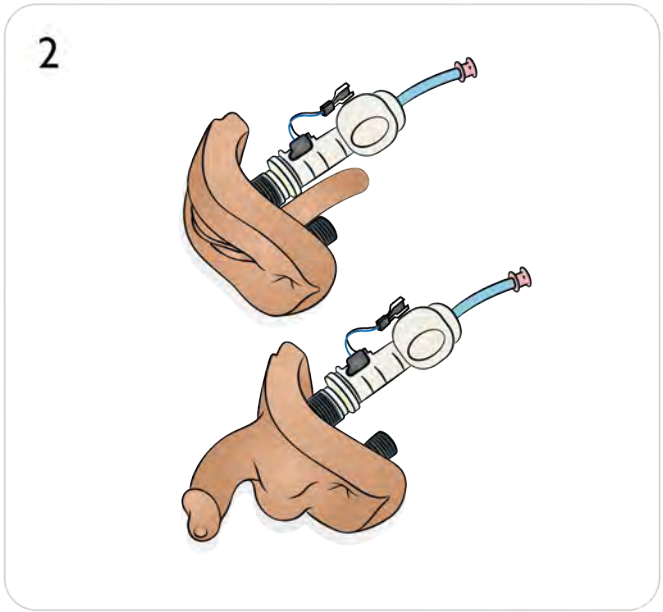
1. Remove the Patient Simulator's genitalia pad by gripping the pad pulling forward and down.
2. Select new genitalia module.
3. Connect the new genitalia module's urine tube and the catheterization sensor cable from inside the Patient Simulator pelvis to the urine bladder module.
4. Place the new genitalia module back into the Patient Simulator's pelvis.

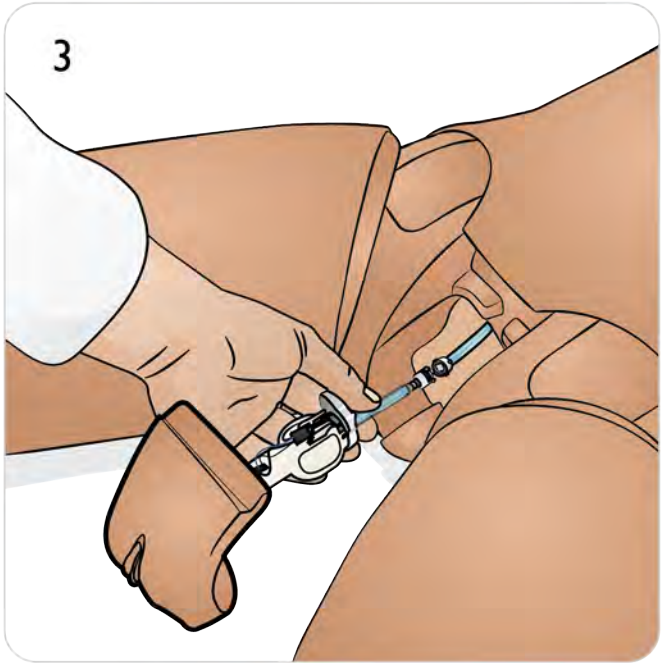
Notes

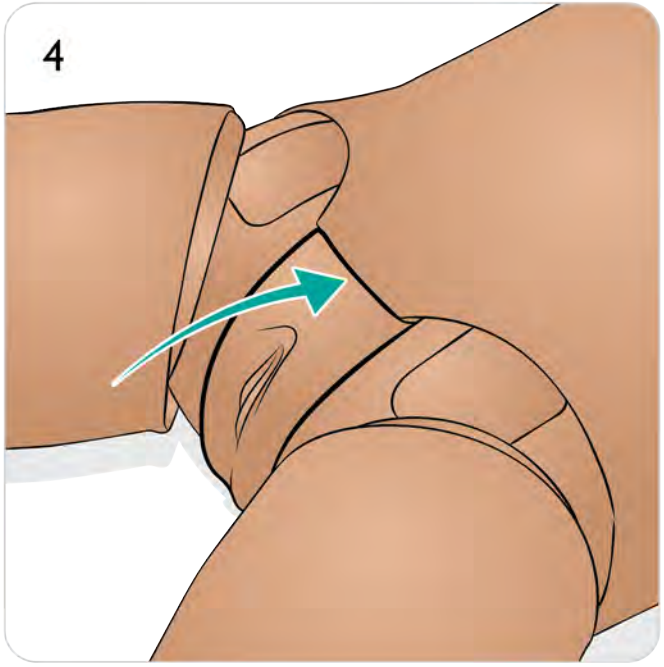
- *The Patient Simulator legs do not need to be removed before the genitalia pad can be replaced.*
- *Common skin preparations such as chlorhexidine and povidone iodine-based products may be used safely without staining the genitalia.*
- *Always use a water-based lubricant liberally when inserting a urine catheter.*

Use the following catheter sizes	
Female genitalia	Foley 14Ch and Lofric 16Ch
Male genitalia	Foley 16Ch and Lofric 16Ch





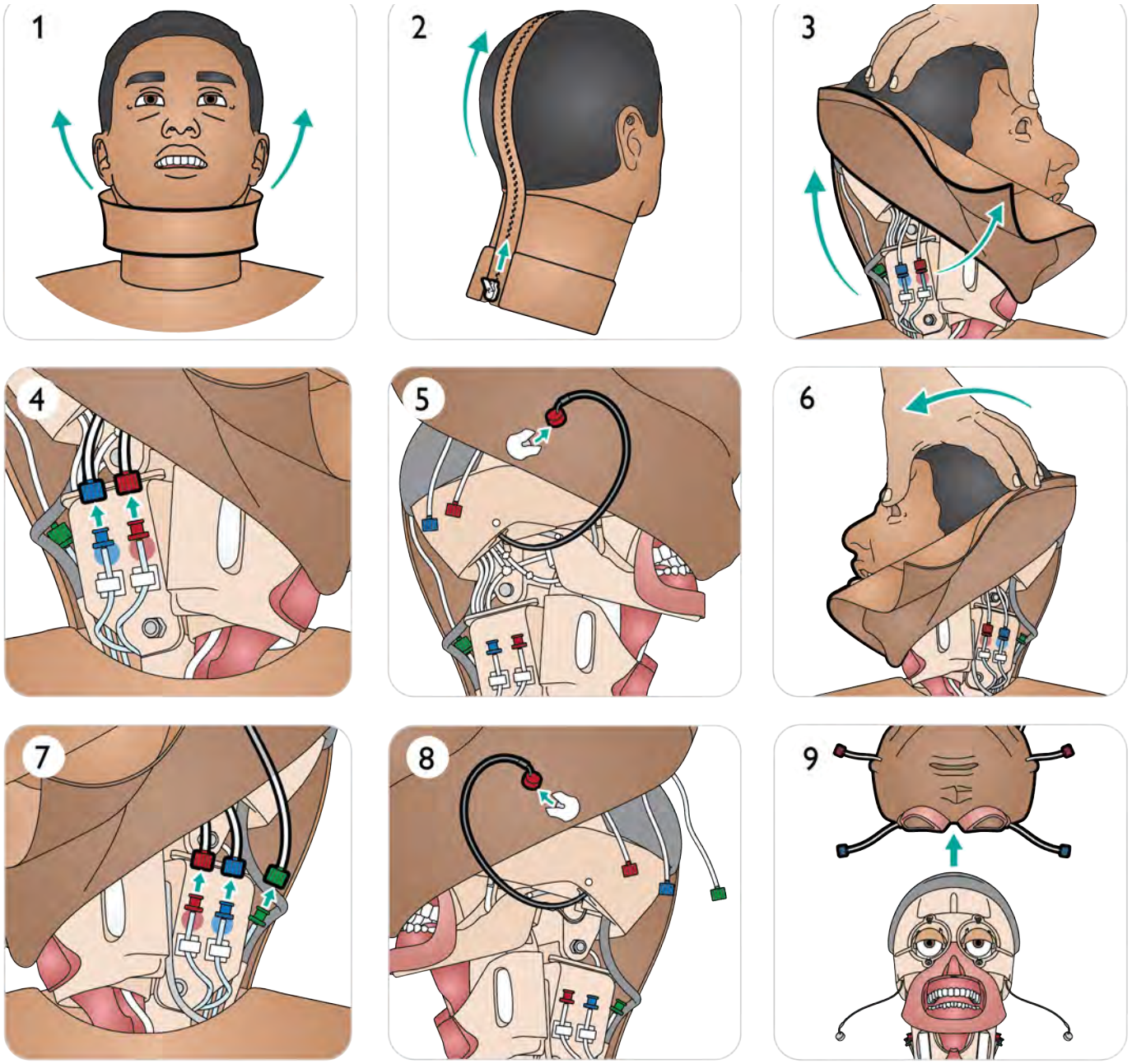




Prepare Head Skin - 1/3

Remove Head Skin

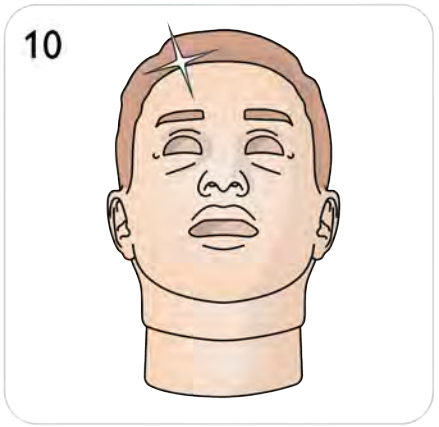
1. Remove neck skin.
2. Unzip head skin.
3. Lift head skin to expose tubing.
4. Disconnect blue and red tube connectors.
5. Carefully remove microphone cable from inside head skin.
6. Turn head.
7. Disconnect red, blue and green tube connectors.
8. Carefully remove microphone cable from inside the head skin.
9. Remove head skin completely.

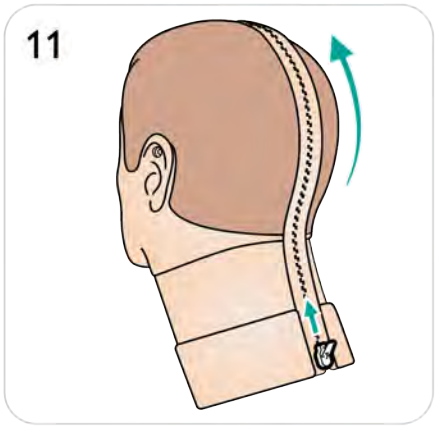


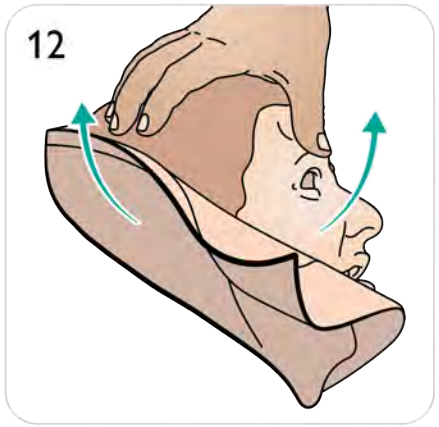
Prepare Head Skin - 2/3

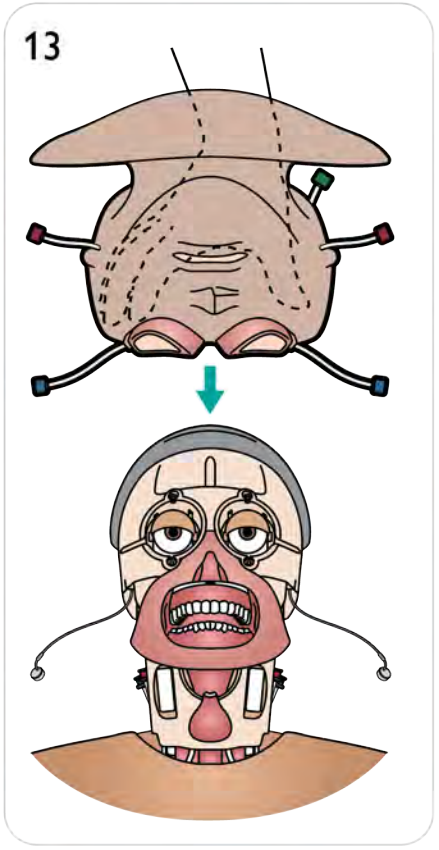
Replace Head Skin

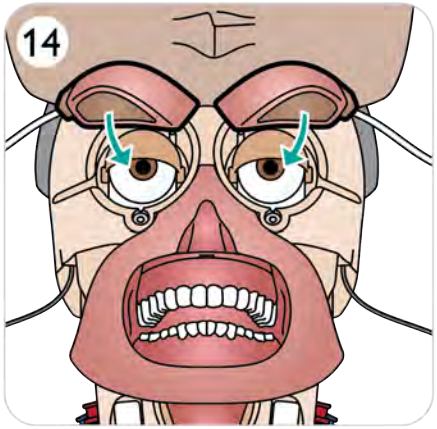
10. Select new head skin.
11. Unzip head skin.
12. Turn head skin inside out.
13. Position head skin over head module.
14. Align eye sockets over eyes, align airway tube with right nostril, and secure into place.

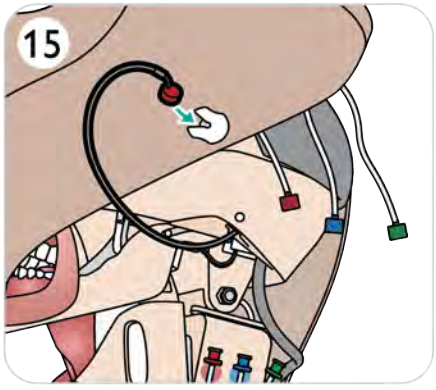


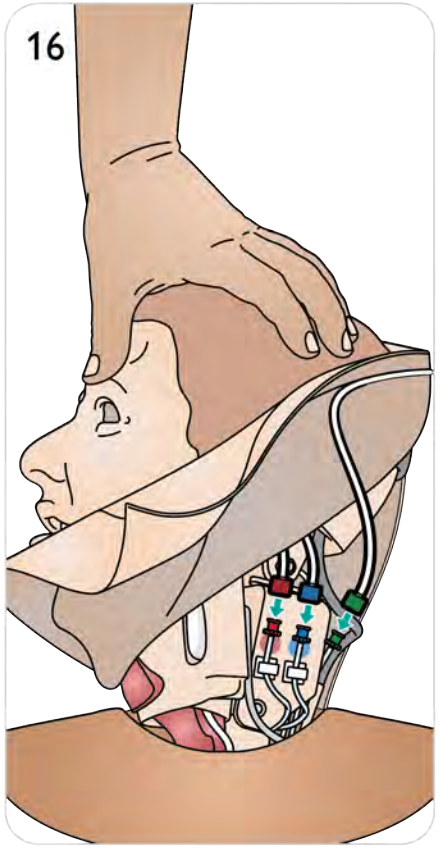






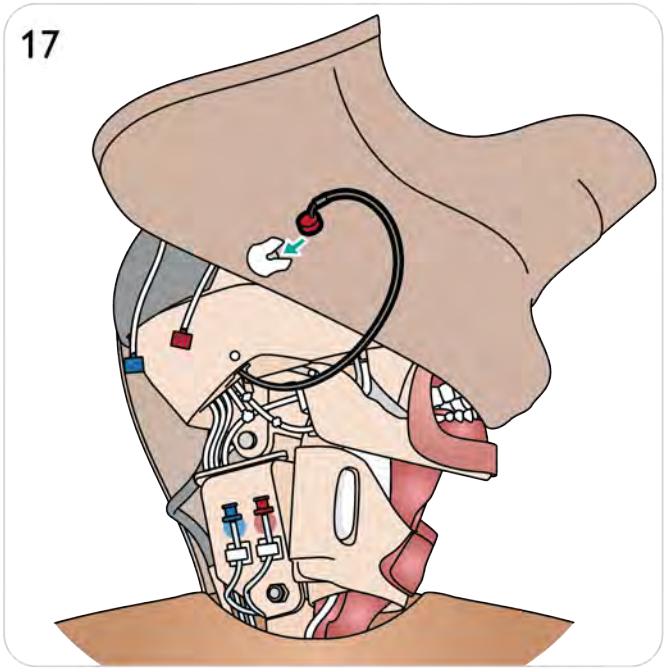


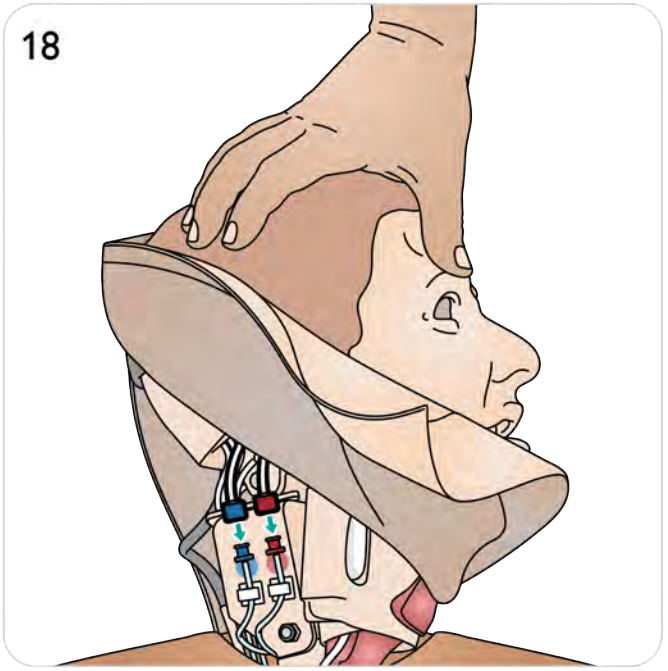


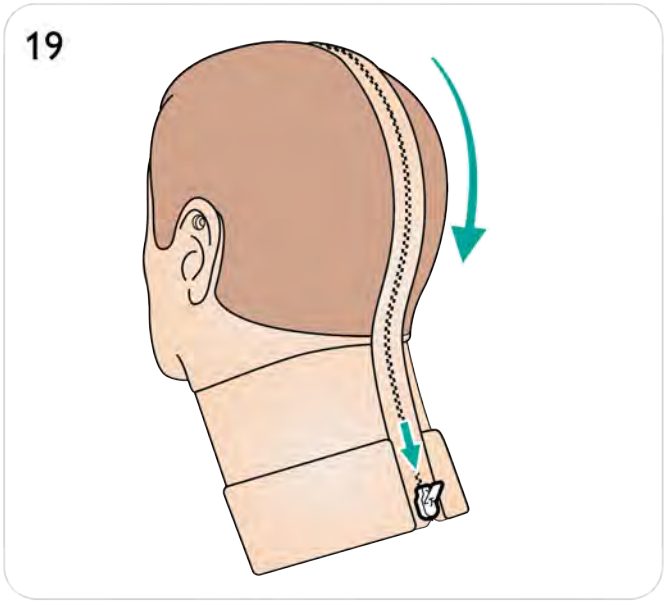


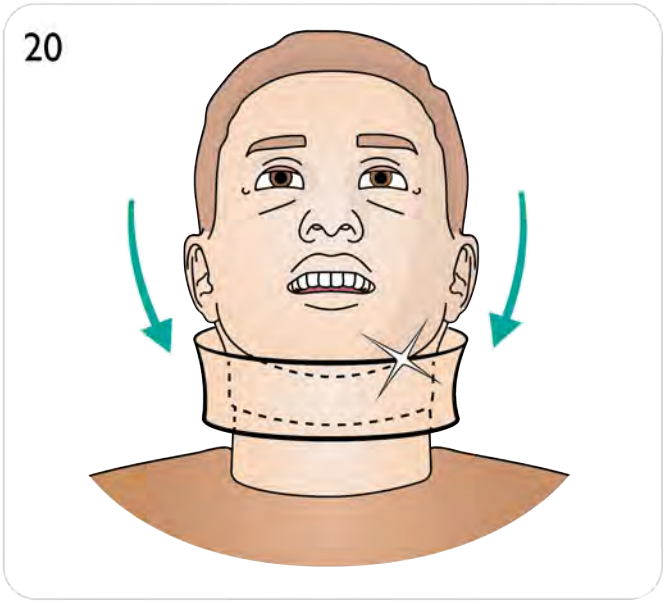
Prepare Head Skin - 3/3

15. Insert microphone carefully,
16. Connect red, blue and green tube connectors.
17. Turn head to other side and insert microphone.
18. Connect red and blue tube onnectors.
19. Close zipper.
20. Replace neck skin.





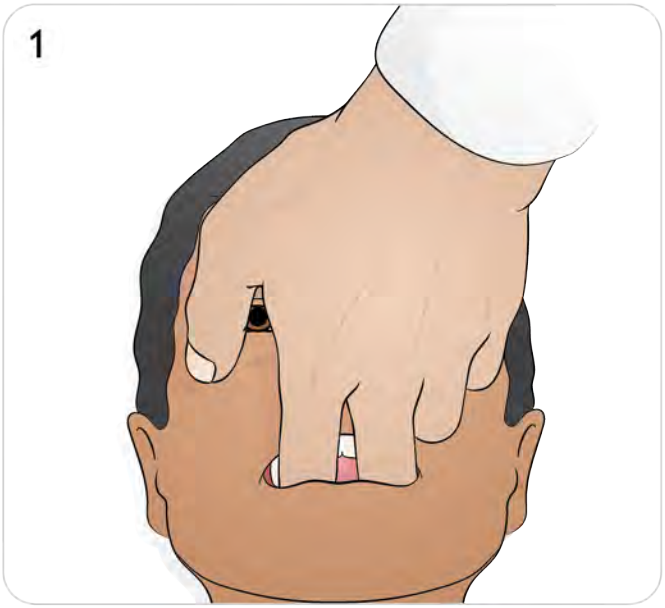


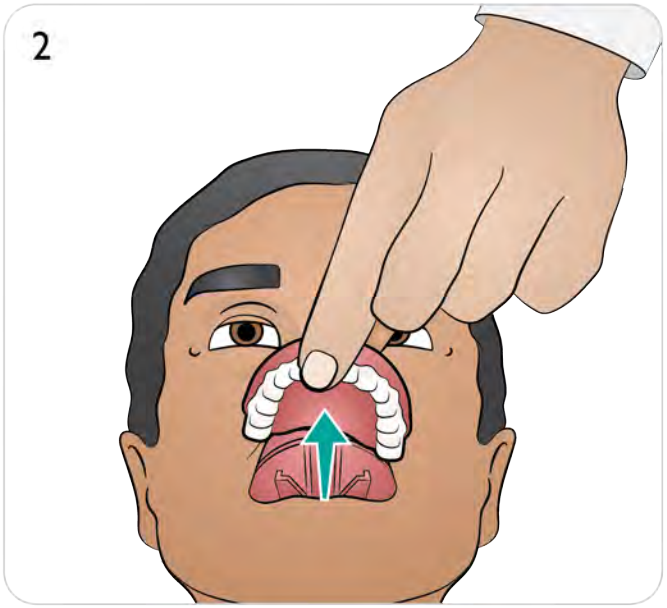


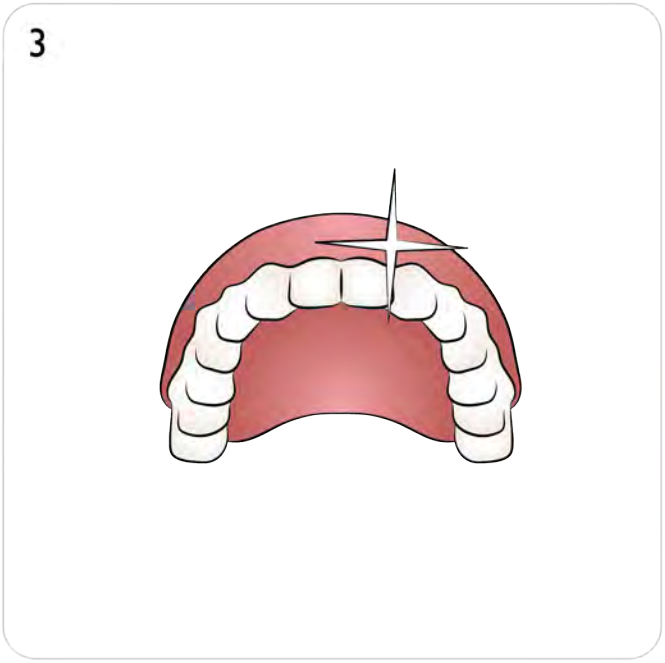
Prepare Teeth

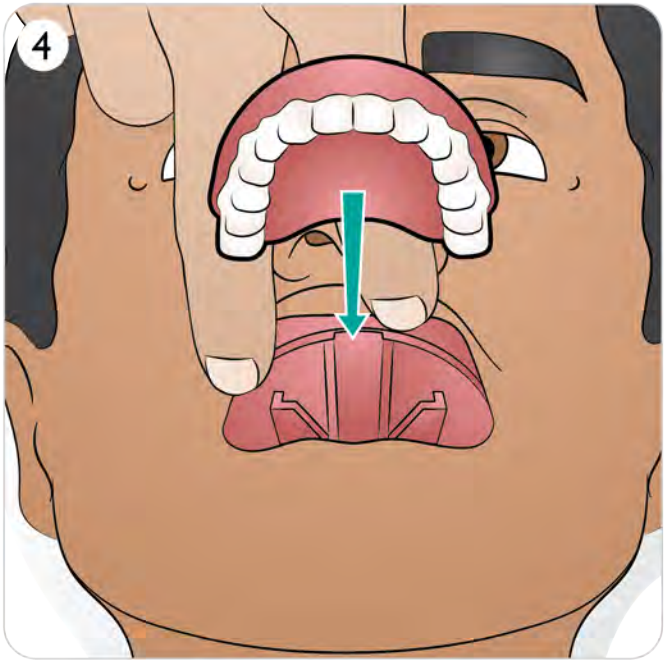
Soft upper teeth may be replaced with a hard set for enhanced realism while practicing intubations.

1. Grip soft teeth with two fingers.
2. Remove soft upper teeth.
3. Select new teeth.
4. Align new teeth with the gums and push back until the teeth engage and lock onto the gums.









Prepare Wound Kit

Attaching Wound

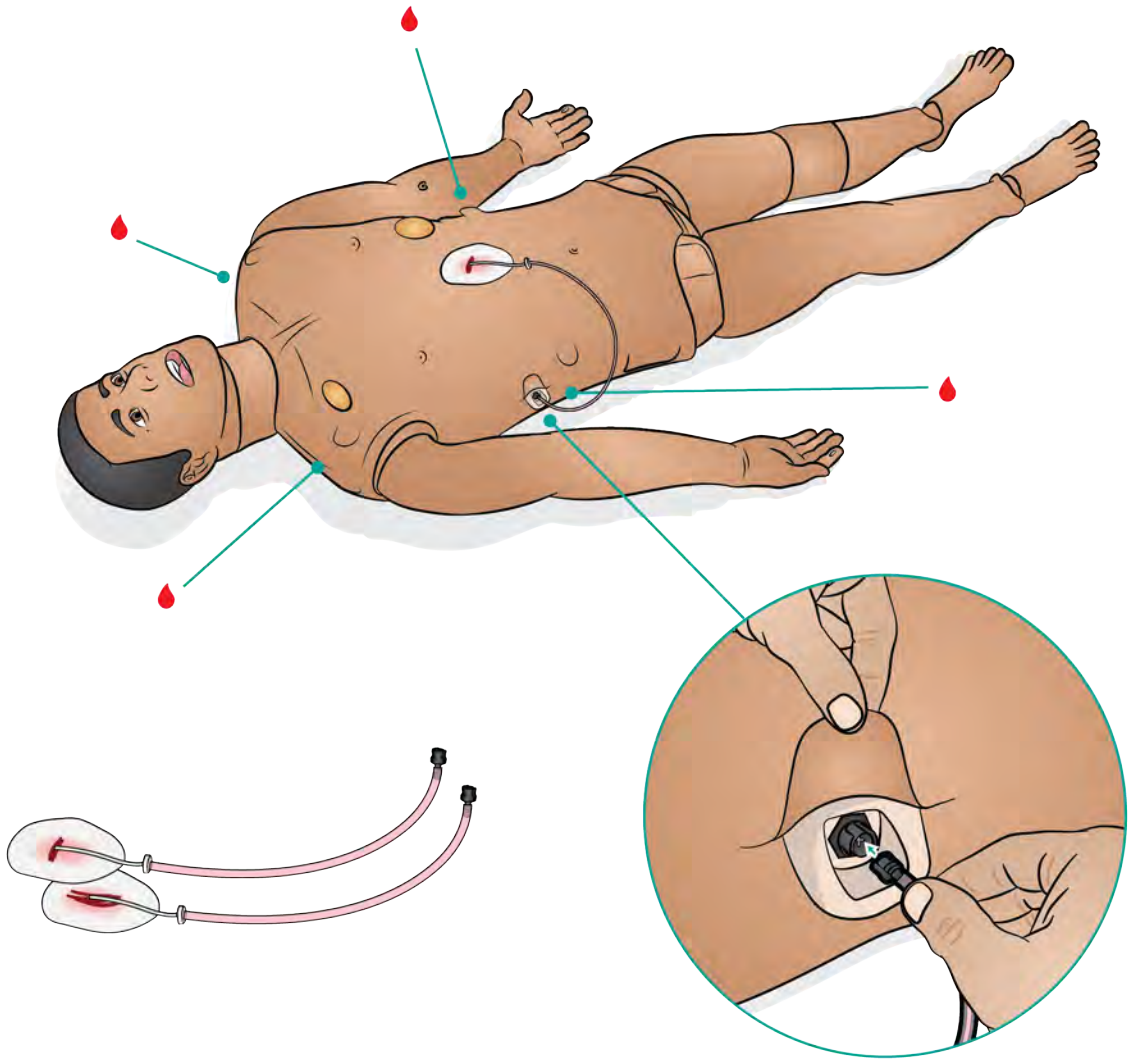
1. Ensure that the area where the wound is to be applied is clean and dry.
2. Apply the wounds with double-sided tape provided.
3. Connect the tube from the wound to the desired port.

Removing Wound

1. Follow the cleaning procedure in Cleaning the Blood System with the wounds still attached.
2. Remove wounds kit once cleaning is complete.
3. Clean any tape residue left on the Patient Simulator skin with Laerdal Manikin Wipes.

Note

When removing wound tubing from the blood ports, cover the Patient Simulator skin with a cloth to prevent staining.



Trauma Modules (Accessories)

Trauma modules can be fitted to the Patient Simulator to simulate bleeding patient cases.

After the simulation is complete, leave the trauma modules connected, and clean according to the instructions in Cleaning the Blood System.

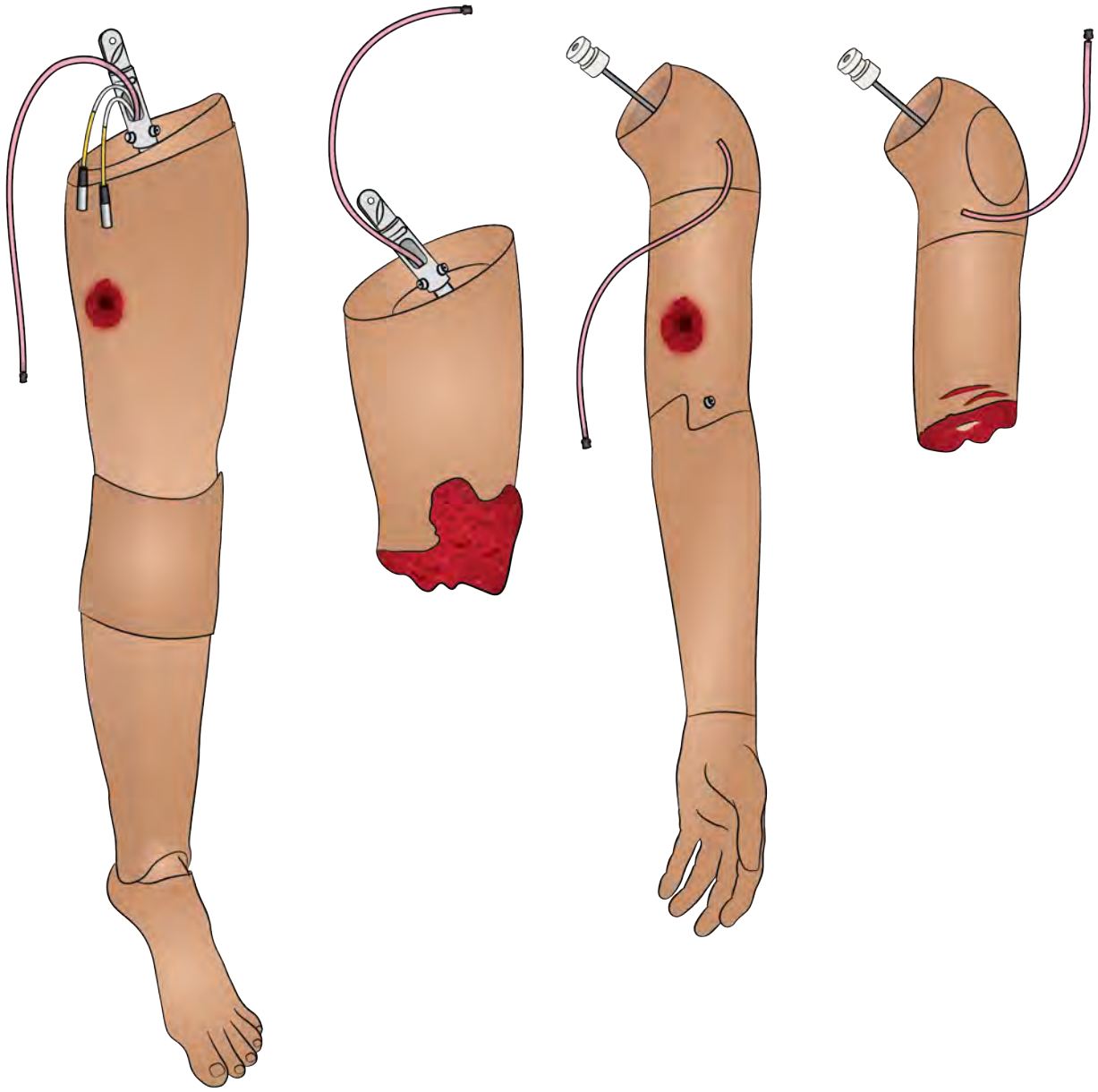
Notes

- *The SimMan 3G arm adaptor kit is required to connect the trauma arm modules.*
- *There will be no automatic non-invasive blood pressure functionality on the right arm when it is used with one of the left trauma arms.*

Adjusting Blood Flow in LLEAP

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"



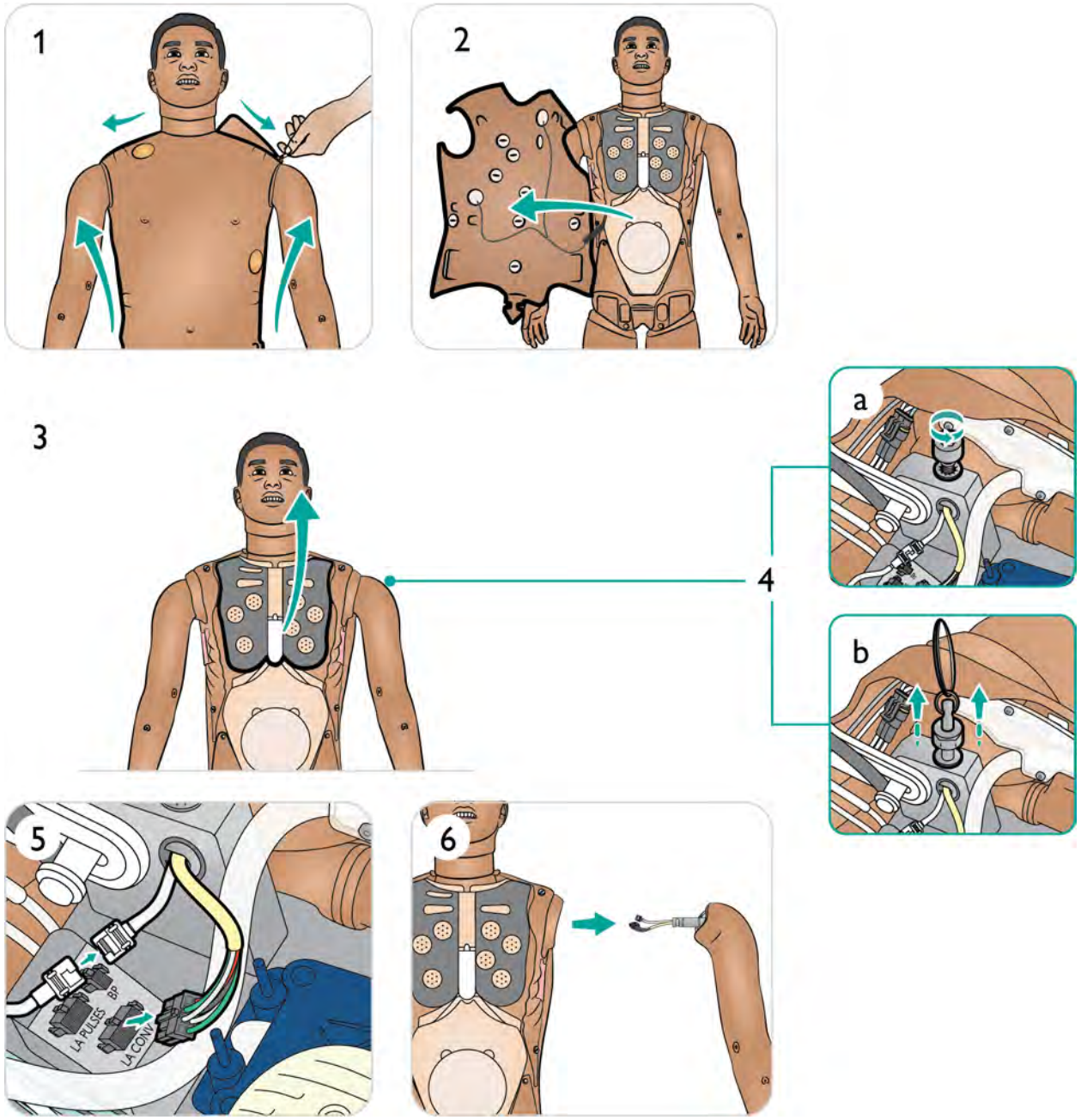
Prepare Trauma Arms (Accessory) 1/2

Removing Arm

1. Unzip the torso skin.
2. Remove the stomach foam and set it aside.
3. Lift chest plate to expose the arm bolt.

> **Note**
> Depending on the model, unlocking the arm is done differently (see illustration 4a and 4b).

4. a. Unscrew the arm bolt. Do not unscrew fully.
   b. Lift up the arm bolt.
5. Disconnect all arm cables.
6. Remove arm.

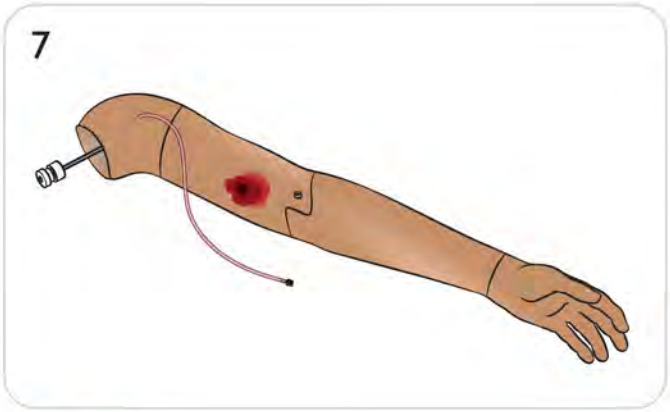


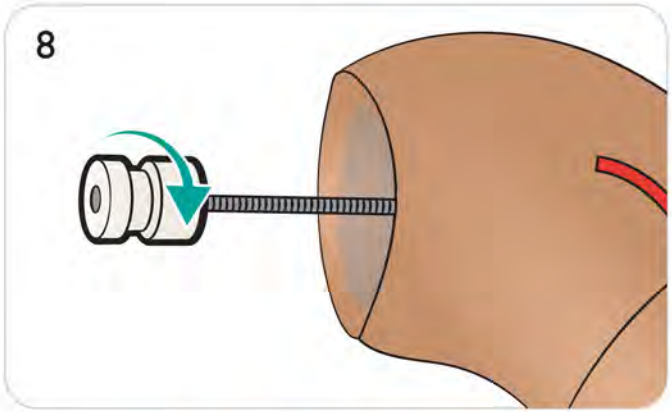
Prepare Trauma Arms (Accessory) 2/2

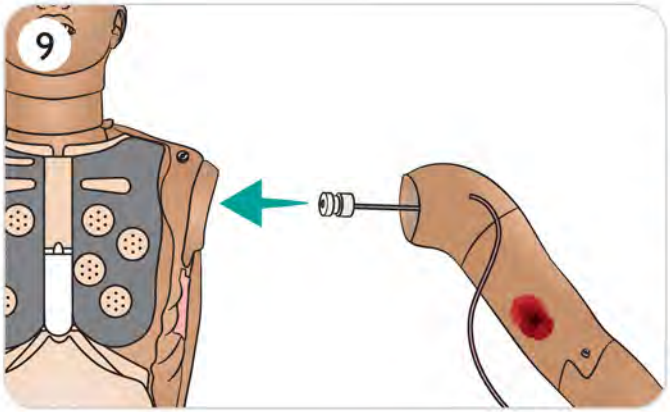
Attaching Trauma Arm

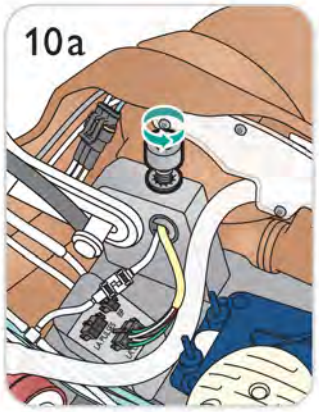
7. Select either the SimMan 3G Amputation or Gunshot Arm with Arm Adapter and Adapter Screw.
8. Unscrew the Adapter Screw.
9. Insert arm into shoulder bracket.
10. a. Tighten arm bolt to secure.
    b. push down the arm bolt.
11. Attach tube to desired blood port.
12. Tighten screw to adjust range of arm motion with a screwdriver.

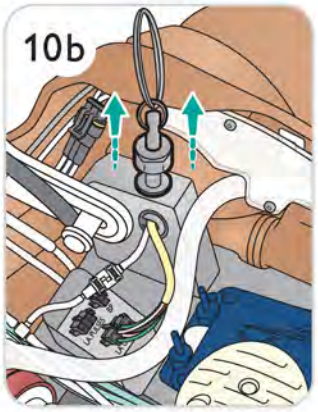
⚠ Caution
Do not over rotate arm. Over rotating the arm may cause the red vinyl tubing to disconnect.

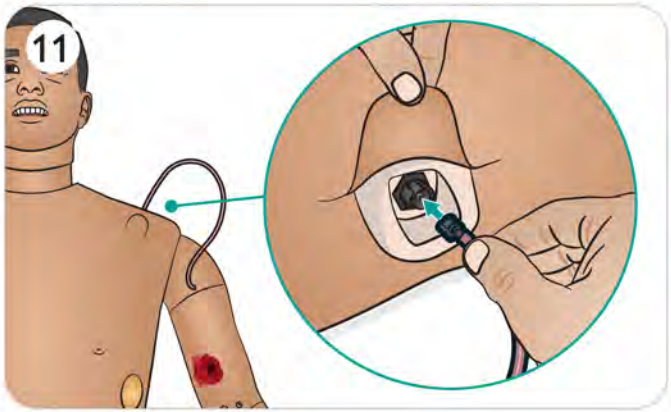


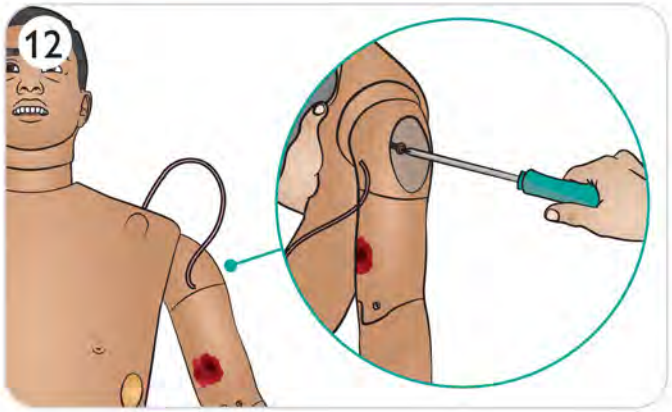










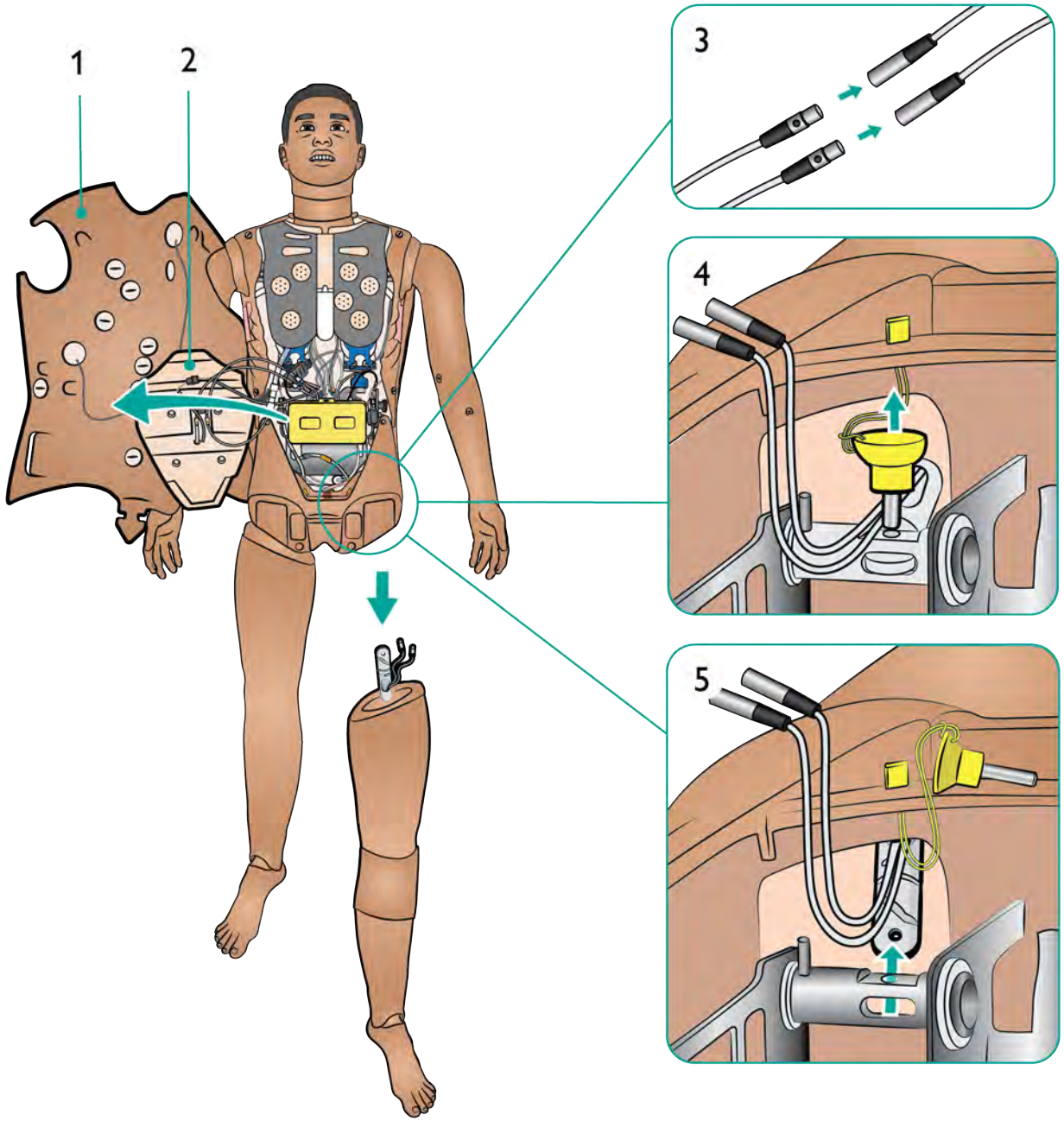


Prepare Trauma Leg (Accessory) 1/2

Lay the Patient Simulator on a flat surface.

Removing Default Left Leg

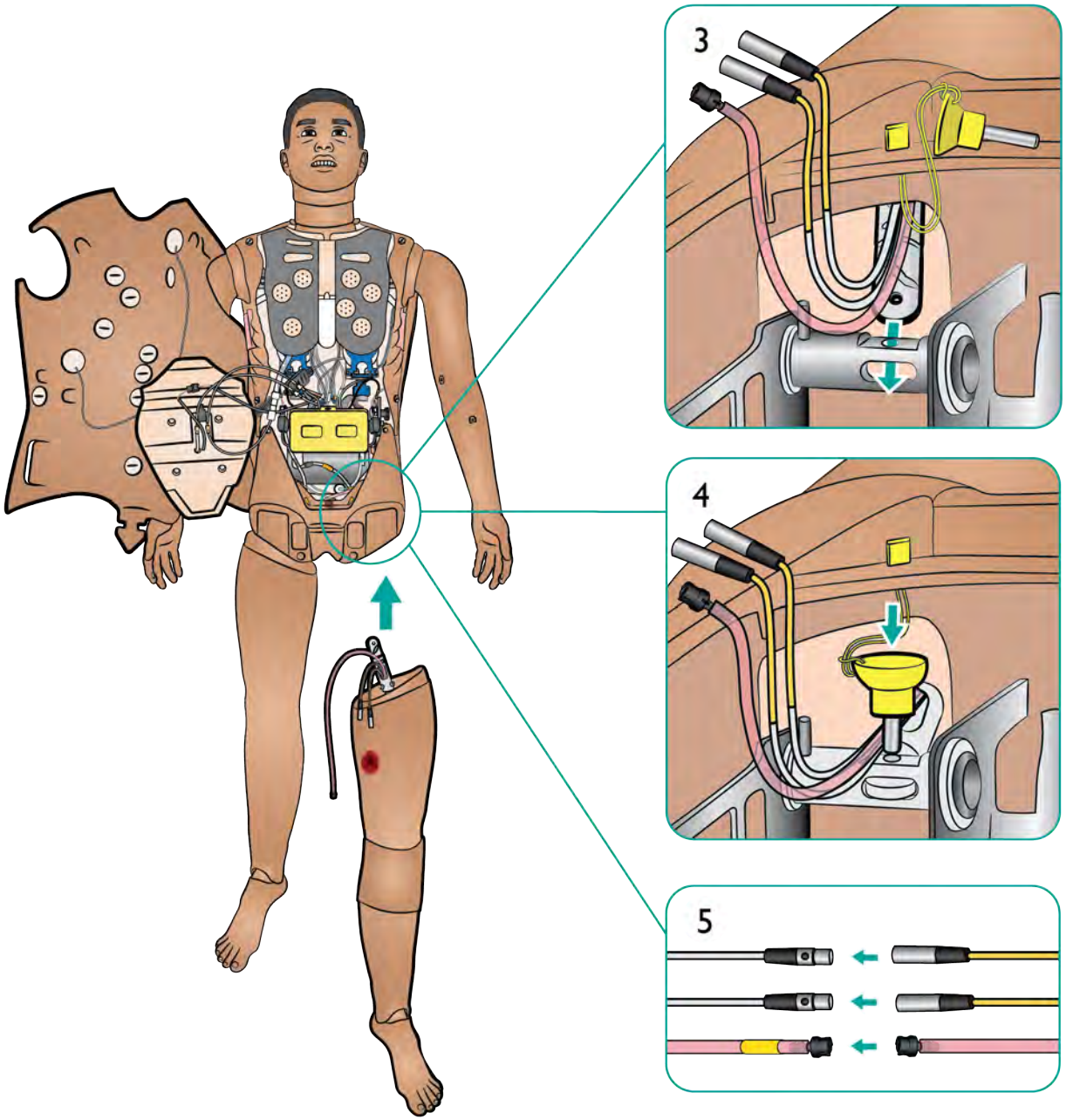
1. Open Torso Skin (refer to Opening Torso)
2. Move stomach foam to one side
3. Disconnect the cables to the left leg.
4. Pull out the thumb lock pin.
5. Carefully remove the leg.



Prepare Trauma Leg (Accessory) 2/2

Attaching Trauma Leg

6. Insert the Trauma Leg into the leg socket.
7. Insert the thumb lock pin, ensuring the leg is properly fixed into place.
8. Connect the cables and tube.



Immersive Simulation

- Recommended Sizes for Clinical Devices
- Intravenous (IV) Injection
- Intraosseous (IO) Injection
- Intramuscular (IM) Injection
- Airway Interventions
- Breathing Interventions
- Cardiac Interventions
- SpO_2 Monitoring

Recommended Sizes for Clinical Devices

Device	Recommended Size
Oropharyngeal Airway (OPA)	3
Nasopharyngeal Airway (NPA)	7
Endotracheal Tube and Laryngoscope Blade	7 to 8.5
i-gel Airway	4
King LTS-D/LT-D	4
Combitube	37 Fr (small adult)
Laryngeal Mask Airway (LMA)	4 or 5
Tracheostomy Tube	8 Fr
Airway Suctioning	Rigid Adult Size
Thoracostomy Needle	22 G
Chest Tube	14-28 Fr
IV Catheter	22 G
Urinary Catheter Size	16 Fr
IM Needle	21 G (maximum)
Mask (for ventilation)	Laerdal Adult Mask 4 to 5+
Intraosseous (IO) Access	**Tibial**: BIG Automatic Intraosseous Device, 15 G EZ-IO, 15 G x 1", 1.8mm x 25mm Jamshidi ® Illinois Bone Marrow Aspiration/Intraosseous Infusion Needle. 18 Ga. 9/16" (14mm)-1 ½" (38mm) **Humeral**: BIG Automatic Intraosseous Device, 15 G EZ-IO, 15 G x 1", 1.8mm x 25mm or 45mm

⚠ **Caution**

Incorrect use of larger devices can damage the IO bones and/or internal components. The smaller size is recommended.

Intraveneous (IV) Injection

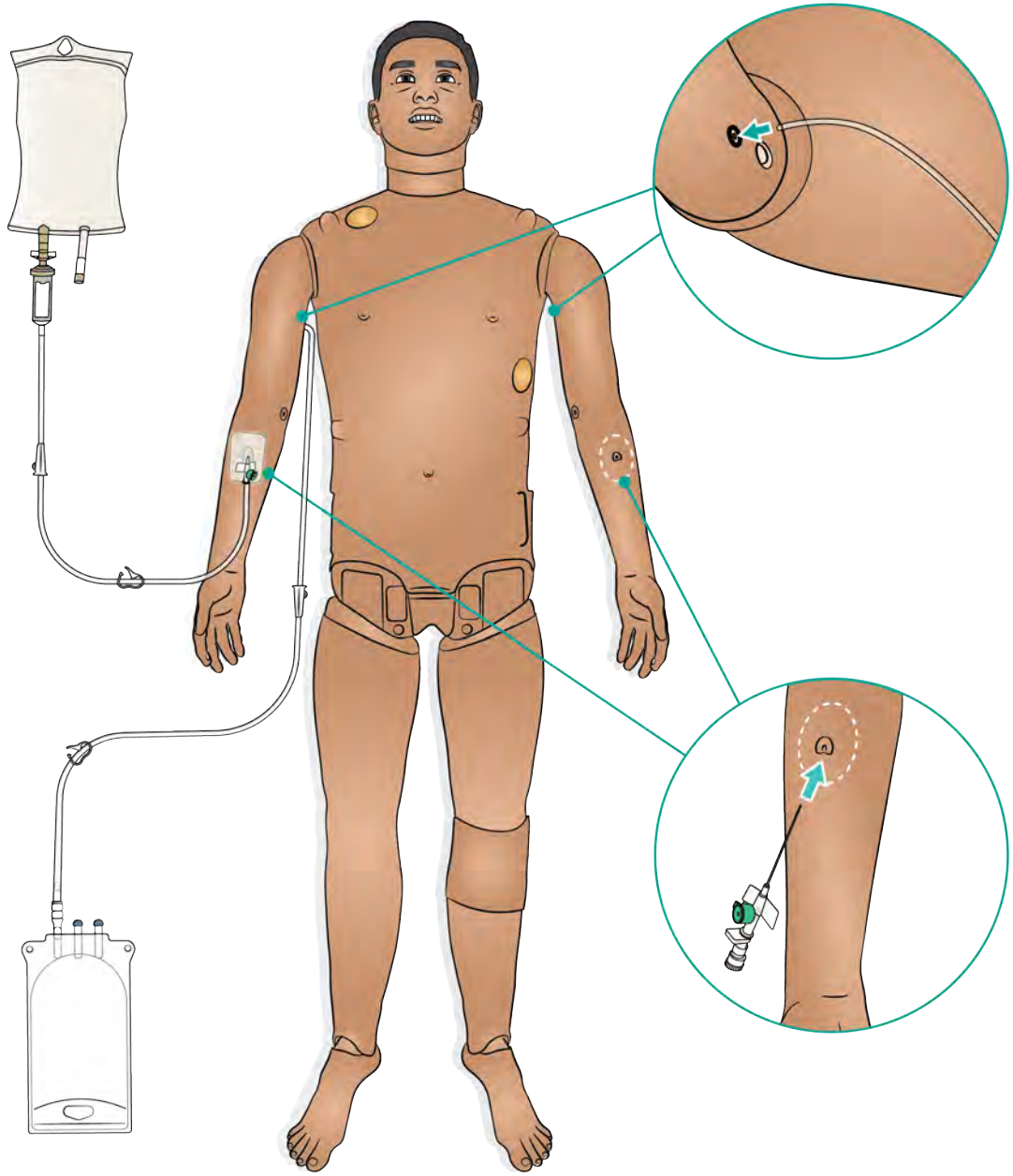
- IV Setup
- Attaching a Drain Bag
- IV with Silicone Dressing

Intravenous (IV) Setup

IV cannulation can be performed.

Note

Only use purified water (distilled) to simulate IV drugs. This prevents clogging of the system.



Attaching a Drain Bag

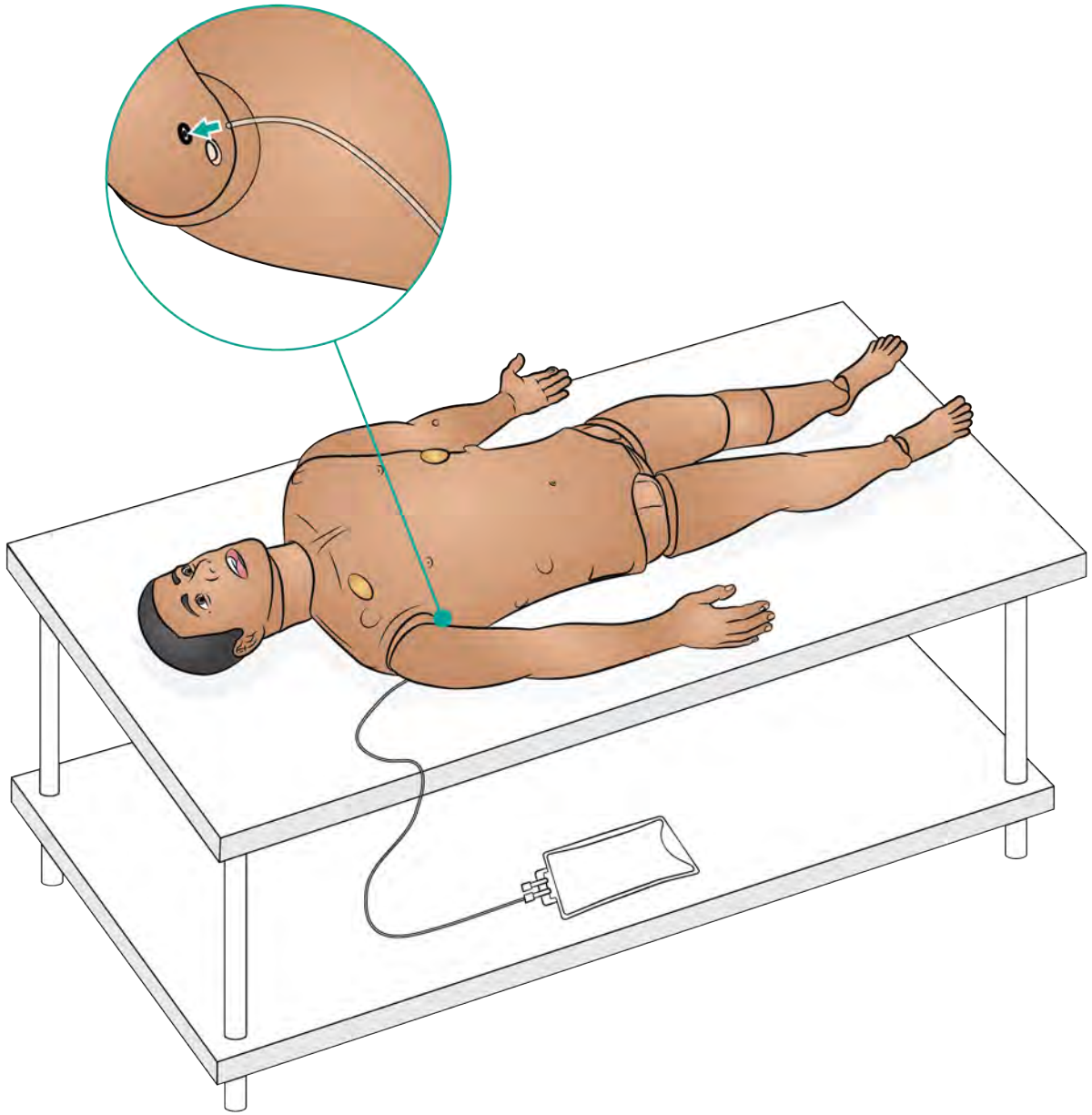
The IV fluid system is an open system. IV fluids are drained as they are administered.

Note

The smaller drain port is for the IV drain bag and the larger drain port is for the IO drain bag.

To Connect Drain Bag

1. Connect an IV overflow tube and reservoir bag to the IV fluid drain port under the Patient Simulator's arm.
2. Excess fluid will drain into the reservoir bag during the simulation.



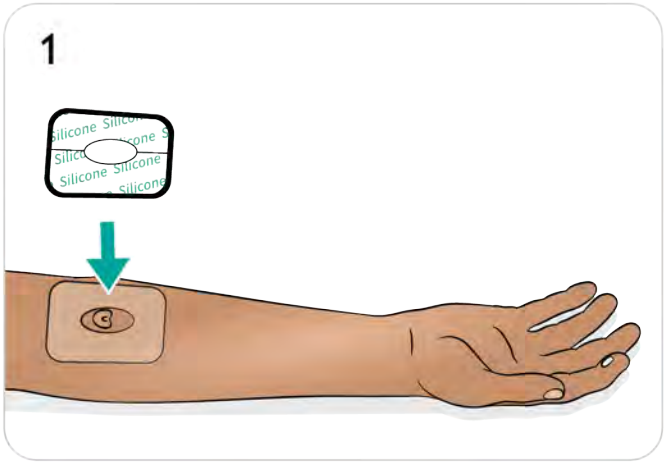
Prepare IV with Silicone Dressing Base

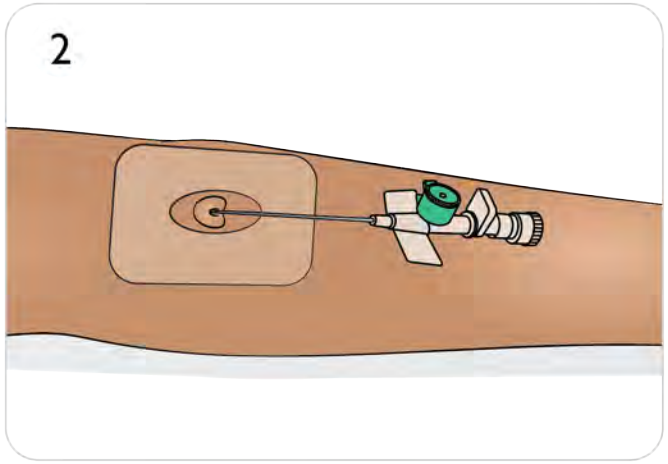
For better adhesion of IV dressings, position the silicone dressing base onto the arm skin.

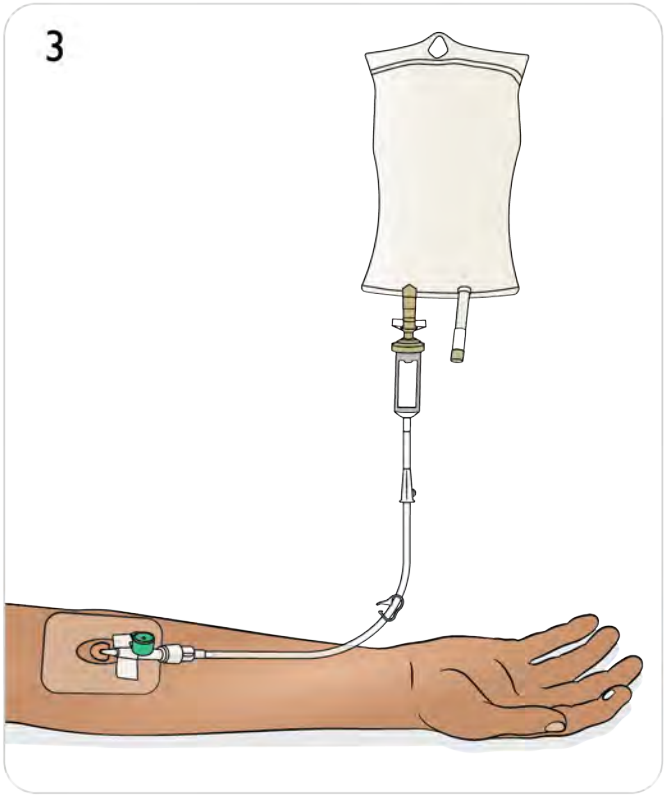
1. Place dressing.
2. Insert IV cannula.
3. Connect tubes (luer lock) to cannula and drain bag.
4. Secure IV area with tape.

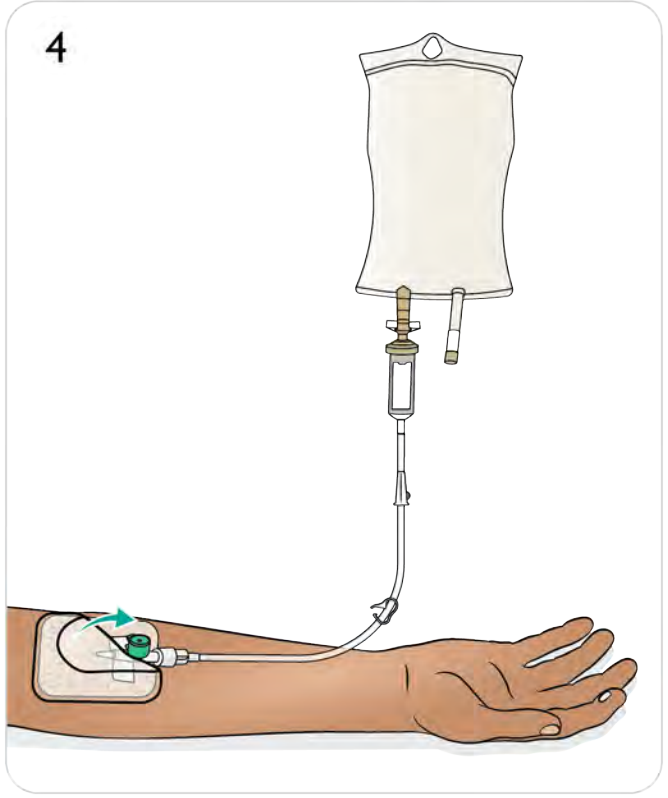
Notes

- *The silicone dressing base can be used multiple times, and does not need to be replaced after each use.*
- *An IV drip can be setup to administer fluids into the cannula.*









Intraosseous (IO) Injection

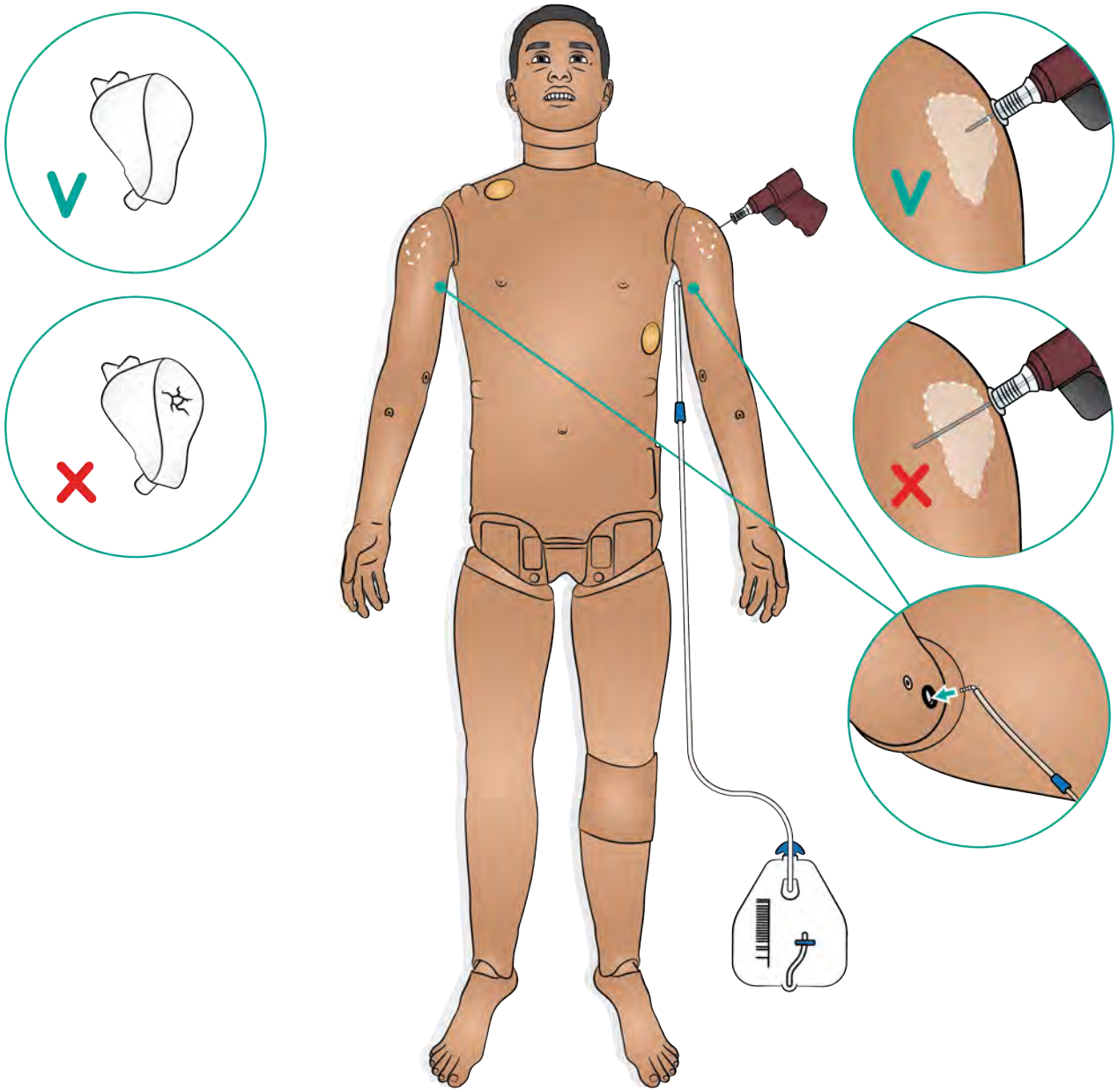
- Prepare IO Arms
- Prepare Tibial IO with Blood

Prepare Intraosseous (Arms IO)

IO simulation with needle insertion is possible through the humeral bone.

Ensure that the IO bone has not already been pierced or used. To repair and replace the IO bone refer to Maintaining Arm IO Bone.

Recommended Device Sizes	
BIG Automatic Intraosseous Device	15 G
EZ-IO, 15 G x 1"	1.8 x 25 or 45 mm



⚠ Cautions

- *Incorrect use of larger devices can damage the IO bone and/ or internal components. The smaller size is recommended.*
- *Do not inject fluids into the pads unless approved IO modules with fluid outlets are in place.*

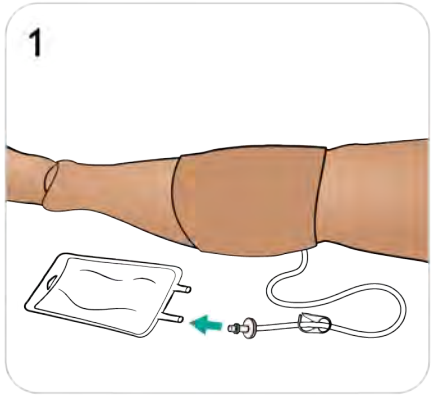
Prepare Tibial IO with Blood

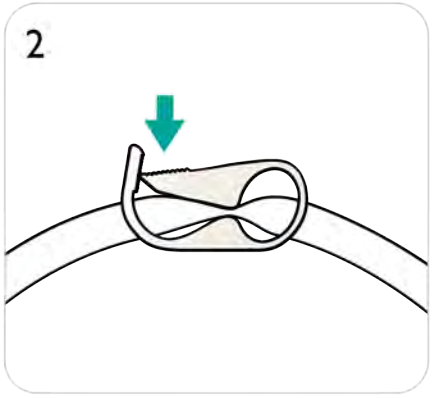
1. Attach an IV bag to the Tibial tube.
2. Close off the pinch clamp.
3. Roll down leg skin to access the Tibial IO module.
4. Remove the IO tape.
5. Lift out the module from the leg.
6. Remove the tube from the module.
7. Fill the module with 30-35 ml of simulated blood.
8. Connect the tube to the module and insert it into the leg. Feed the drain tube out of the back of the leg to ensure that there are no kinks.
9. Secure with tape.
10. Roll up leg skin.

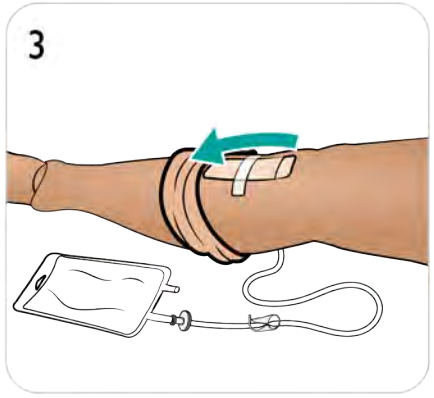
Recommended Device Sizes	
BIG Automatic Intraosseous Device	15 G
EZ-IO, 15 G x 1"	1.8 x 25 mm
Jamshidi ® Illinois Bone Marrow Aspiration/Intraosseous Infusion Needle	18 G 9/16" (14 mm) - 1 ½" (38 mm)

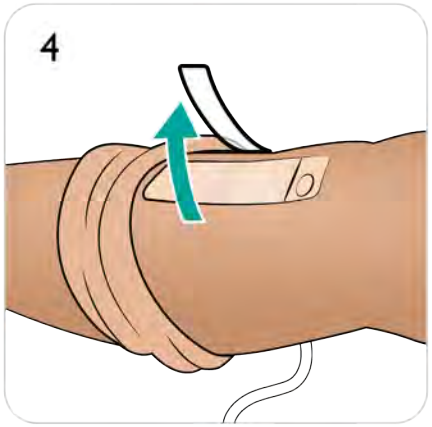
⚠ **Caution**

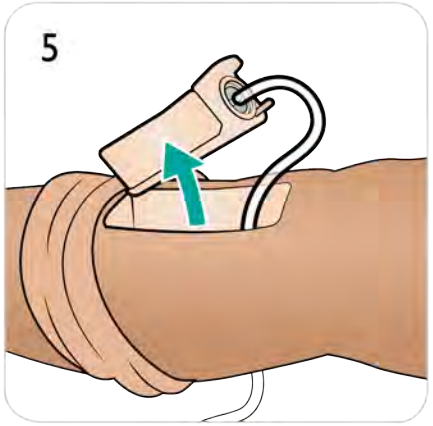
Do not inject fluids into these pads unless approved IO modules with fluid outlets are in place.

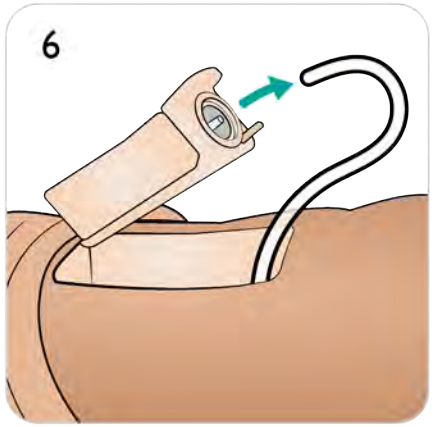


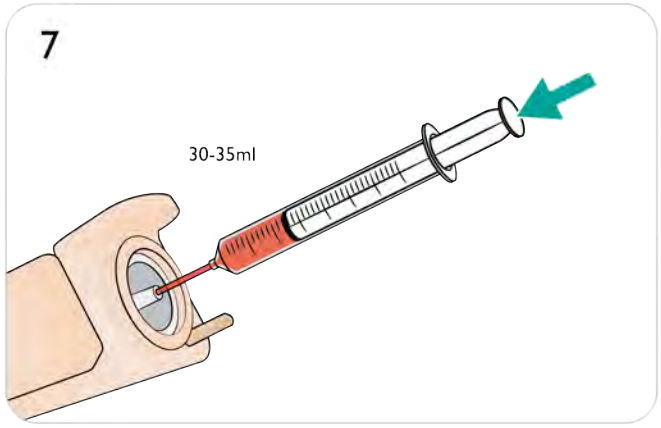


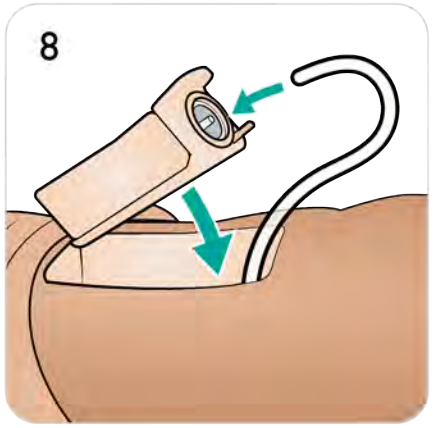


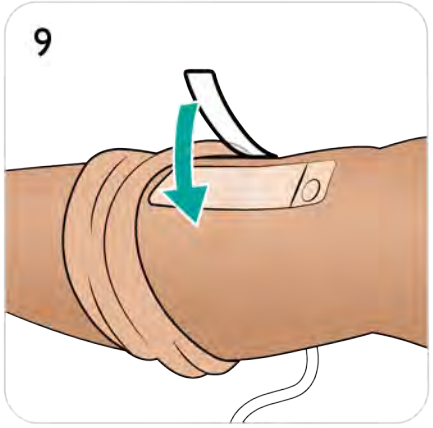


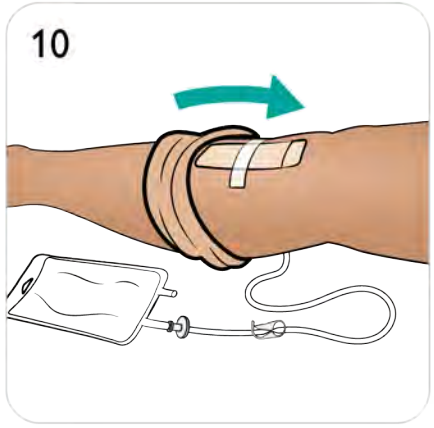






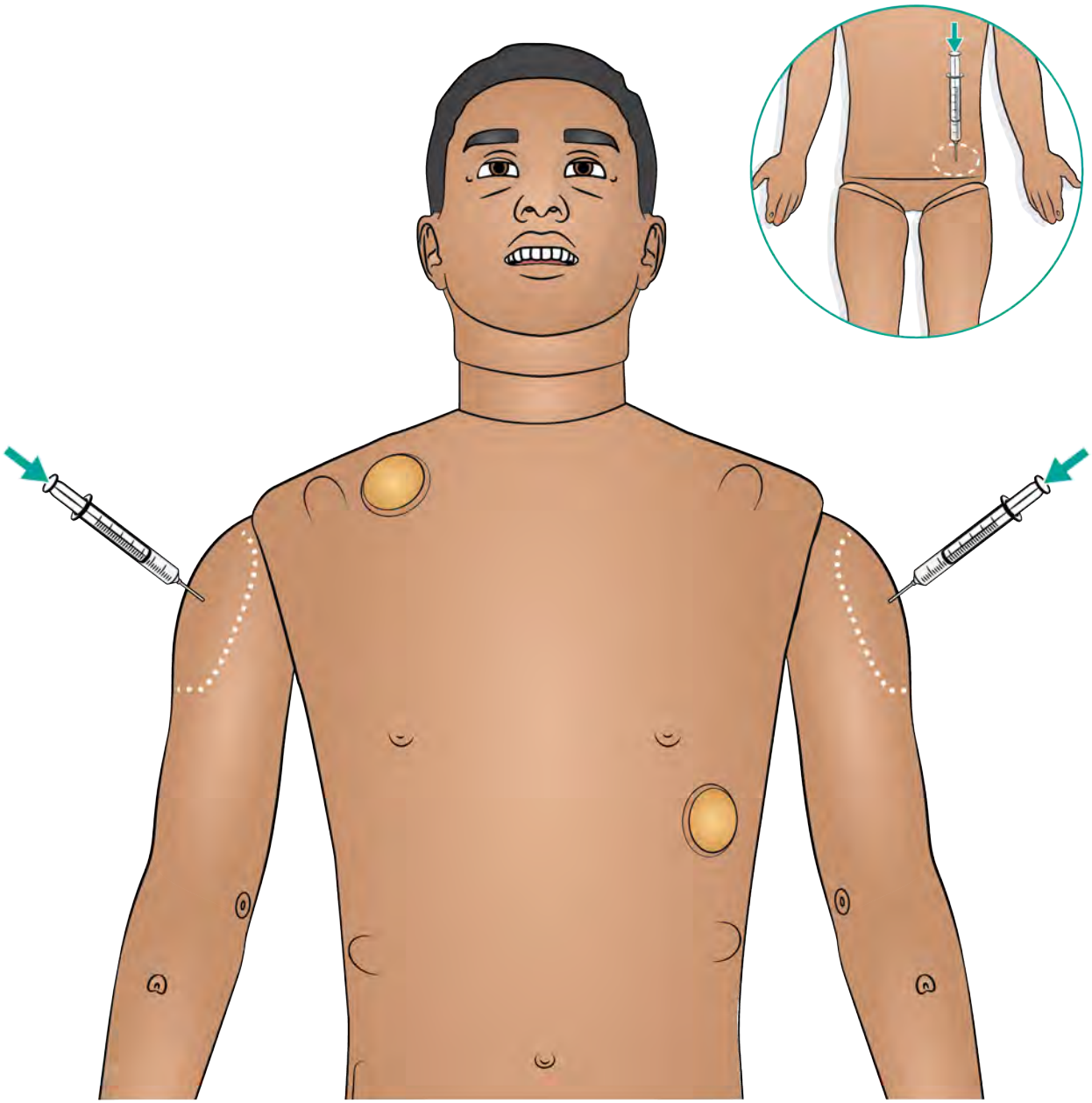






Intramusculat (IM) Injection

Intramuscular injections can be simulated in both the arms and upper hip areas as shown.



Notes

- *The Pelvis IM pad absorbs up to 15 ml of fluid.*
- *The Arm IM pads absorbs up to 10 ml of fluid.*

To dry or replace the pad(s) refer to Maintaining IM Pads & Sheets.

Recommended Device Sizes	
IM needle	21 G (maximum)

Airway Interventions

- Airway Introduction
- Airway Intubation

Setting Lung Compliance and Resistance in LLEAP

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"

Setting Breating Status in LLEAP

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"

Airway Introduction

Airway Interventions

The airway is anatomically modelled as far as the bronchia and can be manipulated by a learner:

- Head tilt/Chin lift
- Jaw thrust with articulated jaw
- Cricoid pressure and manipulation
- Simulated suctioning (oral and nasopharyngeal)

Notes

- *If the tongue fallback feature is enabled, head tilt is required to open the airways for mask ventilations.*
- *For advance airway training ASL 5000 is recommended.*

The following information is automatically registered in the SimMan 3G PLUS simulation session:

- Detection of proper head position
- Jaw Thrust
- Pneumothorax decompression
- Ventilations
- Stomach distension

Nasal Cannulation

Nasal cannulation is possible with standard equipment.

Warning

Do not supply oxygen.

Artificial Respiration of SimMan 3G PLUS

Artificial respiration of SimMan 3G PLUS can be achieved by the following methods:

- Bag-mask ventilation
- Orotracheal intubation
- Nasotracheal intubation
- Transtracheal intubation

Refer to Recommended Sizes of Clinical Equipment for more SimMan 3G PLUS compatible devices.

Notes

- *Do not spray lubricant directly into the airway.*
- *Use of a malleable stylet is recommended; ensure it does not extend beyond the ET tube.*
- *Exhaled CO_2 can be detected with a CO_2 detection device attached to an ET tube.*

Airway Complications

The following airway complications can be controlled by the instructor in LLEAP:

- Tongue edema
- Pharyngeal swelling
- Laryngospasm
- Decreased cervical range of motion
- Trismus
- Can't intubate/Can ventilate
- Can't intubate/Can't ventilate

Surgical Airway

It is possible to simulate an emergency airway through the cricothyroid membrane in SimMan 3G PLUS. Refer to Replacing Cricothyroid Tape and Neck Skin.

Notes

- *In LLEAP the airway and breathing status for the current simulator is shown in a window. Settings for lung resistance, compliance, and other parameters can be made. Refer to **LLEAP Help Files** for further information.*
- *Refer to **LLEAP Help Files** for complete breathing and airway blockage functionality and operating information.*
- *Incorrect positioning will pass air through oesophagus, causing distention of the abdomen.*

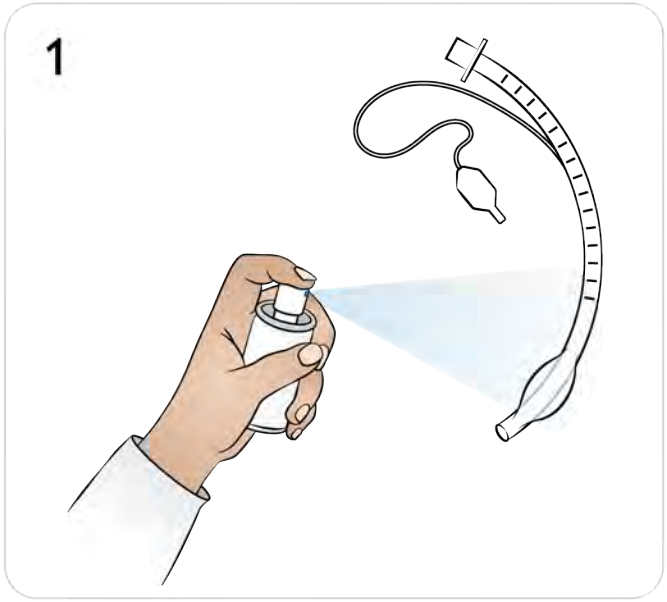
Cautions

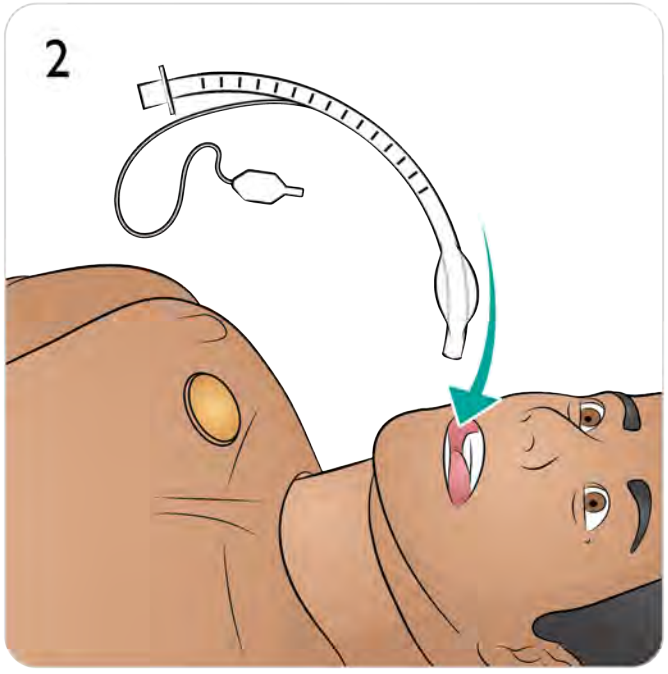
- *Do not put biological or other materials in the simulator's airways.*
- *Only use Manikin Airway Lubricant. Use of silicone or any other lubricant not approved by Laerdal may cause damage to the airways.*
- Refer to the ***Important Product Information*** booklet for further cautions related to the Patient Simulator airway.

Airway Intubation

1. Lubricate airway device.
2. Insert lubricated device into the airway.

⚠ **Caution**
Do not spray lubricant directly into the airway.





Breathing Interventions

- Pneumothorax Needle Decompression
- Chest Tube Insertion

Pneumothorax Needle Decompression

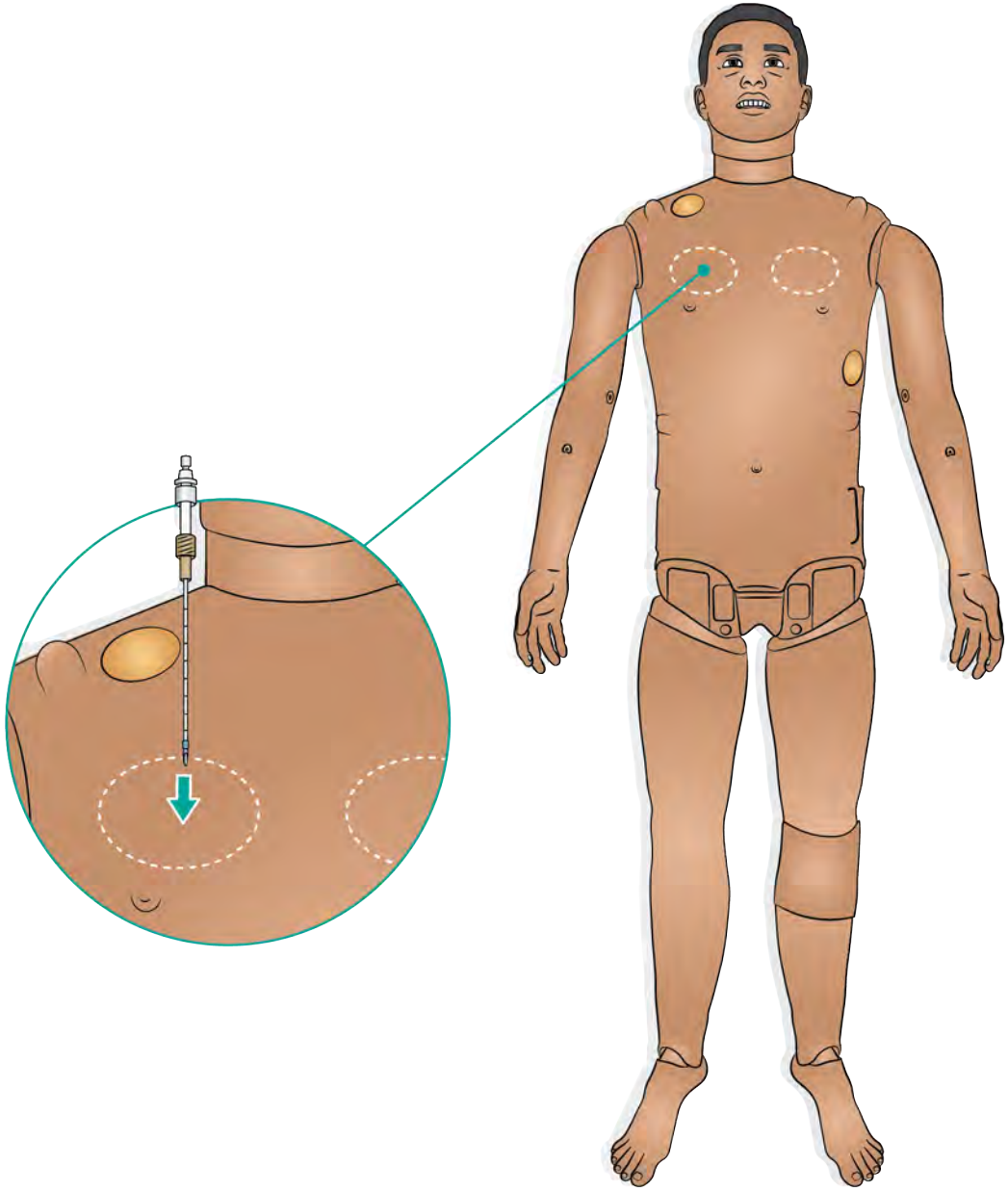
Tension pneumothorax with needle decompression can be performed at the bilateral mid clavicle line, 2nd intercostal space.

The bladders can be punctured approximately 10 times before needing to be replaced. Refer to Replacing the Pneumothorax Bladders.

Setting Breating Status in LLEAP

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"

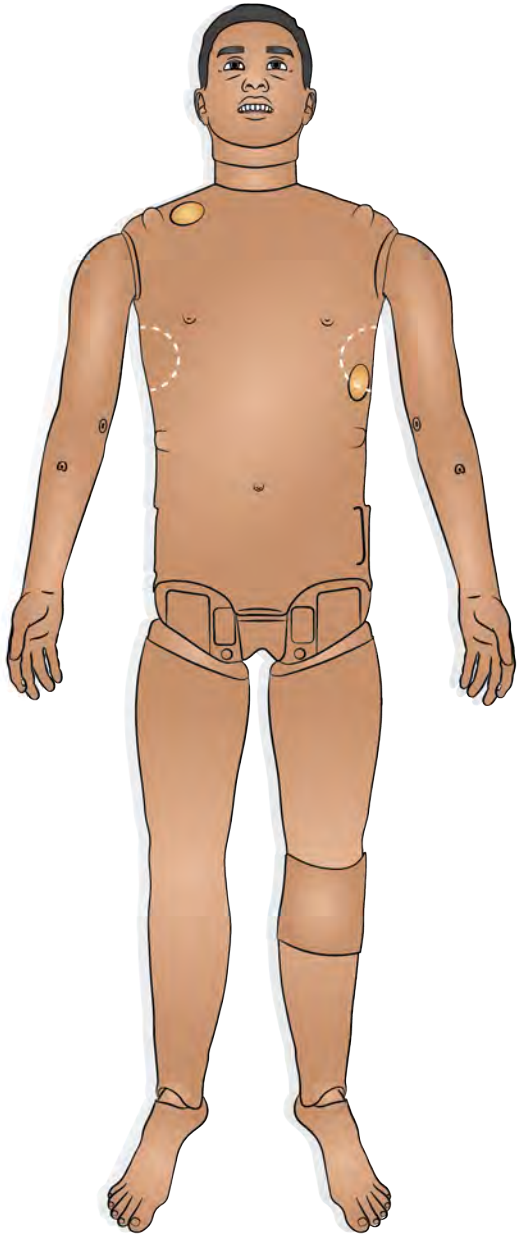


Chest Tube Insertion

Bilateral chest tube insertion can be simulated at the mid-axillary line in the 4th and 5th intercostal spaces.

It is recommended to use chest tubes in the range of 14-28 Fr.

Refer to Replacing the Chest Drain Pleura on how to replace the chest drain pleura.



Cardiac Interventions

- Cardiac Interventions Overview
- Automatic (NIBP) Monitoring
- SpO_2 Monitoring

Cardiac Interventions Overview

SimMan 3G PLUS allows for defibrillation in accordance with 2020 international guidelines for CPR. The LiveShock skin enables connection with a live defibrillator and for the following procedures to be performed:

- Defibrillation
- Synchronised cardioversion
- External pacing with or without capture

Defibrillation

The energy levels and number of shocks required for automatic conversion are set in each simulation Patient Case.

Ensure the defibrillator pads are in good condition and are correctly placed on the defibrillator plates.

Notes

- *Always follow the safety instructions from the defibrillator manufacturer when using the defibrillator on the Patient Simulator.*
- *To prevent overheating during defibrillation, do not exceed a defibrillation sequence of 3 shocks in 45 seconds followed by 1 minute of CPR.*
- *After 30 minutes there must be at least 15 minutes pause in defibrillation before starting a new sequence. Do not repeat this for more than a 4-hour period.*

⚠ Warning

*During live defibrillation, the defibrillator and Patient Simulator may present a shock hazard. All standard safety precautions must be taken when using the defibrillator on the Patient Simulator. Read the **Important Product Information** booklet for more Cautions and Warnings.*

⚠ Caution

Do not defibrillate on the ECG connectors on the Patient Simulator. This will damage the Patient Simulator.

Refer to LiveShock Upgrade Kit on how to install a new skin.

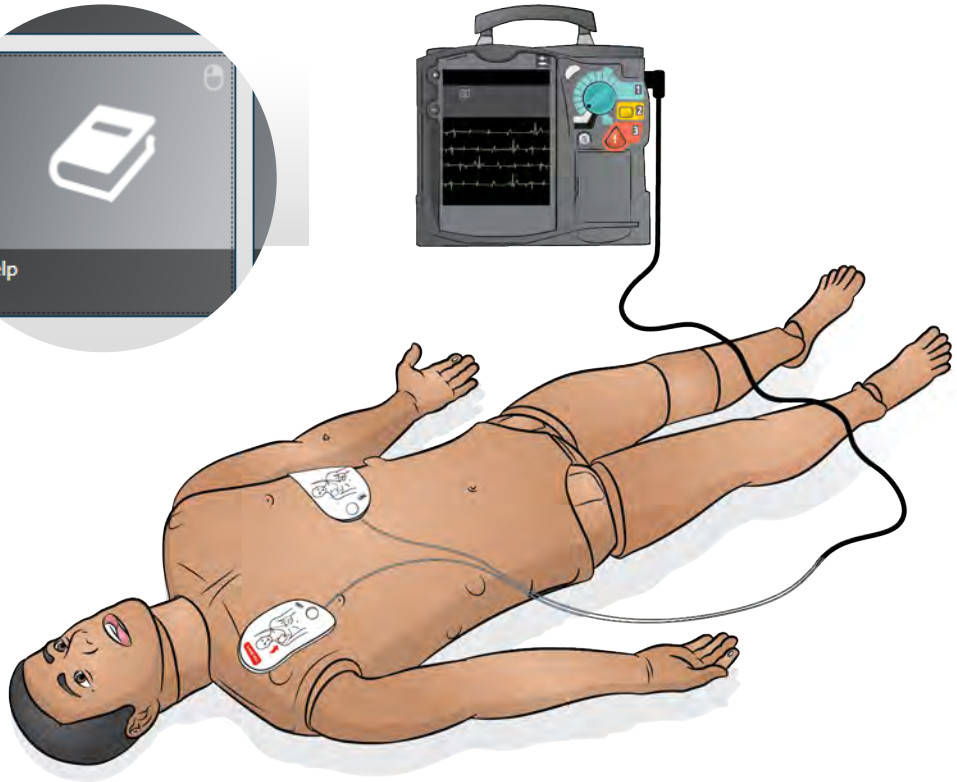
Cardioversion and External Pacing

Synchronised cardioversion and External pacing with or without capture

SimMan 3G PLUS enables the attachment of real electrodes for ECG rhythm monitoring at 4 sites with 3-lead ECG. 12-lead ECG display.

LLEAP features an extensive ECG library and records cardiac rhythms.

Refer to **LLEAP Help Files** for further information.



Automatic NIBP Monitoring

SimMan 3G PLUS enables bilateral, automatic NIBP monitoring with a clinical monitor.

Note

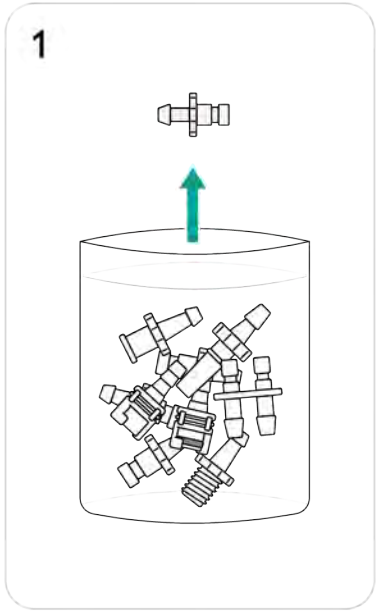
Only use the Blood Pressure cuff supplied with SimMan 3G PLUS.

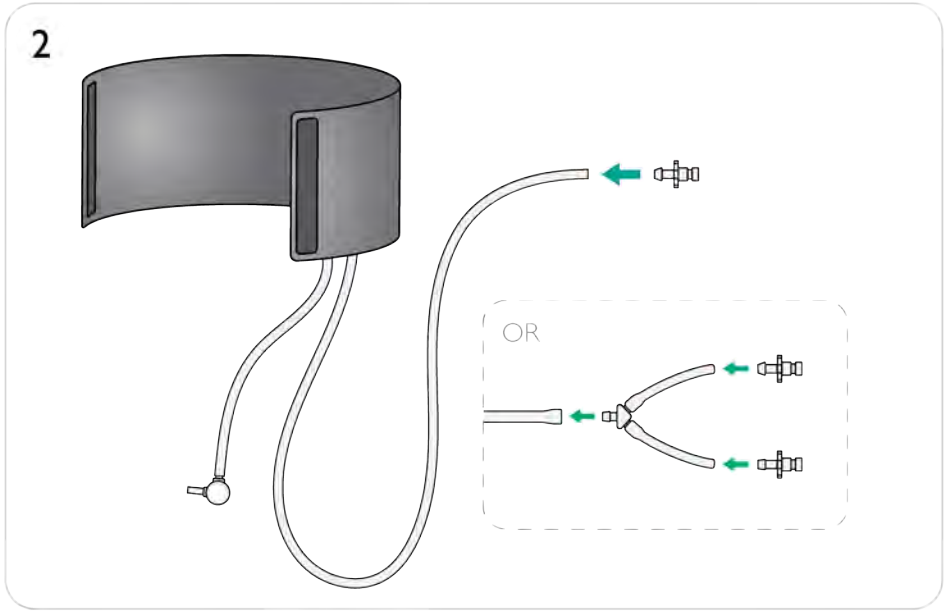
1. Locate correct connector (supplied) to connect BP cuff to Patient Monitor.
2. Attach connector to BP cuff (use a Y-connector if the patient monitor uses a dual tube).
3. Connect short tube with angled connector to BP port and longer tube to the Patient Monitor.

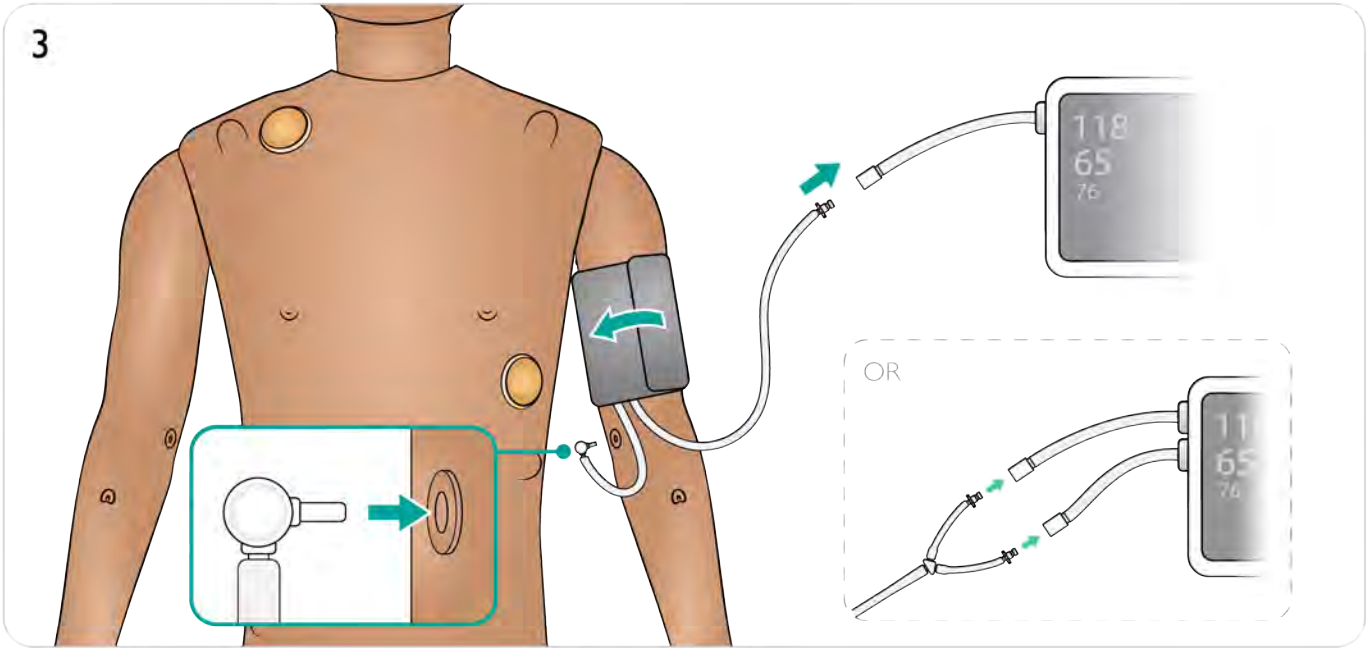
The NIBP system delivers simulated blood pressures with an accuracy of ≤ 10 mmHg (at 15-25 °C, 15-85% RH).

NIBP system range	
Diastolic blood pressure	40-130 mmHg
Systolic blood pressure	60-200 mmHg

Refer to **LLEAP Help Files** for complete blood pressure measurements and operating information.





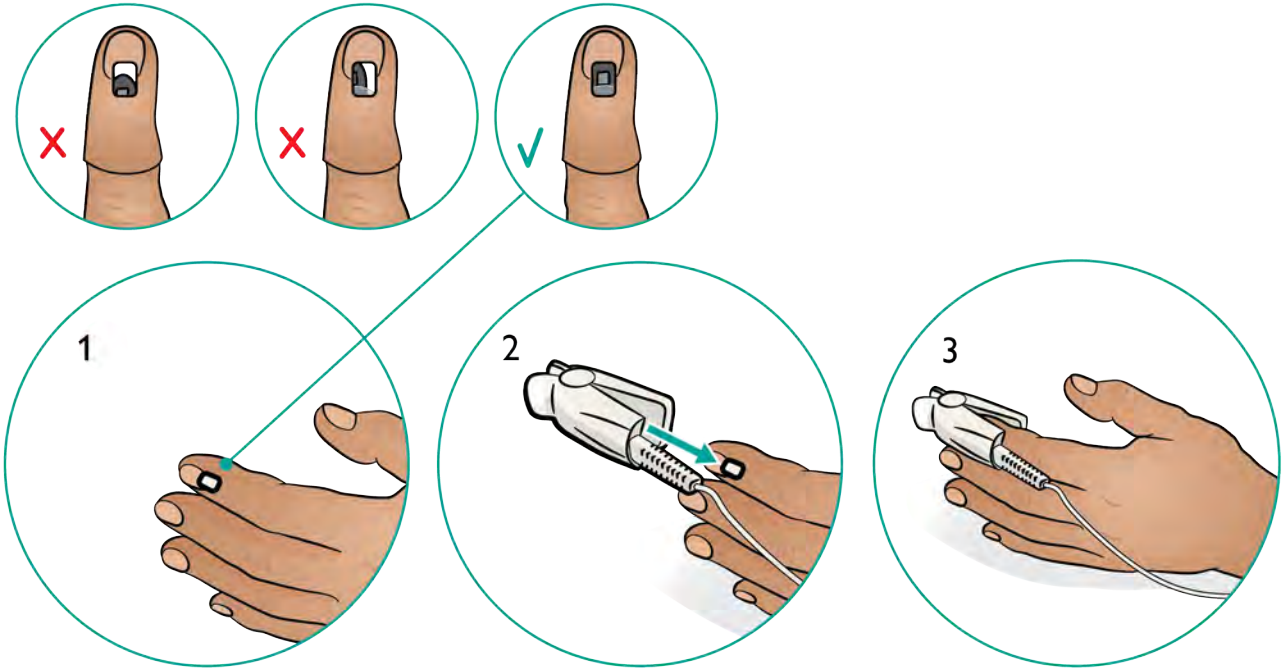


SpO_2 Monitoring

The SimMan 3G PLUS SpO_2 finger contains a light diode and light sensor. When the beam between the diode and sensor is broken, the Patient Monitor Application registers that the SpO_2 probe is connected.

1. Ensure that the index finger skin is correctly aligned with the (translucent) window area.
2. Clip the probe on to the finger ensuring that it is firmly positioned over the SpO_2 window area.
3. If positioned incorrectly a reading may not be recorded on the monitor.

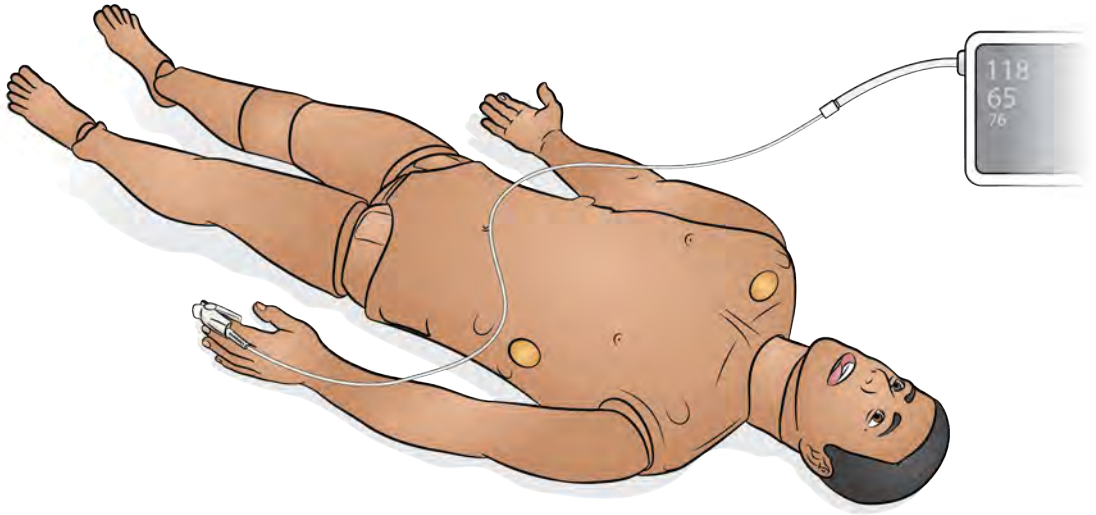
SpO_2 System	
SpO_2 values range (minimum)	70-100% SpO_2
SpO_2 values accuracy of ≤ 5%	70-89% SpO_2
SpO_2 values accuracy of ≤ 2%	90-100% SpO_2



How to Setup NIBP/SpO_2 Function

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"



Measurements, Monitor Compatibility & Operating in LLEAP

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"

Cleaning / Maintenance / Storage

Care & Cleaning
- General Care & Cleaning

Chest and Torso Maintenance
- Opening Torso
- Replacing Torso Skin
- Replacing the Pneumothorax Bladders
- Replacing Chest Rise Bladders
- Replacing the Chest Drain Pleura
- Replacing Lung Bladders

Head, Neck and Airway Maintenance
- Replacing Cricothyroid Tape and Neck Skin

Arm Maintenance
- Opening Arm Skin
- Replacing Arms
- Replacing Arm Skin
- Maintaining Arm IM Pads & Absorbent Sheets
- Replacing the IV Port and Seal
- Maintaining Arm IO Bone

Leg Maintenance
- Replacing Tibial IO

Blood System Maintenance
- Emptying Blood System
- Cleaning the Blood System
- Replacing the Blood System Filter

Fluid System Maintenance
- Emptying Fluid System
- Cleaning the Fluid System

Battery Care and Maintenance
- Replacing Batteries

Transport and Storage Care
- Transport and Storage

General Care and Cleaning

Regular care, cleaning and maintenance are required to ensure longevity of the Patient Simulator.

General Patient Simulator Care

- Wash hands before use and place the Patient Simulator on a clean surface to maintain Patient Simulator skins.
- Wear gloves as required during simulation scenarios. Avoid using colored plastic gloves, as they may cause discoloration of the Patient Simulator skin.
- If a training session involves the use of fluids in the IM, IV and IO sites, drain the fluid immediately after the training session.
- Clean the exterior with water, water and mild soap, or 60% isopropanol as required. Avoid fluids containing over 70% ethanol which can cause damage to gaskets and sealing material.
- When not in use, cover the Patient Simulator and remove pillow from under head.
- Refer to the Maintenance section for further care and maintenance of specific components.

⚠ Cautions

- *Unplug the device from communication lines, mains power outlet or any power source before cleaning.*
- *Do not use liquid cleaners or aerosol cleaners.*
- *Avoid using food-based products in reservoir bags or on simulator as this will promote mold growth and permanent stains.*
- *Do not use felt-tipped markers, ink pens, acetone, iodine or other staining medications near the Patient Simulator. Take care not to place the Patient Simulator on newsprint or colored paper. All staining may be permanent.*
- *Avoid 70% ethanol for cleaning fluids as it can cause failure over time with some of the gaskets.*

Cleaning after Use

- Clean individual components following a training session where heavy usage occurs, or when liquids have been introduced into the system.
- Wipe the skin with a moist cloth to remove stains. Remove wet clothes or linens. Glue residue from the wound module tapes may be removed with a moist cloth.

Cleaning Monthly

It is recommended that the following components are cleaned once or twice a month:

- Arms
- Fluid System
- Blood System

Note

For additional maintenance information related to cleaning of the Arms, Blood and Fluid System, refer to the relevant Maintenance Section.

Cleaning Every 6 Months

Clothing

For washing instructions refer to care labels.

Servicing the Patient Simulator

A full service, including cleaning of the base board, should be performed at regular intervals.

Always Perform a Service

- If liquids have been spilled in the Patient Simulator.
- After use in dusty environments.

Note

All servicing must be performed by qualified service personnel.

Preventative Maintenance

Laerdal strongly recommends the Preventative Maintenance (PM) Service. This service will help to maintain the product in optimal operating condition. Contact your local Laerdal representative for more information.

Opening Torso

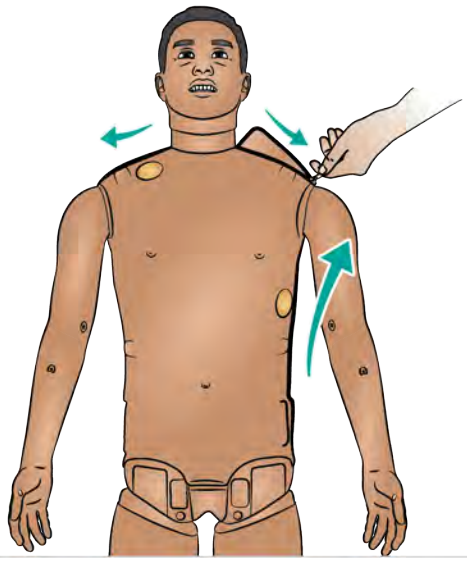
Some maintenance tasks can only be carried out by opening the torso skin.

1. Unzip the skin at shoulders and torso.
2. Remove the genitalia pad.
3. Release the skin flap.
4. Move the skin to one side.
5. Move the stomach foam carefully to one side to avoid pulling on connecting tubes and cables.

Note

Ensure that the tubes and cables are connected to the stomach foam.

1



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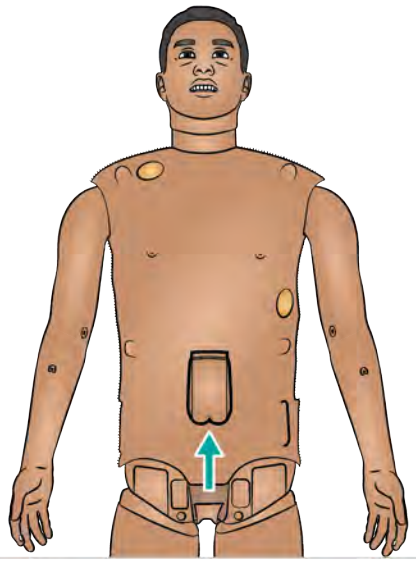

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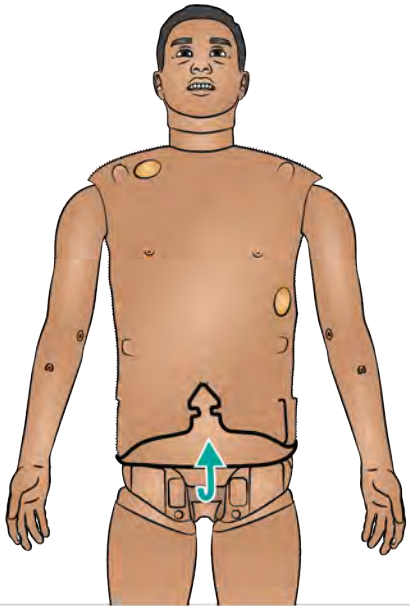

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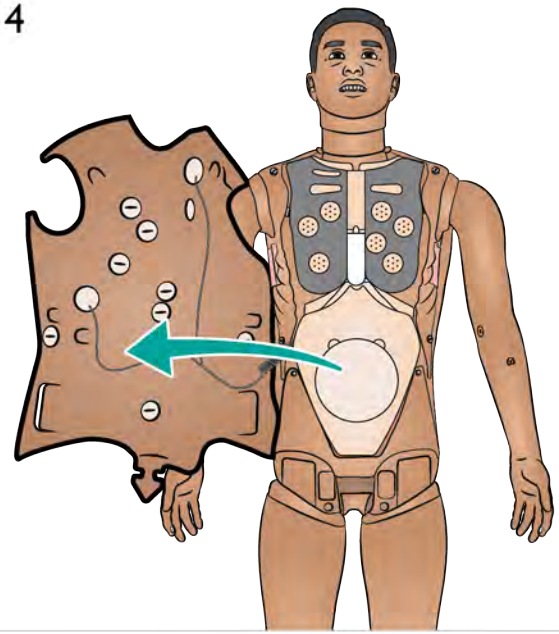

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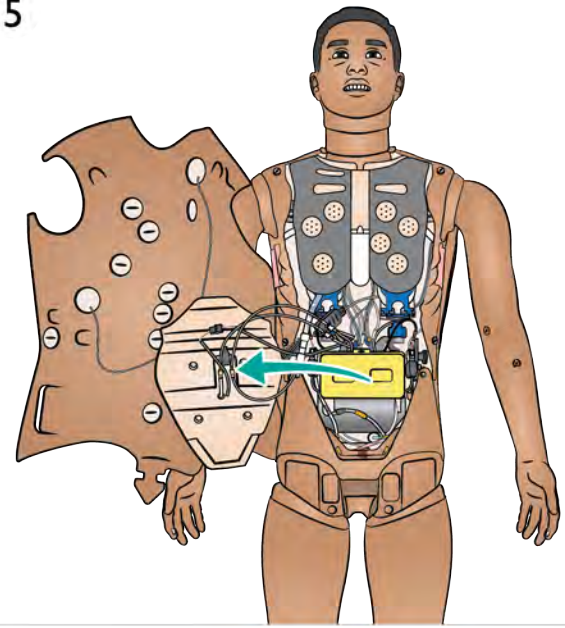
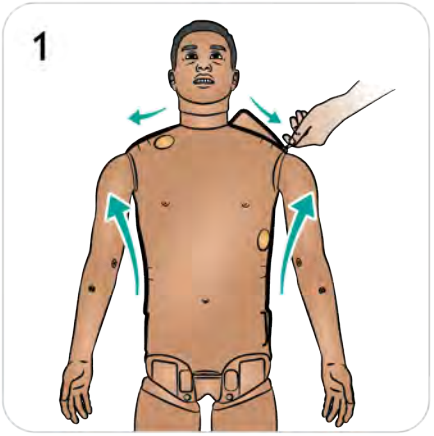
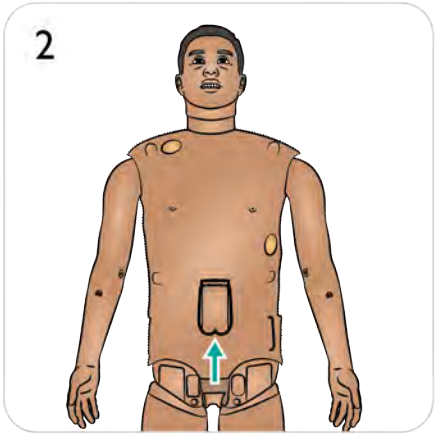
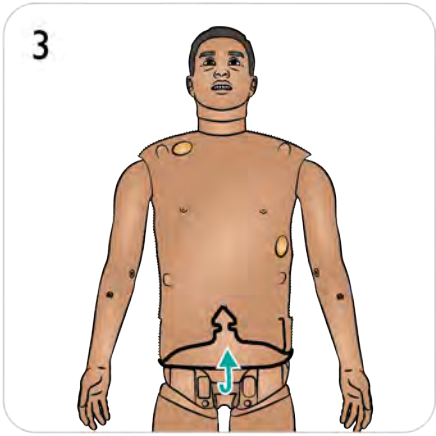


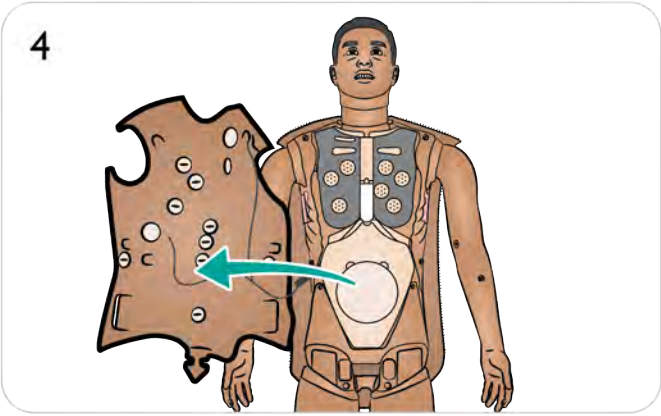
Replacing Torso Skin

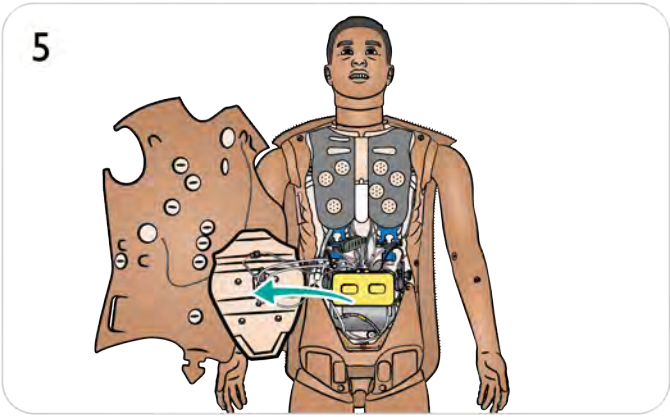
1. Unzip the skin at shoulders and torso.
2. Remove the genitalia pad.
3. Release the skin flap.
4. Move the skin to one side.
5. Move the stomach foam carefully to one side.
6. Disconnect the torso skin cable from the Patient Simulator.
7. Remove the front torso skin section and replace the stomach foam.
8. Remove the back torso skin section.
9. To install a new torso skin, repeat the steps above in reverse.

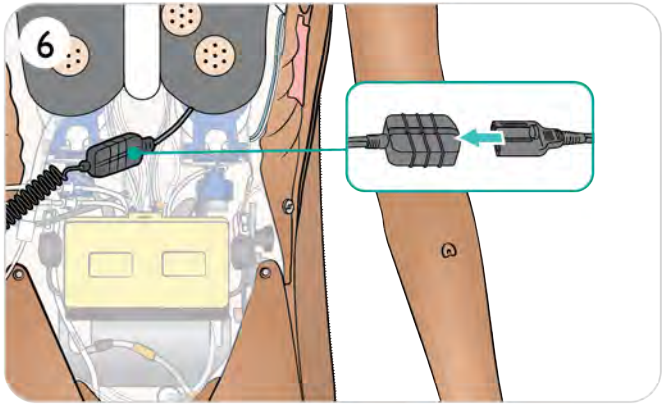


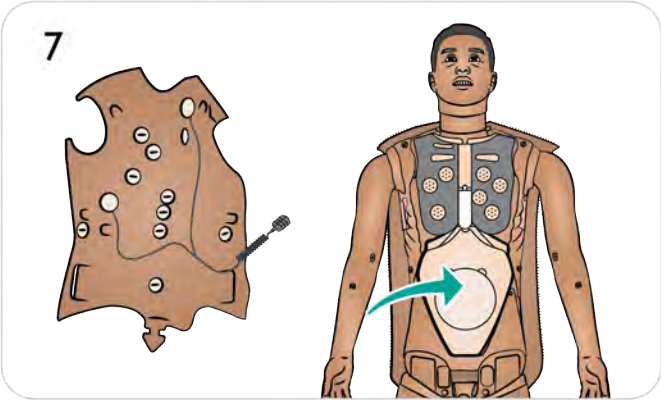


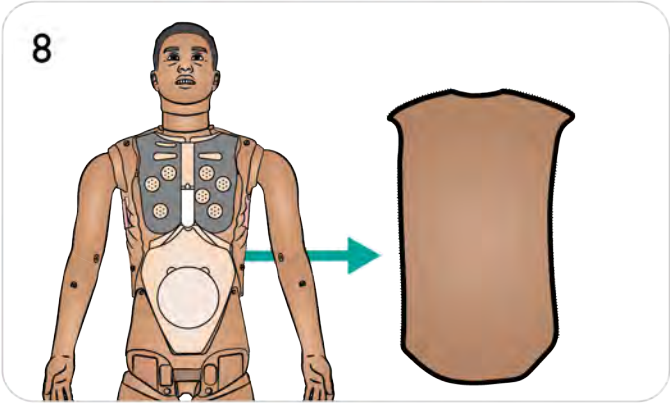










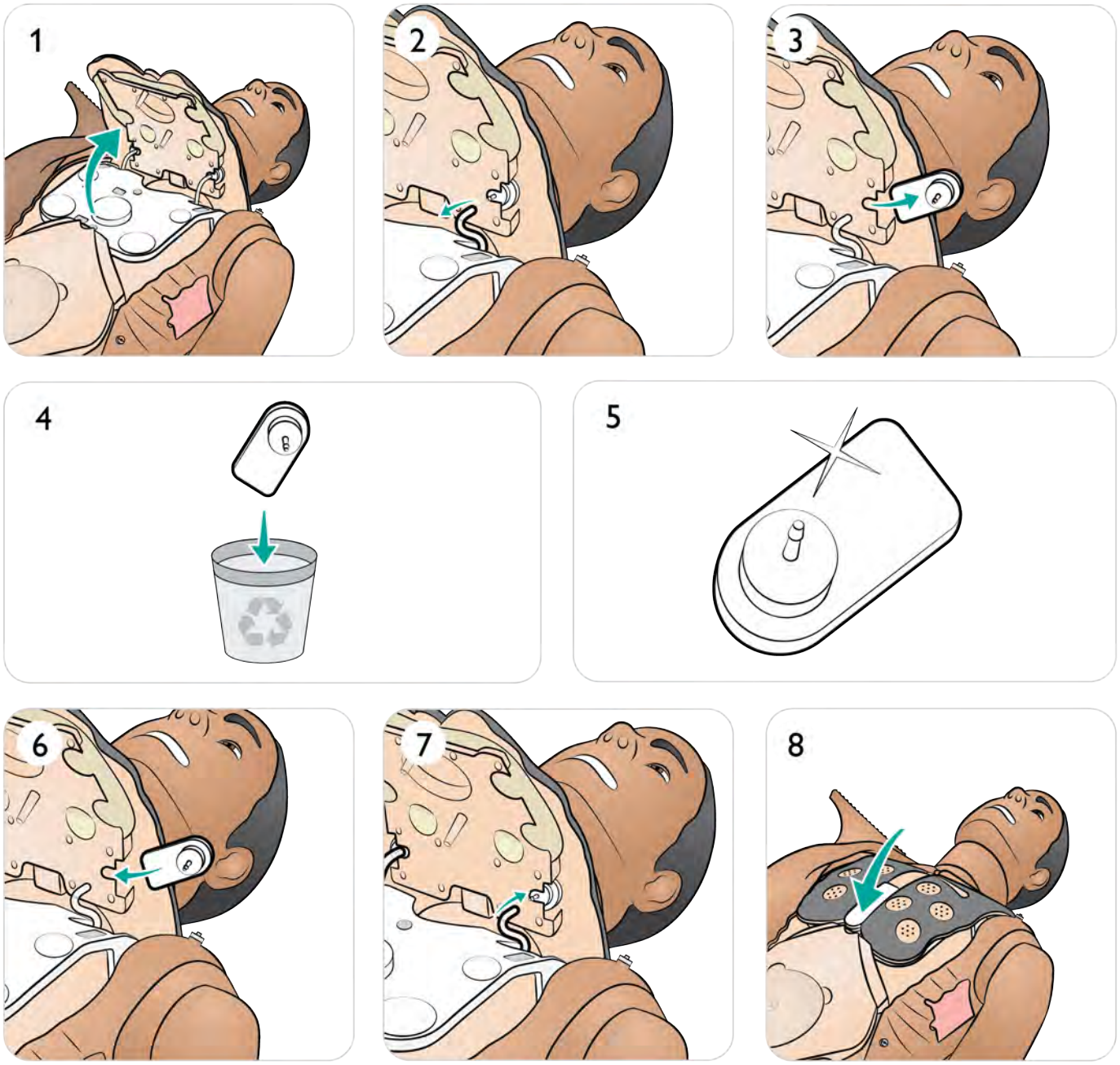


Replacing the Pneumothorax Bladders

Replace the pneumothorax bladders after multiple decompressions.

Open the torso skin as described in Opening Torso.

1. Lift the chest plate to expose pneumothorax bladders.
2. Slide the bladder(s) out.
3. Disconnect the tube(s).
4. Discard used bladder(s).
5. Select new bladder.
6. Slide bladder into place.
7. Reconnect tube to the bladder.
8. Replace chest plate.

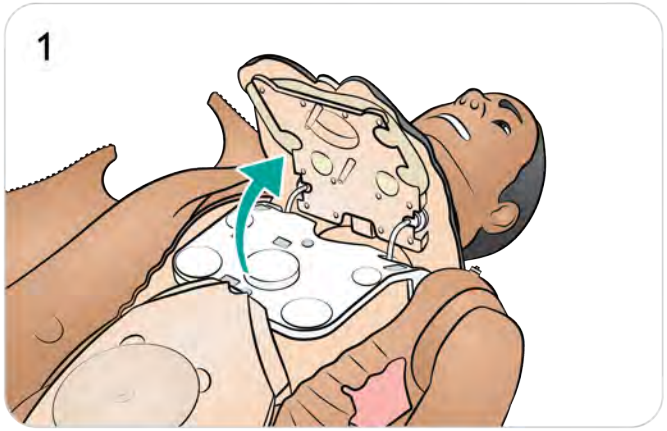


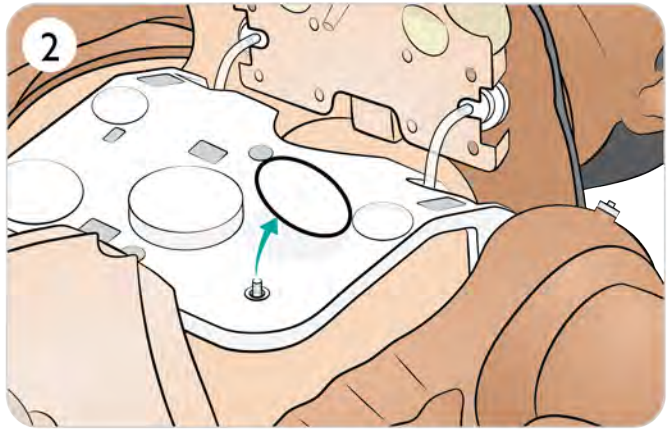
Replacing Chest Rise Bladders

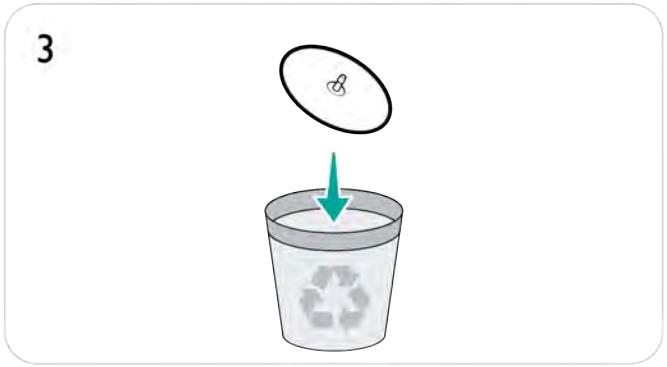
Replace the chest rise bladders if they leak or are damaged.

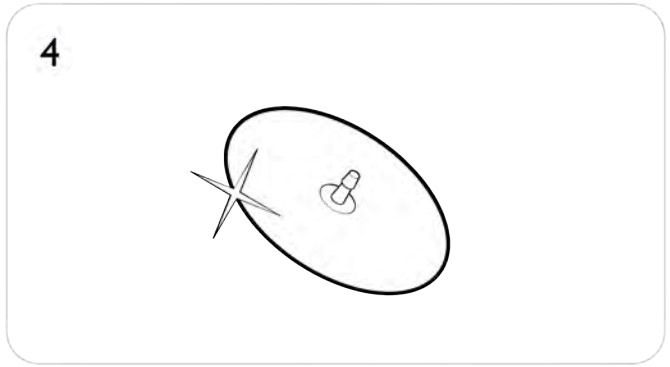
Open the torso skin as described in Opening Torso.

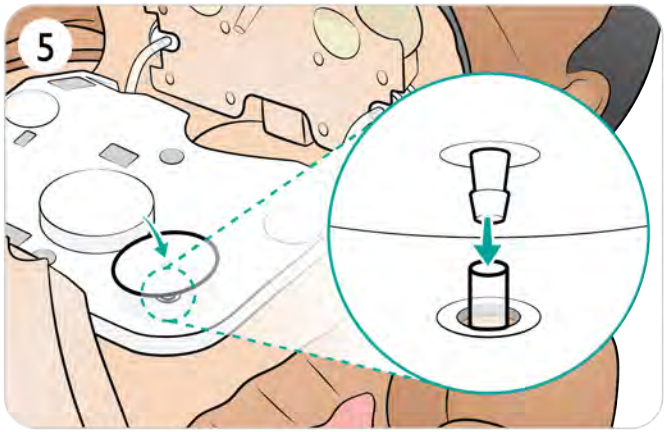
1. Lift the chest plate to expose the Chest Rise bladders (one on each side).
2. Disconnect the tube(s).
3. Discard used bladder(s).
4. Select new bladder.
5. Insert bladder(s) and reconnect tube(s).
6. Replace chest plate.

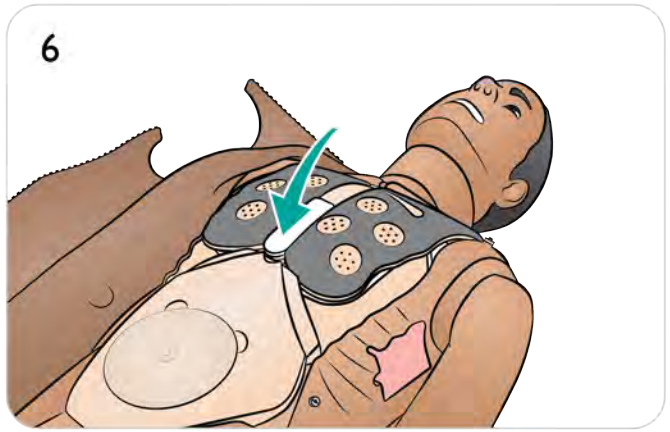








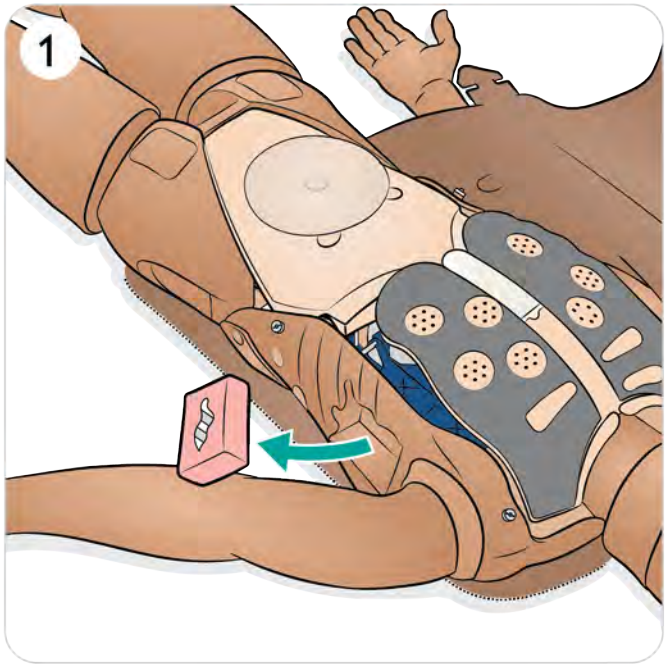


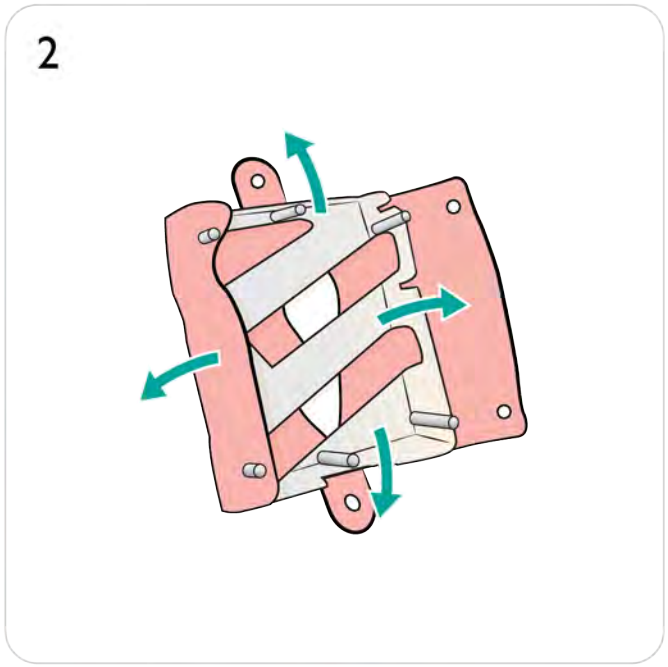


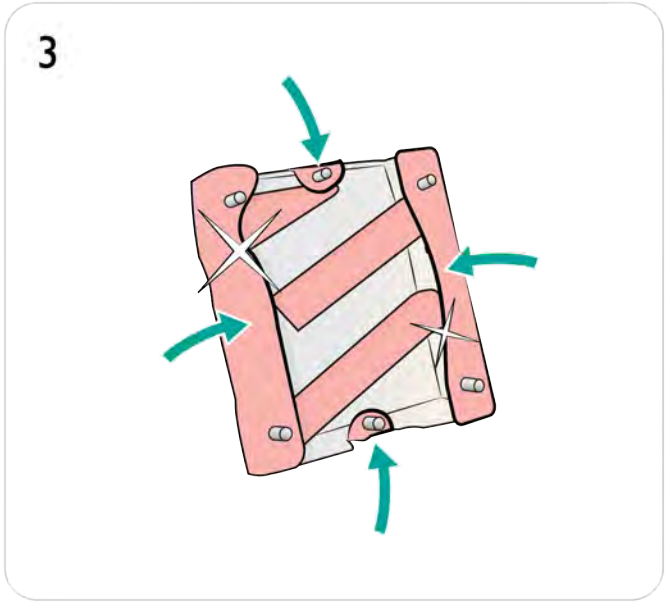
Replacing the Chest Drain Pleura

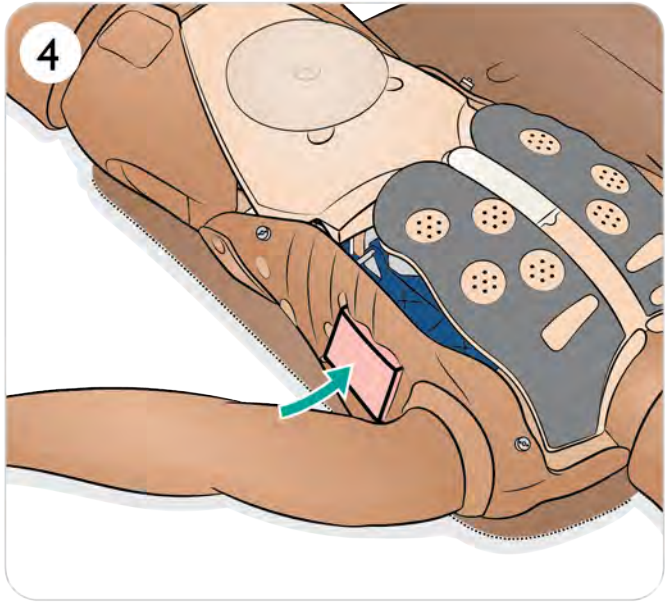
Open the torso skin as described in Opening Torso.

1. Remove used chest drain pleura module.
2. Remove and discard pleura skin from module.
3. Replace used pleura skin with a new one.
4. Insert the module into the torso.







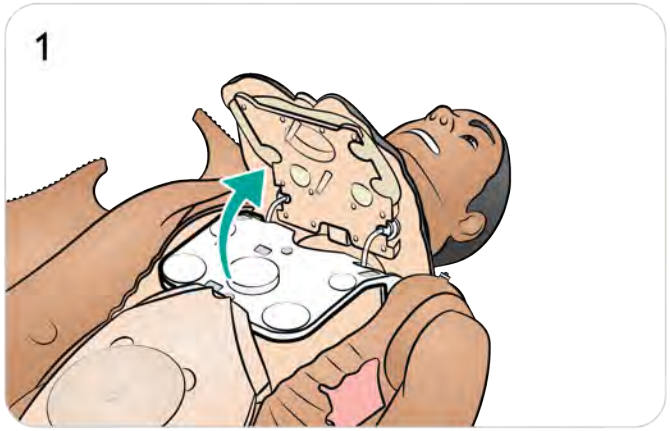


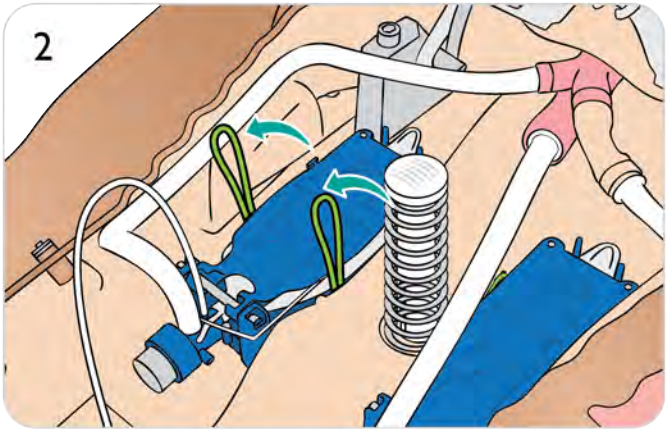
Replacing Lung Bladders - 1/2

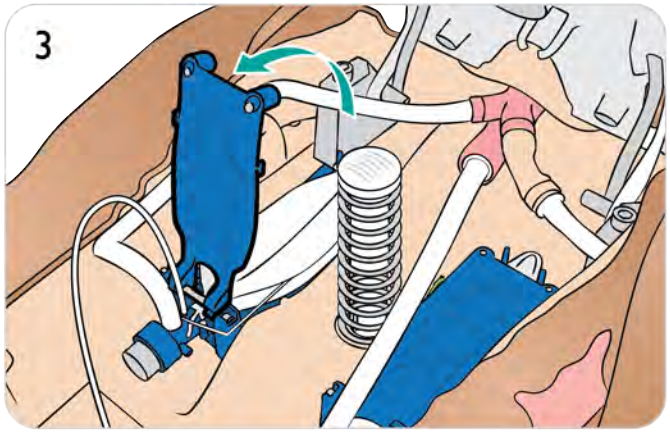
Replace the lung bladders if they leak or are damaged.

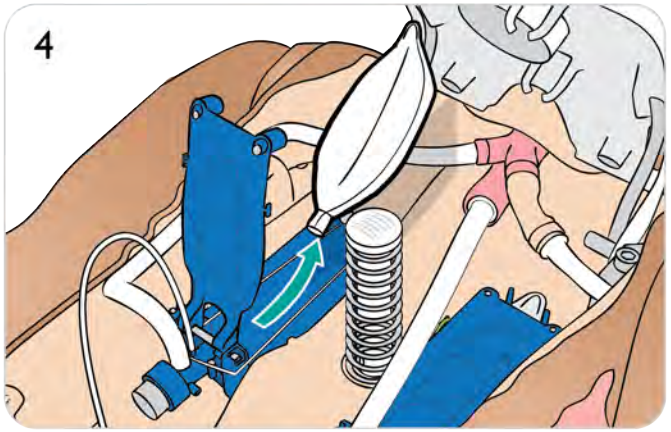
Open the torso skin as described in Opening Torso.

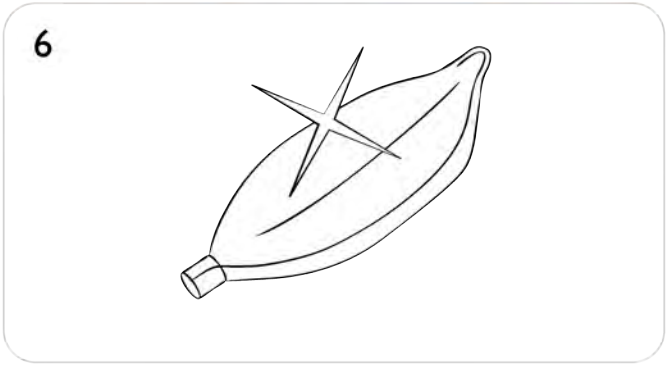
1. Lift the chest and chest rise plates.
2. Unhook the green lung compliance bands on each side of the lung assembly.
3. Lift hinged lung plate.
4. Remove used lung from the socket.
5. Discard used lung.
6. Select new lung bladder.





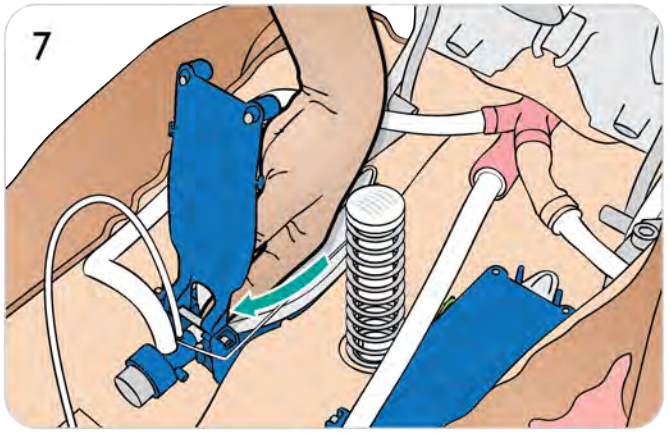


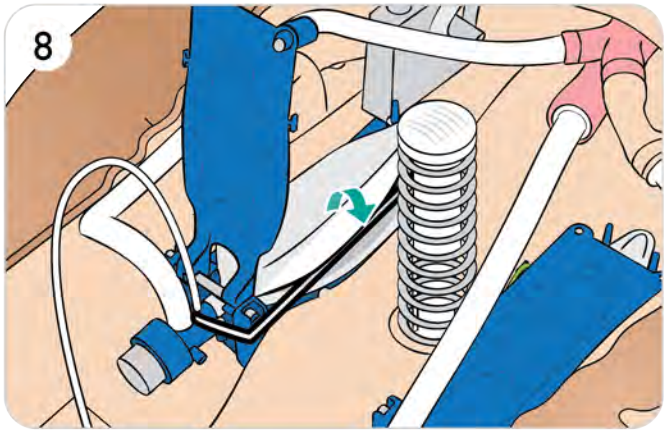


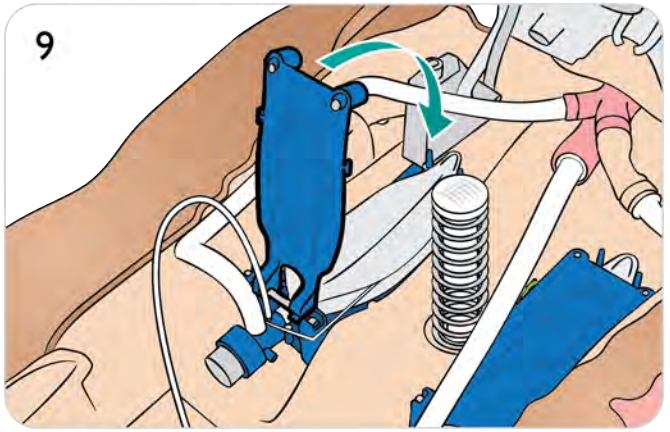


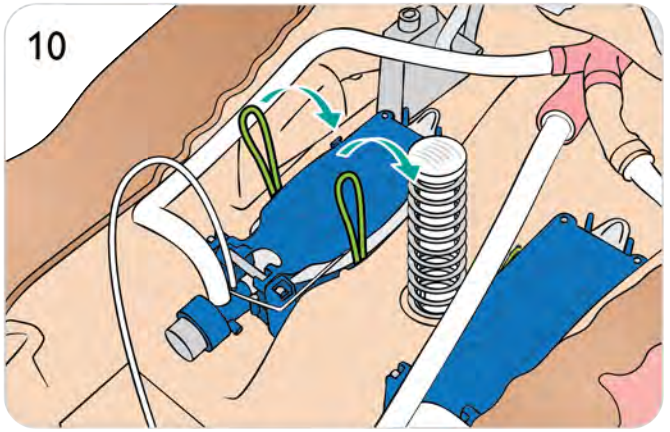
Replacing Lung Bladders - 2/2

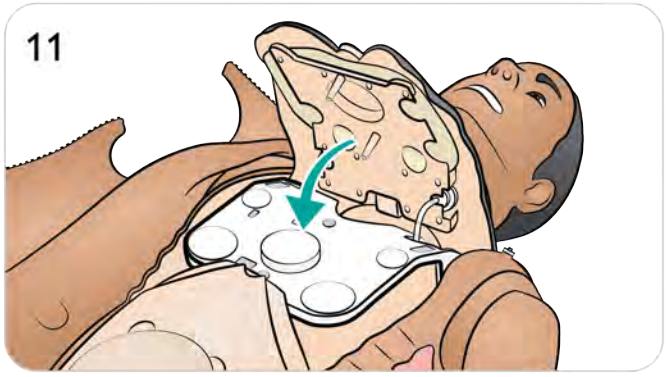
7. Insert new lung bladder into the socket.
8. Ensure that the string is placed in the lung bladder fold.
9. Close hinged lung plate.
10. Secure green compliance bands.
11. Close chest plate.











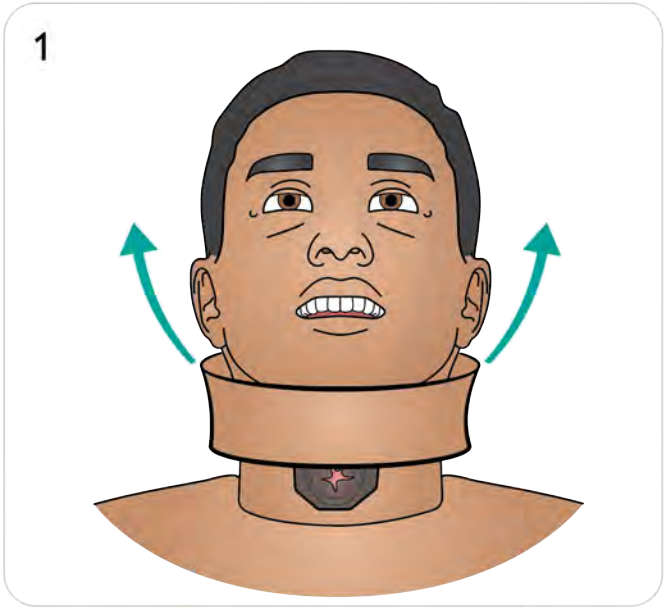
Replacing Cricothyroid Tape and Neck Skin

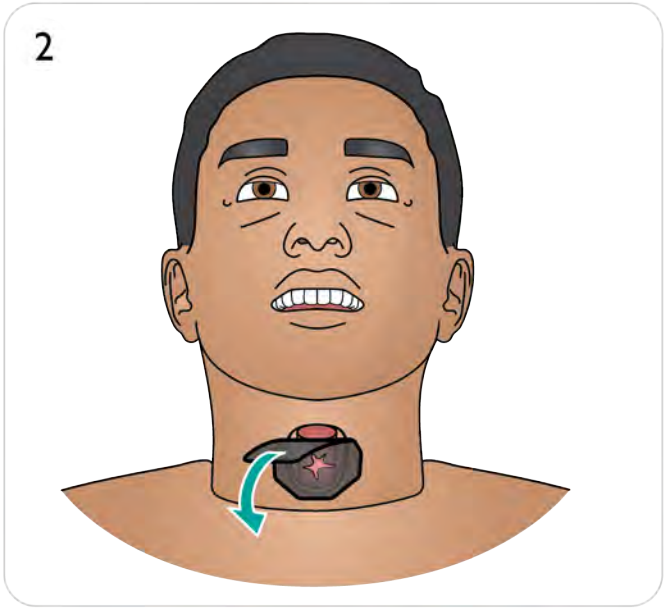
After creating an emergency airway through the cricothyroid membrane, replace the perforated tape before starting a new simulation session.

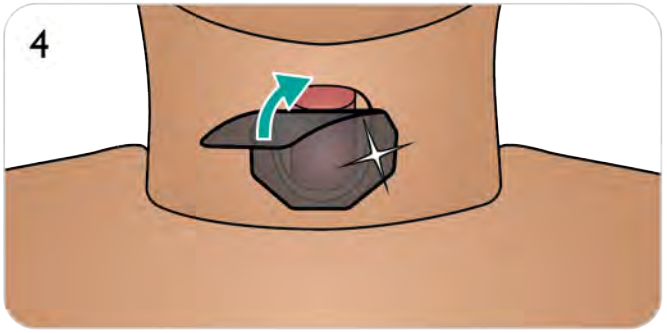
1. Remove neck skin.
2. Remove damaged or perforated tape.
3. Select a new section of cricothyroid tape.
4. Replace with new tape ensuring it completely covers and seals the opening to prevent leakage during ventilation.
5. Replace neck skin.

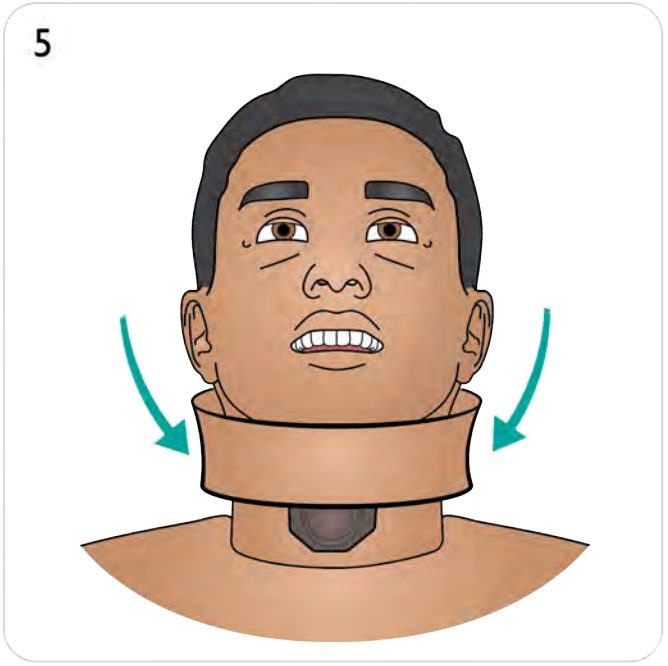
Note

If the used neck skin is in good condition, move the skin along to position a new section over the cricothyroid tape.









Opening Arm Skin

Some arm maintenance tasks can only be carried out by opening the arm skin.

Opening Arm Skin

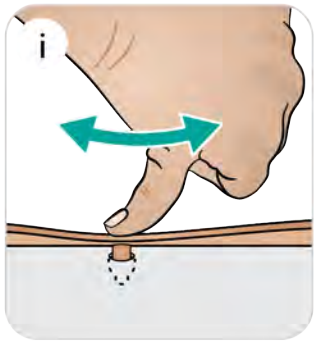
1. **a.** Unzip arm skin from shoulder to wrist.
   b. Position the arm to expose underside and detach skin at each plug.
   c. Detach skin at inner elbow point.

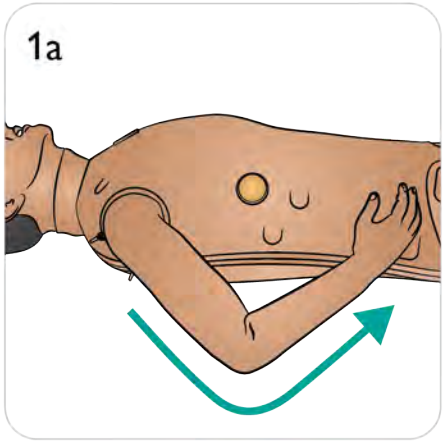
Closing Arm Skin

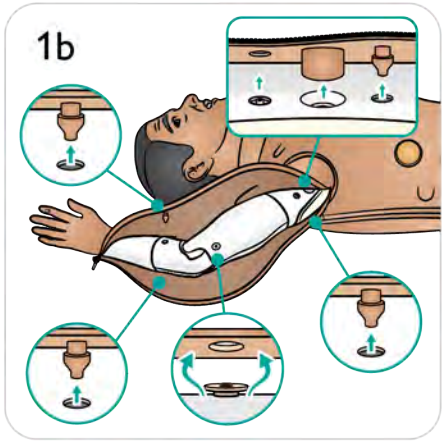
2. **a.** Attach skin at elbow point.
   b. Attach skin at each plug.
   c. Zip up arm skin.
   d. Click the IV port into place.

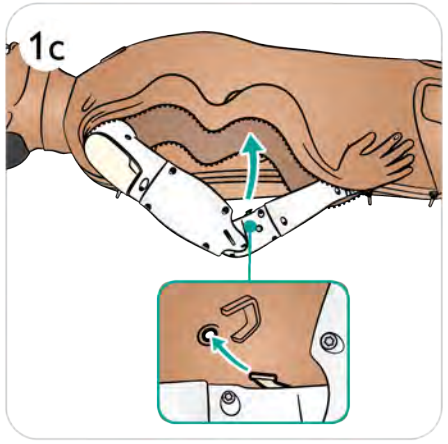
Note

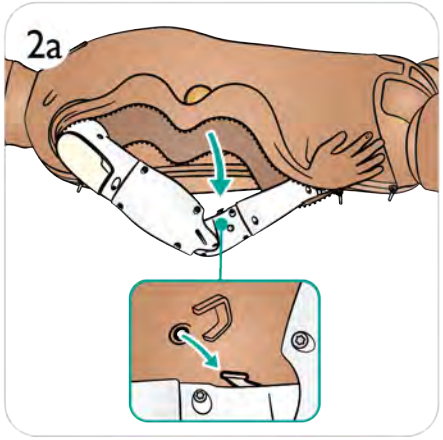
The skin plugs may require manipulation into place using a massaging motion with the thumb.

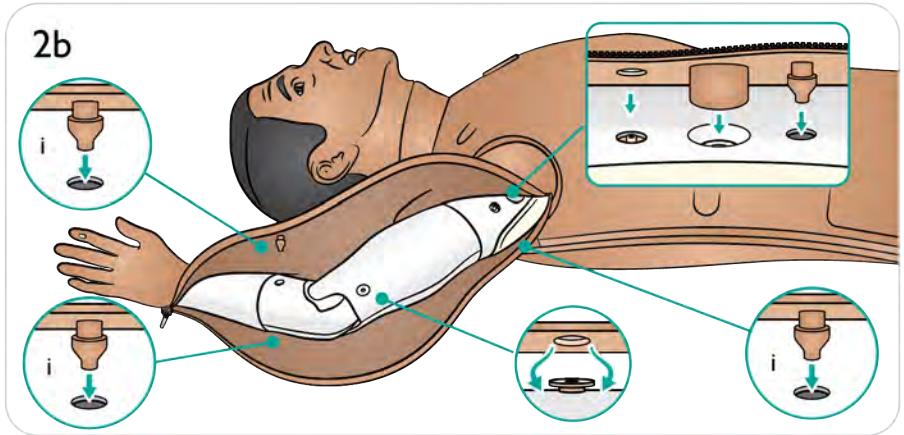


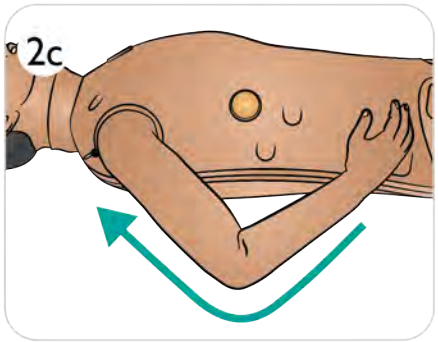


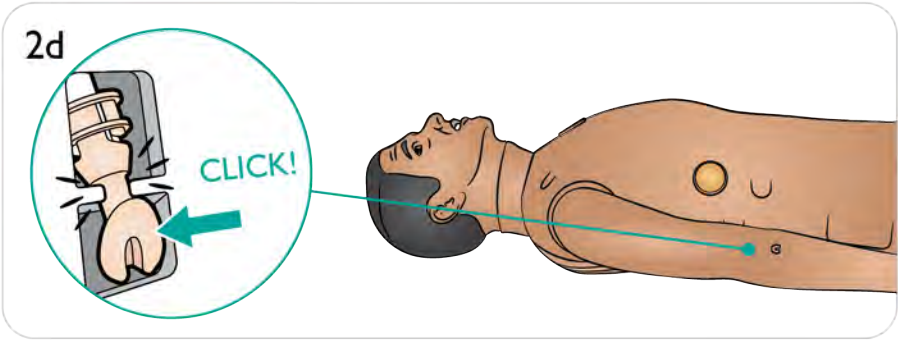












Replacing Arm(s)

1. Unzip the torso skin.
2. Remove the stomach foam and set it aside.
3. Lift up the chest plate to expose the arm bolt.

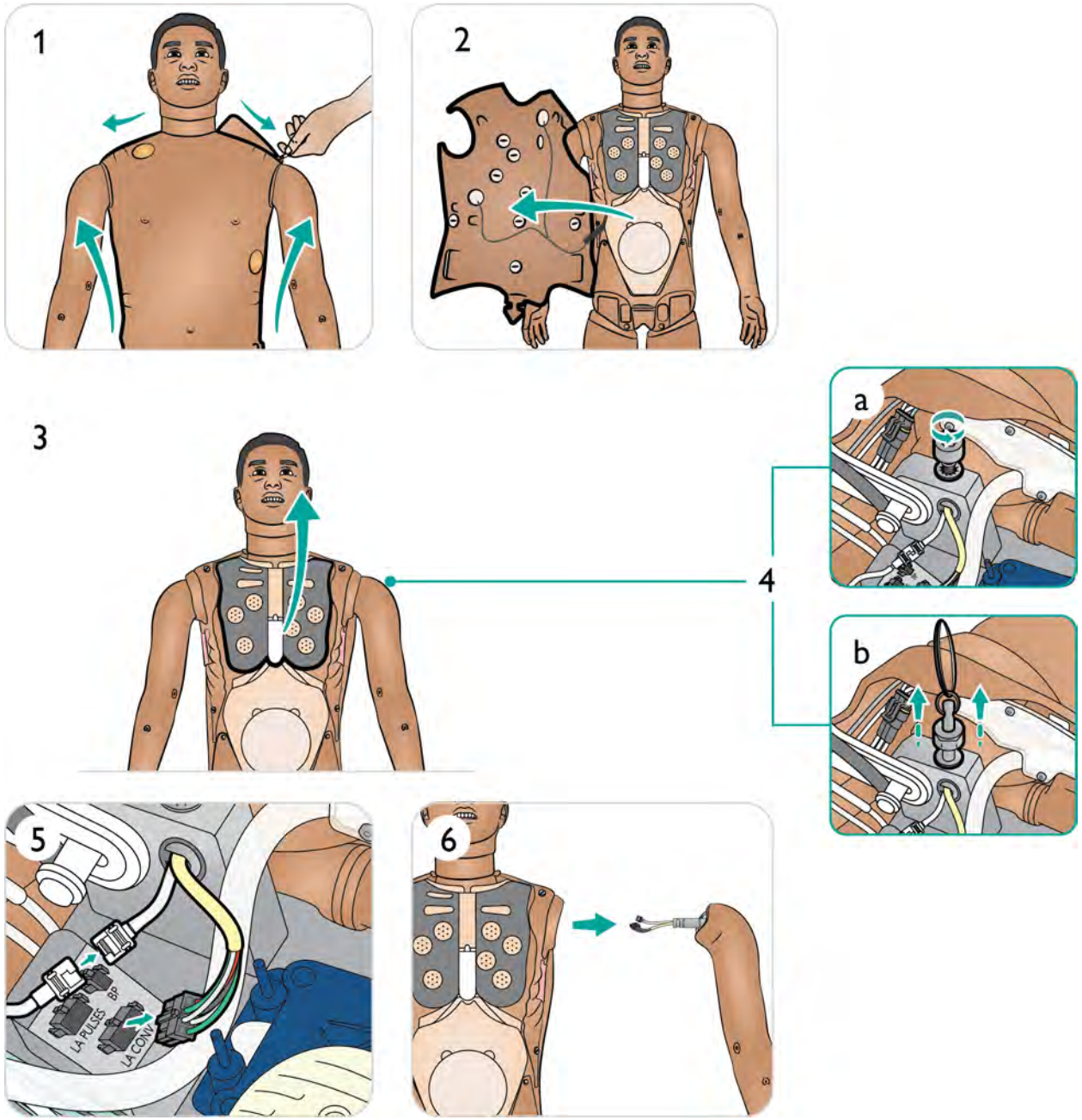
Note
Depending on the model, unlocking the arm is done differently. (see illustration 4a and 4b).

4. a. Unscrew the arm bolt. Do not unscrew fully.
   b. Lift up the arm bolt.
5. Disconnect the cables as shown and feed them out of the arm socket.
6. Remove the arm.
7. Take the new arm.
8. Follow the procedure in reverse to install the arm.

How to Replace Arm

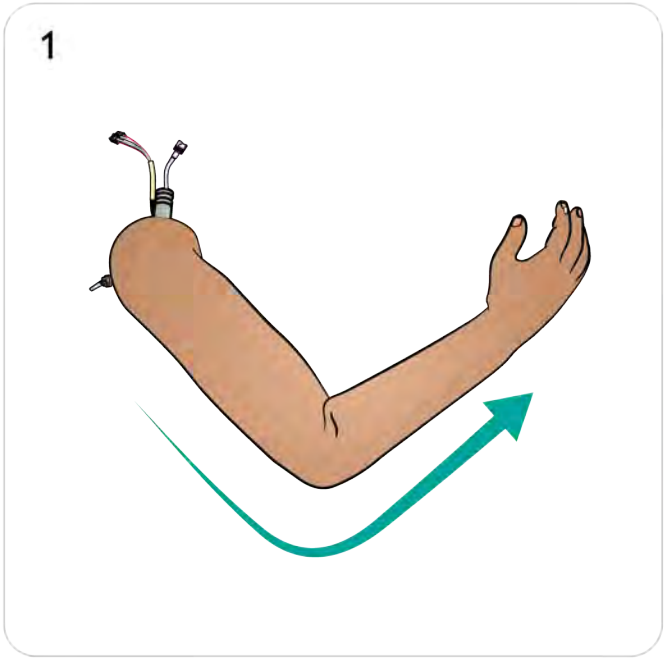
Watch the "How-to video"

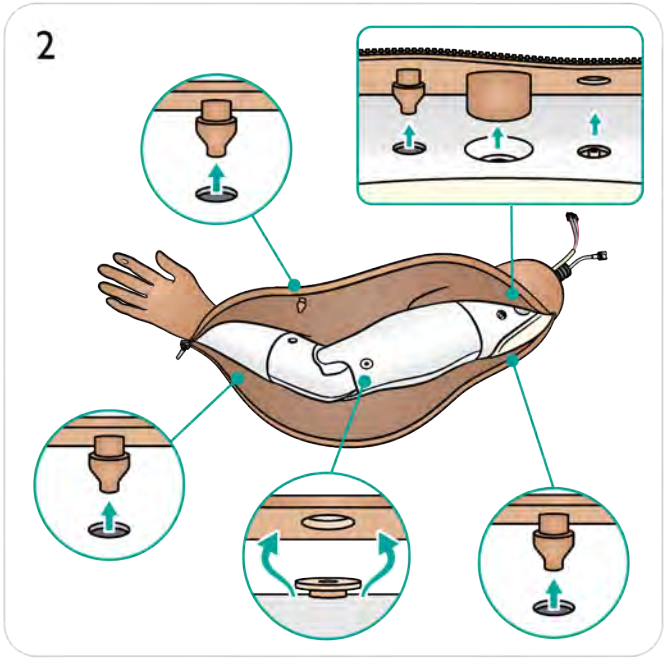
Click on link or scan QR code to watch the "How-to video"

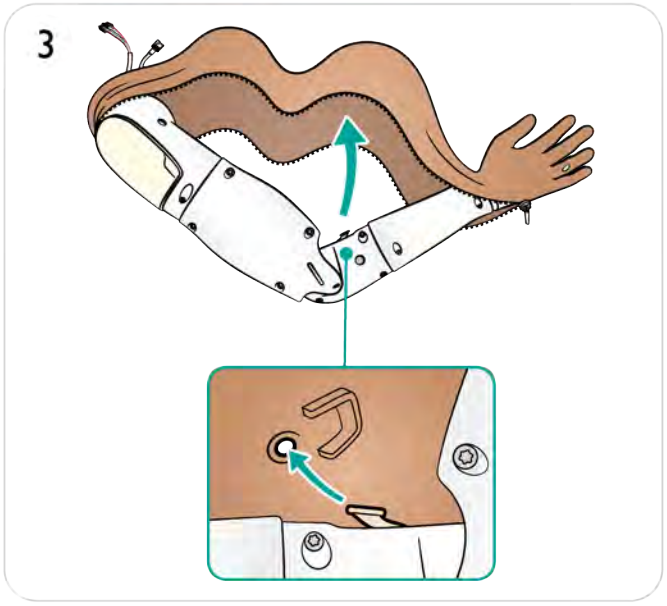


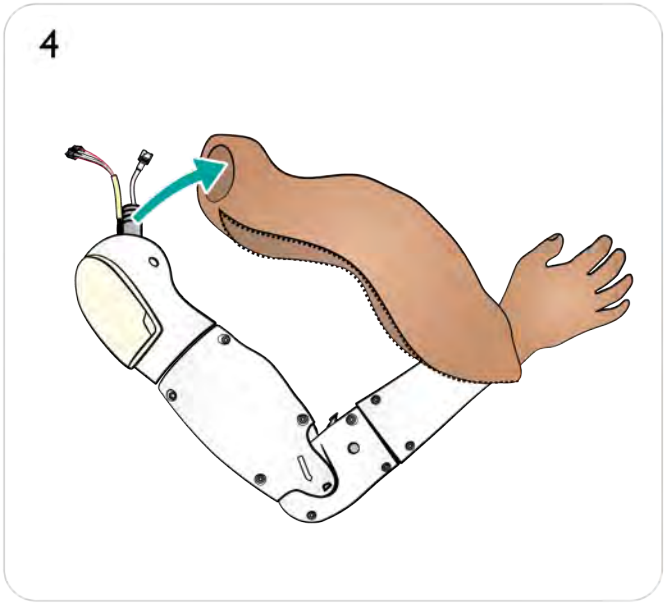
Replacing Arm Skin 1/2

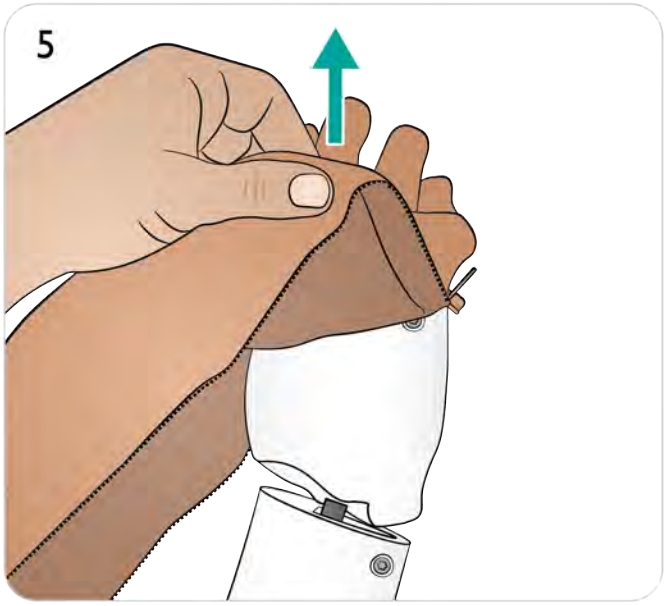
1. Unzip arm skin.
2. Position the arm to expose underside and detach skin at each plug.
3. Detach skin at inner elbow point.
4. Remove skin from the shoulder area.
5. Remove skin from the hand.





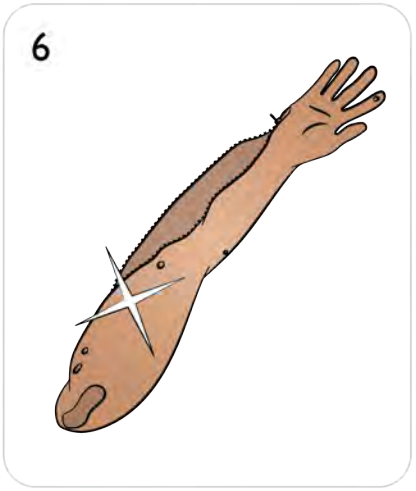


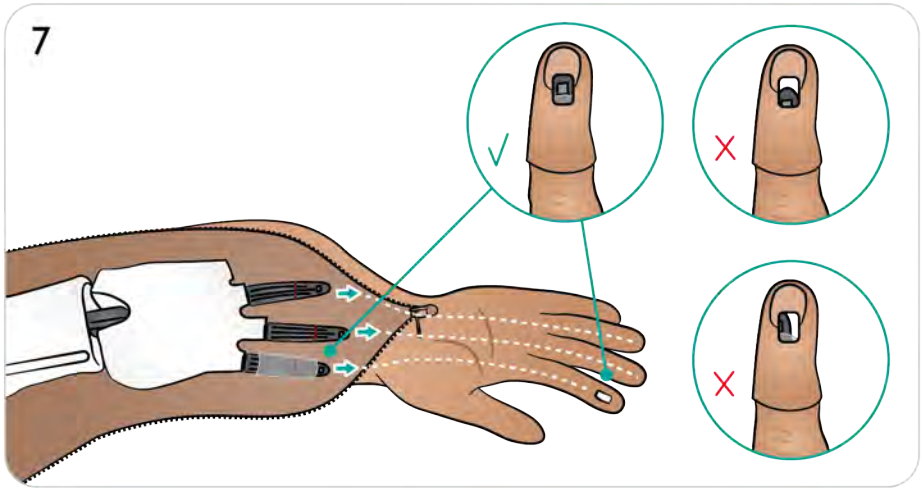


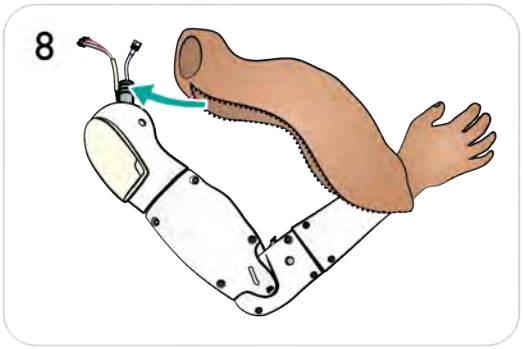


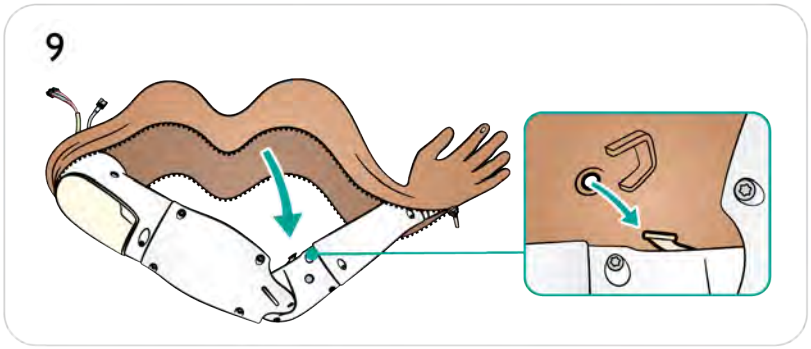
Replacing Arm Skin 2/2

6. Select new arm skin.
7. Insert arm into new skin, ensuring that the SpO_2 finger window is positioned correctly over the sensor area.
8. Place arm skin over shoulder area and tubing.
9. Attach skin at elbow point.
10. Attach skin at each plug.
11. Click the IV port into place.



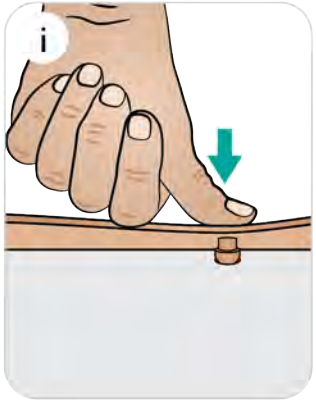


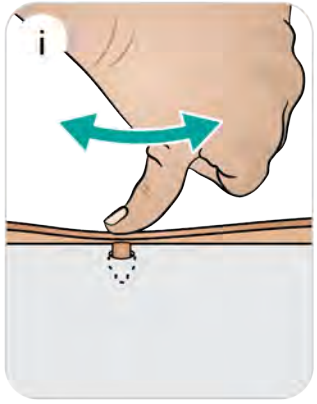


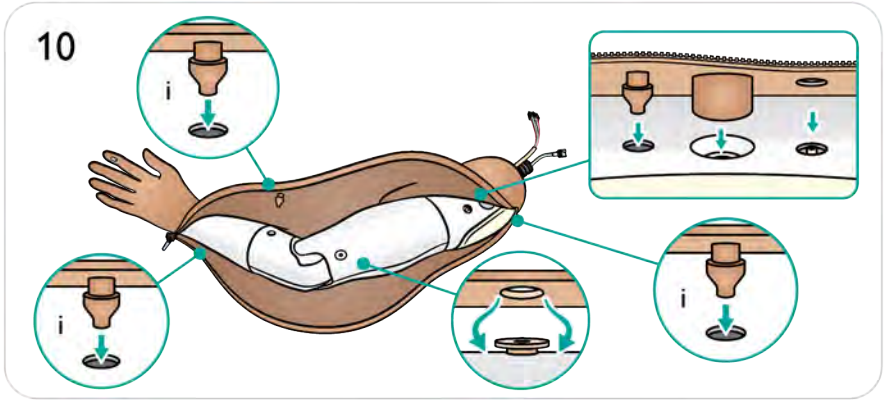


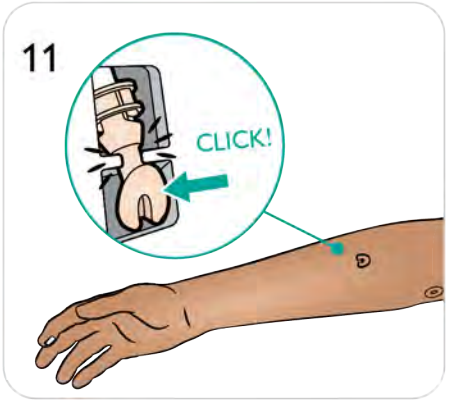
Note

The skin plugs may require manipulation into place using a massaging motion with the thumb.









Maintaining Arm IM Pads & Absorbent Sheets 1/2

The Arm IM Pad can be punctured numerous times before being replaced or dried. It can withstand up to 5 x 2 ml injections before needing replaced with a dry pad.

1. Partially unzip arm skin to wrist.
2. Remove the Arm IM Pad.
3. Wring out fluid from the pad.
4. Completely air dry (approximately 12 hours).
5. Lift out the IO Arm Bone
6. Remove Absorbent Sheet, if wet.

Maintaining Arm IM Pads & Absorbent Sheets

Watch the "How-to video"

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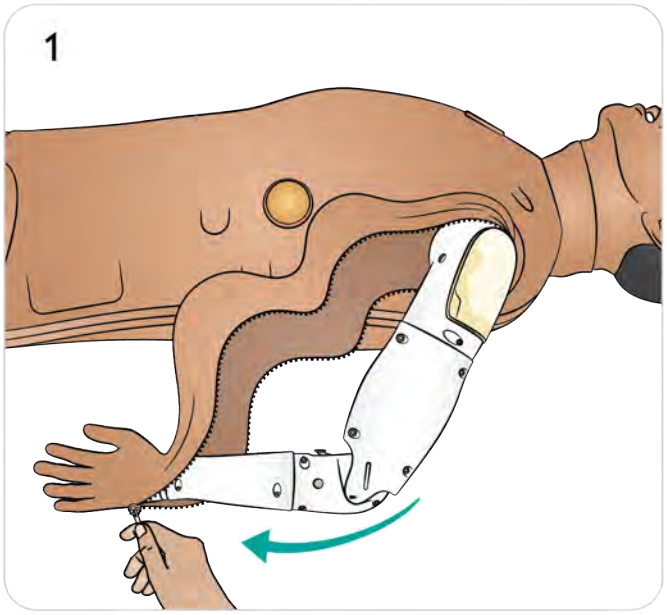
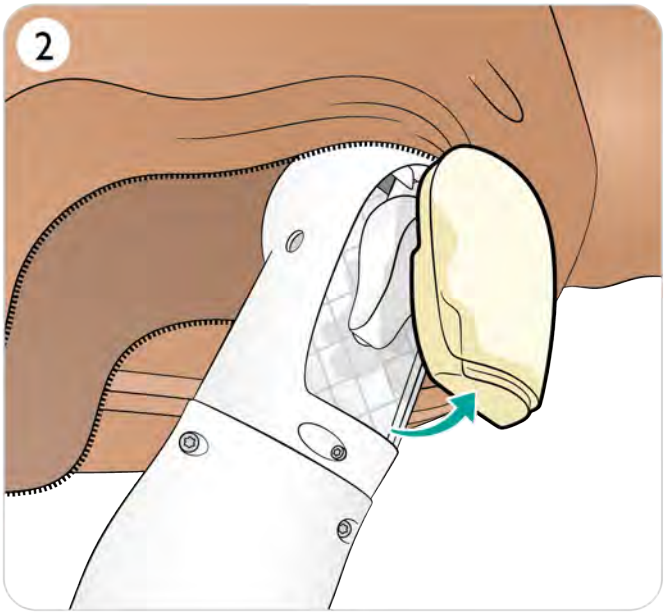
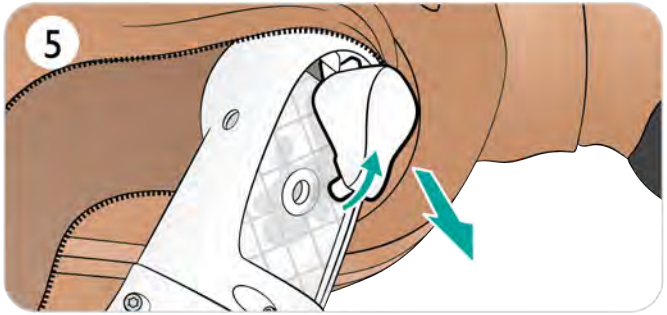
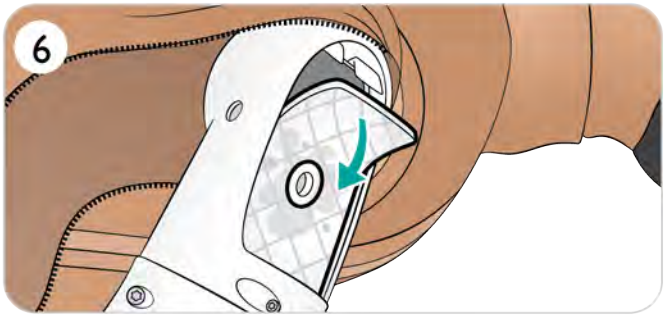


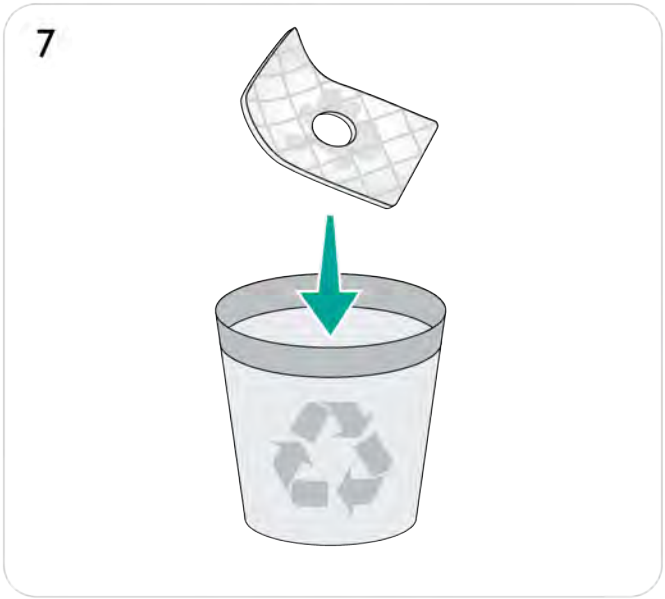


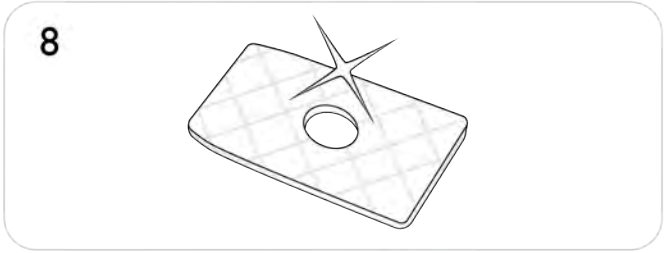


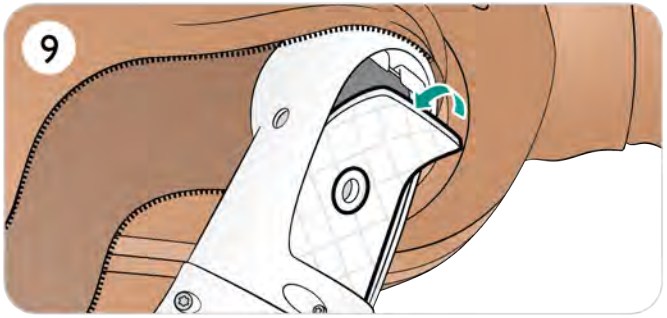


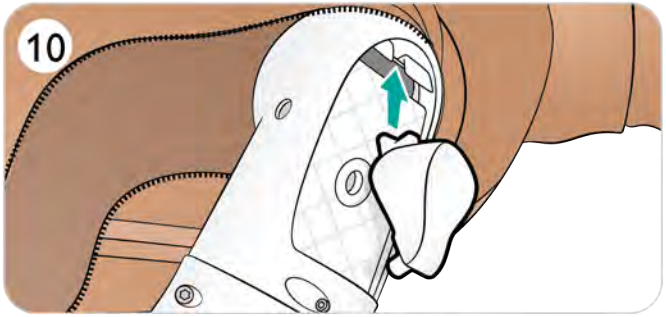
Maintaining Arm IM Pads & Absorbent Sheets 2/2

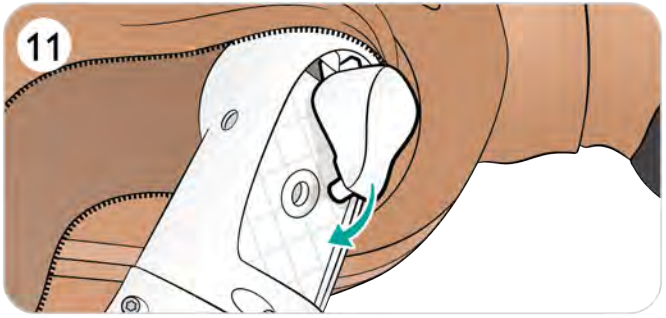
7. Discard used sheet.
8. Select new sheet.
9. Insert sheet into place.
10. Replace Arm IO Bone
11. Ensure that base of IO Bone slots into place.
12. Replace Arm IM Pad.

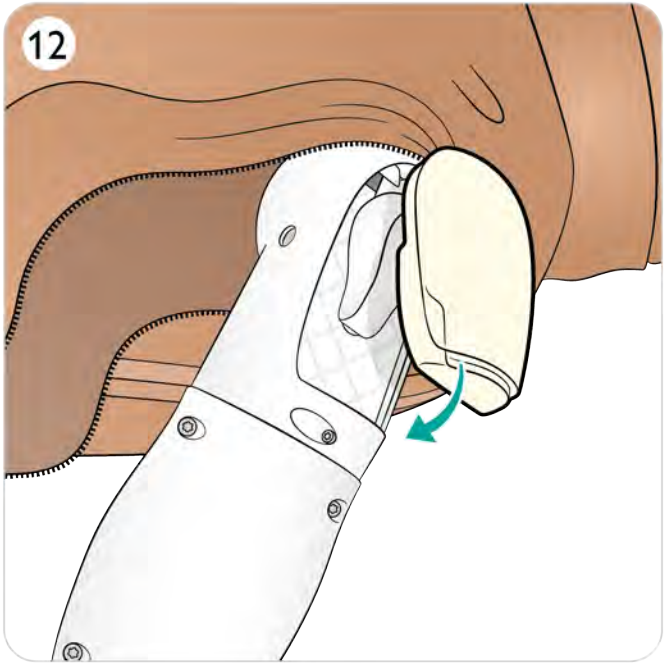








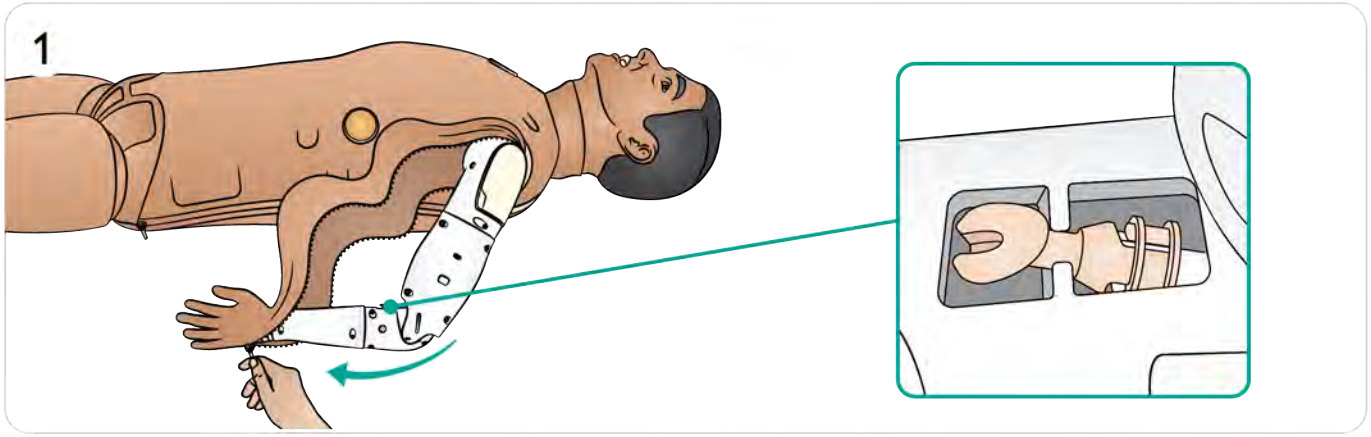


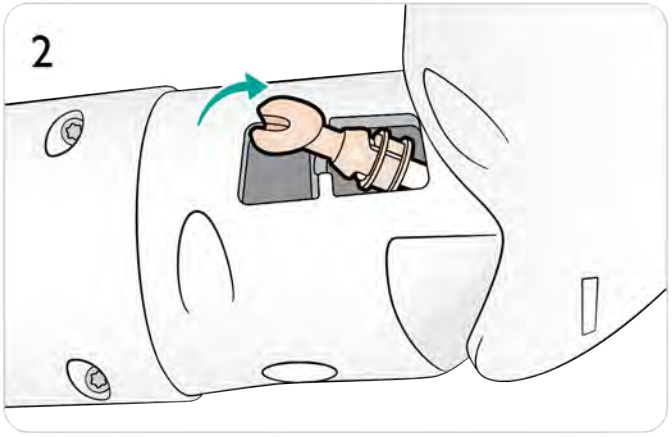


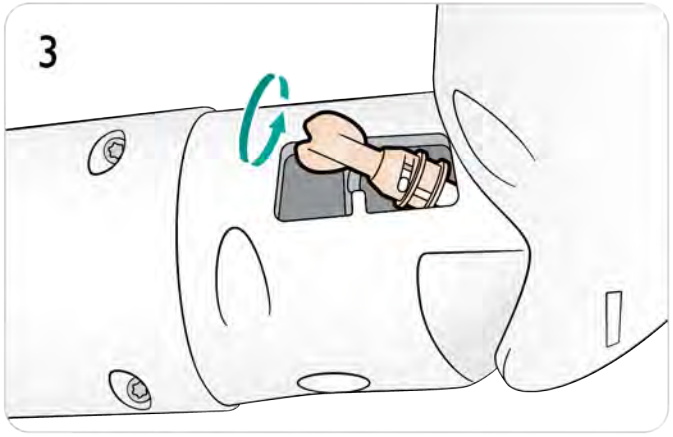
Replacing the IV Port & Seal 1/2

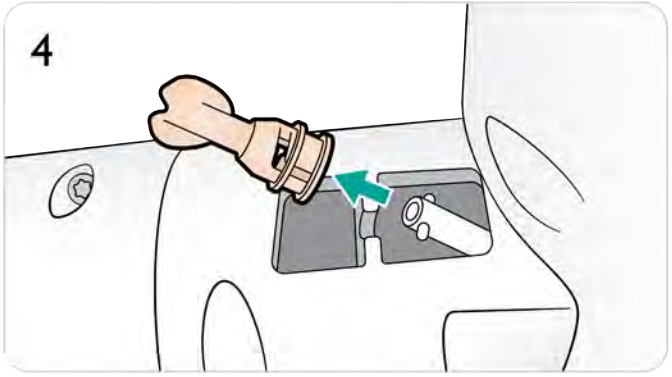
Change the IV port or seal if they show signs of significant wear and tear.

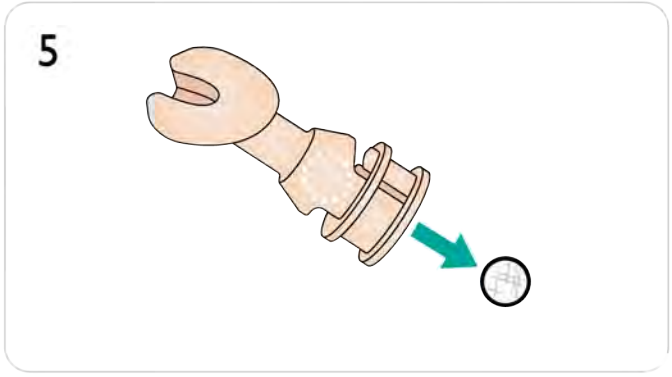
1. Unzip arm skin from shoulder to wrist.
2. Release IV port from chassis.
3. Rotate to release from tube.
4. Remove IV port completely from arm.
5. Remove used seal from inside IV port.





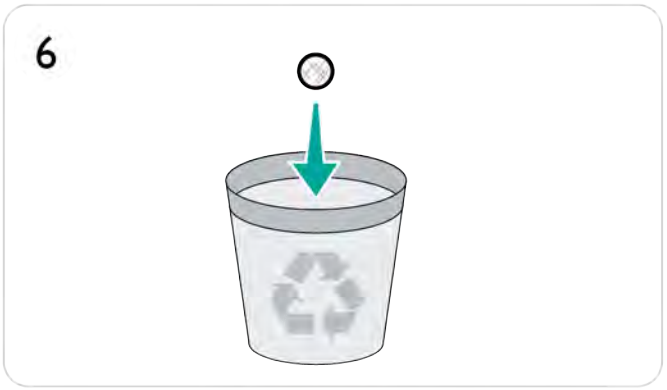


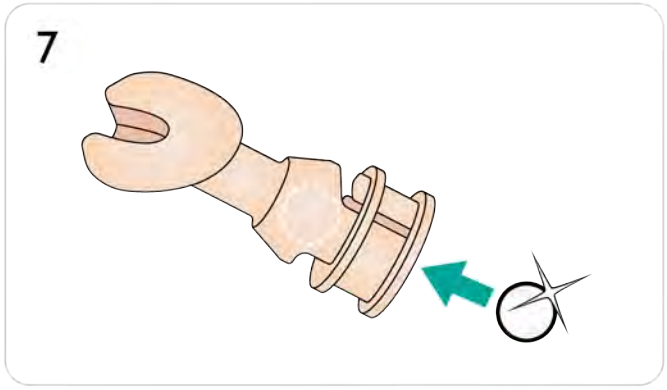


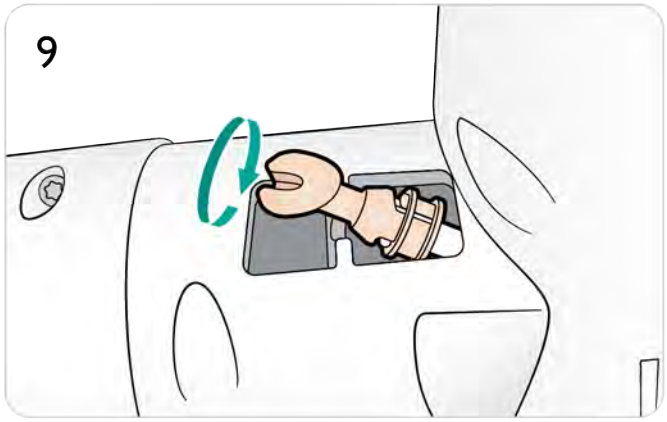


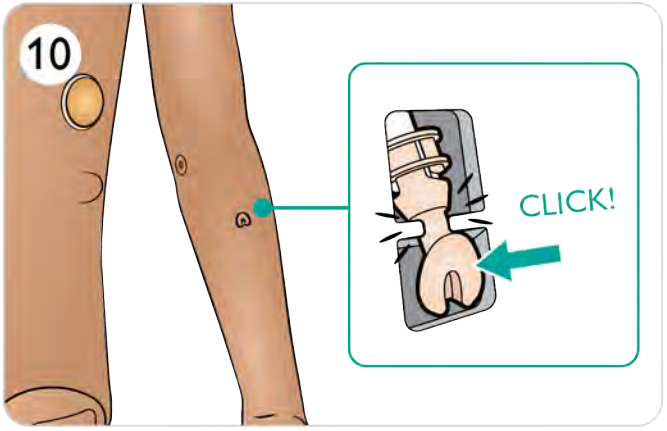
Replacing the IV Port & Seal 2/2

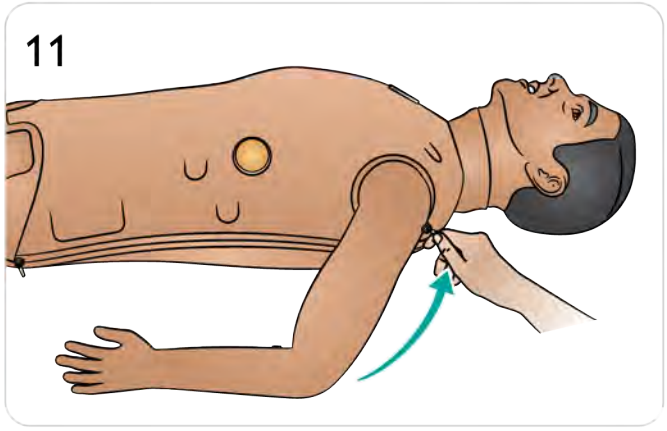
6. Discard used seal.
7. Insert a new seal into IV port.
8. Align and attach IV port to tube.
9. Rotate IV port to secure in place.
10. Click back into chassis.
11. Zip up arm skin.









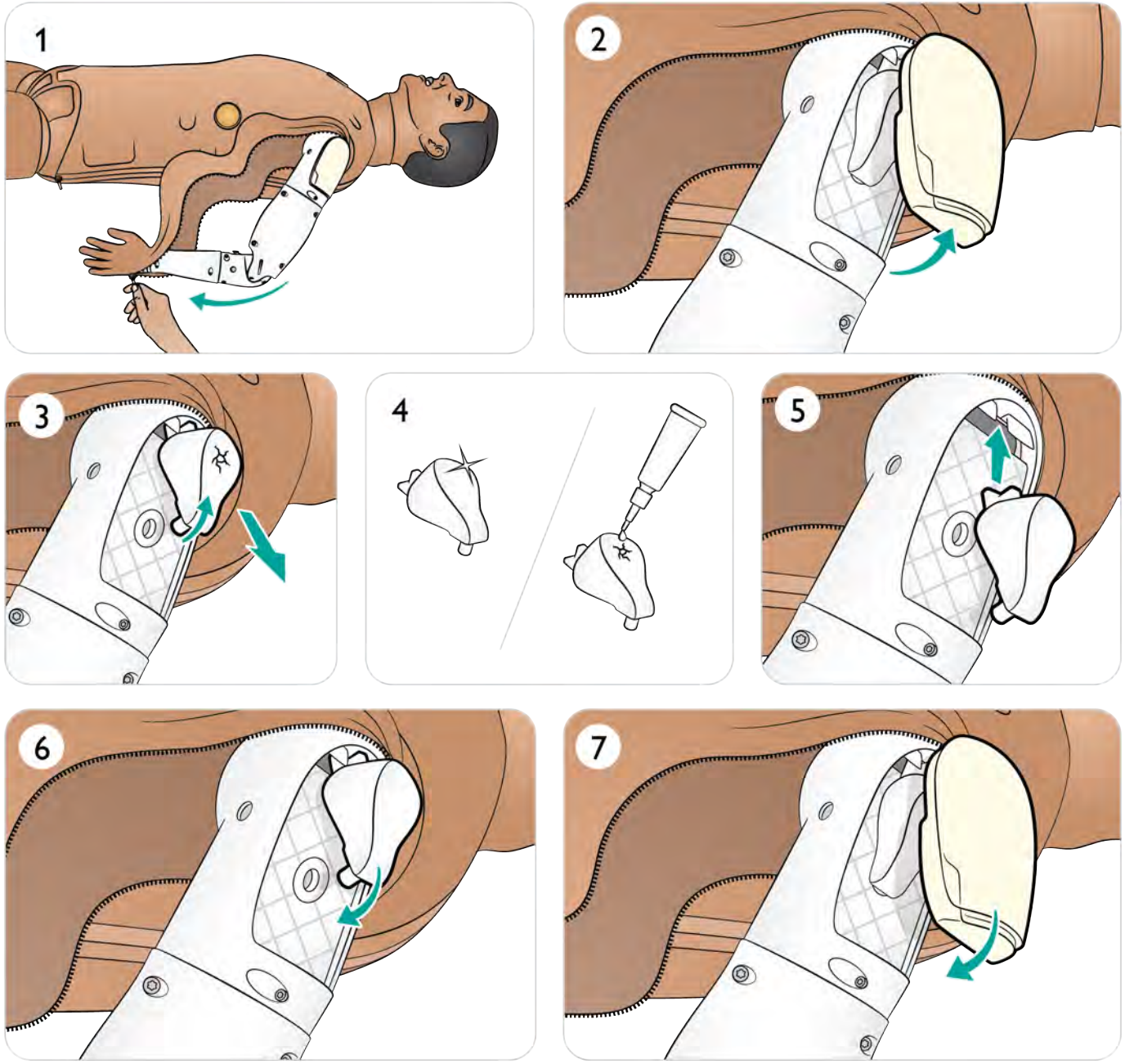


Maintaining Arm IO Bone

1. Unzip arm skin from shoulder to wrist.
2. Remove Arm IM Pad.
3. Lift and slide out the used Arm IO Bone.
4. Puncture holes in the used IO bone can be repaired with Loctite 454 or similar superglue **OR** replace the IO bone completely when it has been significantly punctured.
5. Replace repaired or new Arm IO Bone.
6. Ensure that base of IO Bone slots into place.
7. Replace Arm IM Pad.

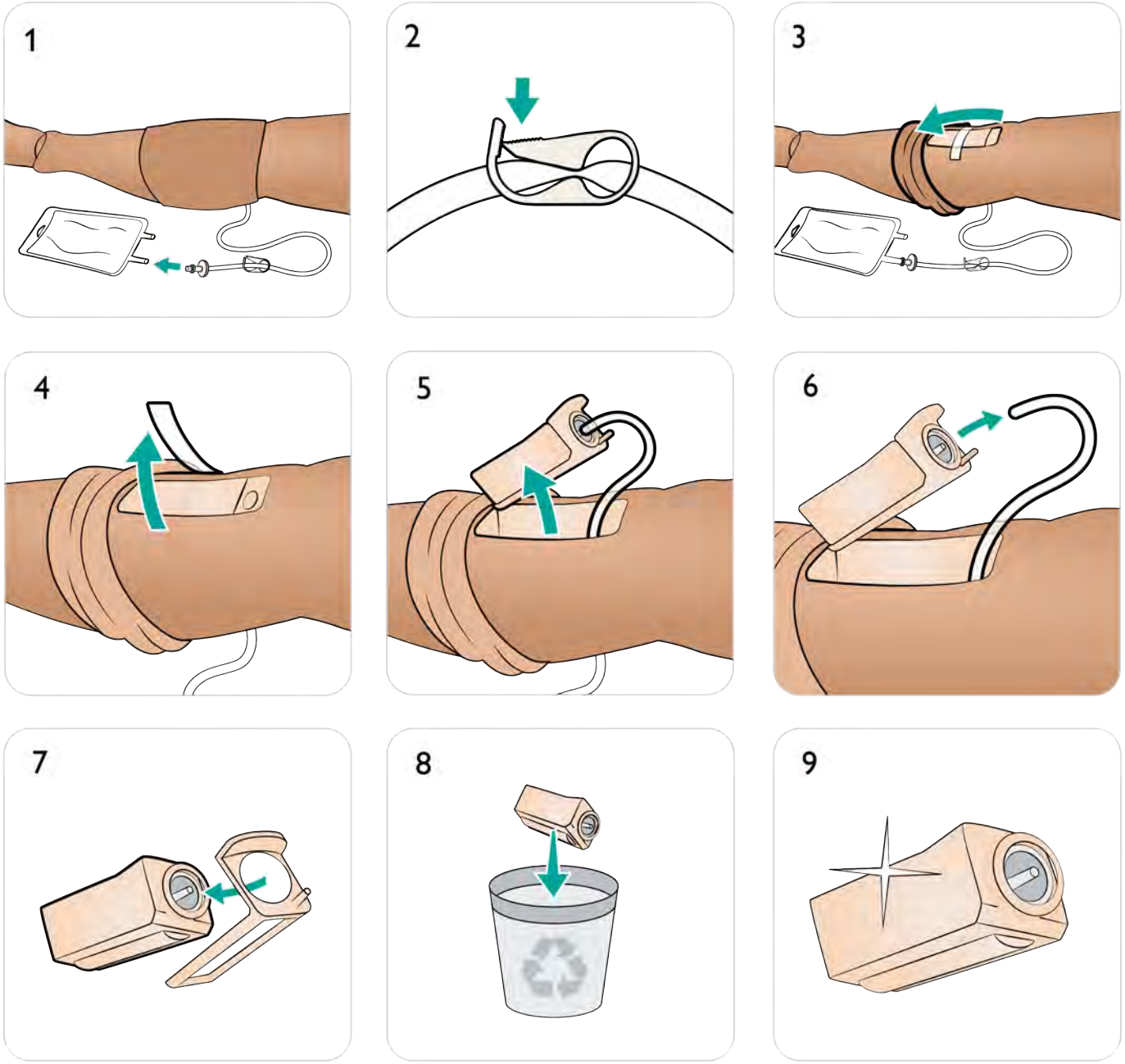
⚠ **Caution**

If using fluids, ensure that the bone has been repaired properly, or use a new bone, to avoid causing internal leakage and damage.



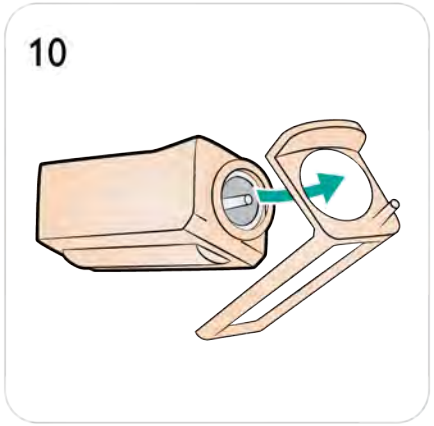
Replacing Tibial IO 1/2

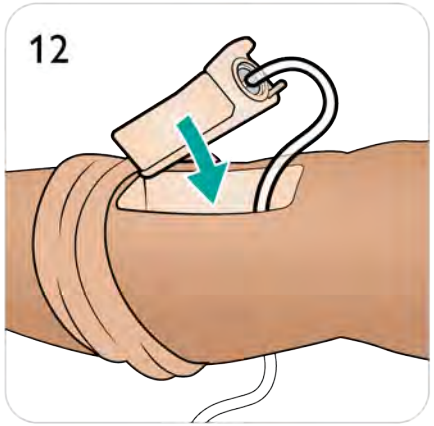
1. Attach the Tibial IO drain bag to the Tibial tube.
2. Close off the pinch clamp.
3. Roll down leg skin to access the Tibial IO module.
4. Remove the IO tape
5. Lift out the Tibial IO unit from the leg.
6. Remove the tube from the Tibial IO module.
7. Remove the Tibial IO Pad from the Tibial IO chassis.
8. Discard used Tibial IO Pad.
9. Ensure the nipple is retracted on the new Tibial IO pad.

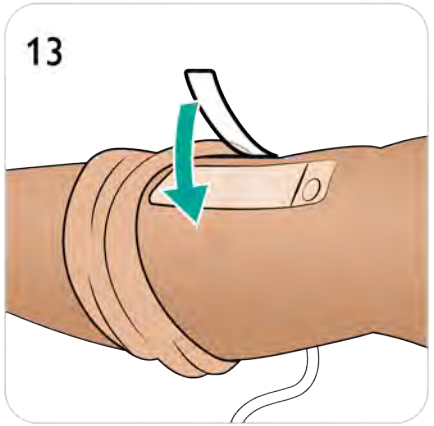


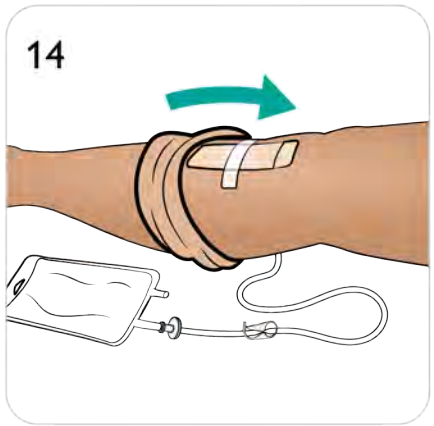
Replacing Tibial IO 2/2

10. Secure the Tibial IO Pad into the chassis and press the base of the pad until the nipple moves forward and locks into place.
11. Connect the Tibial tube to the Tibial IO unit.
12. Insert the Tibial IO module into the leg.
13. Secure the module with tape.
14. Roll the leg skin over the Tibial module.









Emptying Blood System

Once all sessions are complete, flush the Blood System with distilled water, with the wounds connected. This will remove remains of Laerdal blood in the Blood System, and prevent clogging of valves and tubing.

The Blood System should be cleaned thoroughly once or twice a month.

Emptying Internal Blood Tank

1. Connect an empty fill bottle to Blood Inlet.
2. Fluid from the internal tank will automatically drain into the fill bottle.
3. When the flow stops, disconnect the blood connector.

⚠Warning

Connecting a full Blood Unit to a Patient Simulator with an already full internal tank will result in system overflow. Blood will drain out of the right leg. Repeatedly overflowing the system may damage the product.

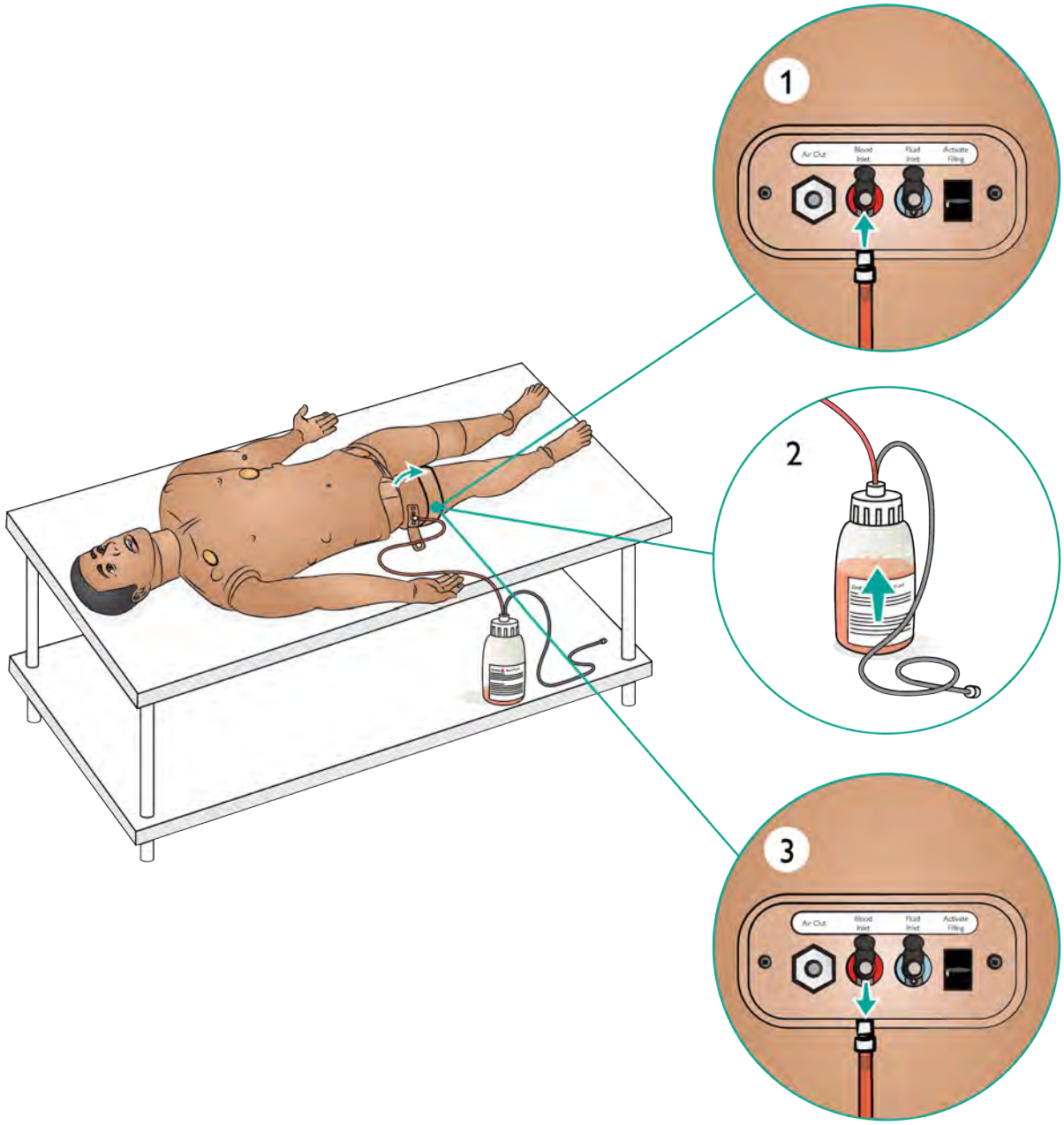
How to Empty Internal Blood Reservoir

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"

Note

The video shows the fluid inlets. Use the blood inlet here.



Cleaning the Blood System

The Blood System should be cleaned thoroughly once or twice a month.

Note

During the cleaning procedure – Tank empty warning - may occur in LLEAP Software. This message can be disregarded during the cleaning procedure.

How to Clean the Blood System

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"

Note

The video shows the fluid inlets. Use the blood inlet here.

Empty the Blood System

Ensure a wound is connected to a blood outlet. Refer to Prepare Wound Kit.

1. Ensure that the Patient Simulator's power is ON.
2. Ensure that the Patient Simulator's internal blood reservoir is drained. Refer to Emptying Blood System.
3. Press the Activate Filling button and the LED indicator will turn on.
4. Connect an empty fill bottle to the blood and air connector; the filling of air into the internal tank will start.
5. Open the Circulation and Fluids tab in LLEAP. Check the boxes for Upper and Lower port, then select Venous from the adjacent drop-down menus. Slide the bleeding rate controls to right to get maximum bleeding rates.
6. Wait until there is no more blood emitted from the simulator, then uncheck all boxes.
7. Disconnect the fill bottle.

Flush the System with Isopropanol

8. Connect a fill bottle with isopropanol to the blood and air connector; the filling of isopropanol into the internal reservoir will start.
9. From LLEAP, again check the boxes for Upper and Lower port (making sure Venous bleeding and maximum blood rates are still selected).
10. Allow the blood system to flush until clear fluid runs out of all outlets.
11. When finished, press Activate Filling to deactivate the filling procedure. The LED indicator on the Activate Fill will turn off.
12. Leave the bottle connected for approximately 30 seconds to let the internal tank drain completely.
13. In LLEAP uncheck all boxes and slide bleeding rate controls to the left. And then disconnect bottle.

Empty the System of Isopropanol.

14. Connect an empty fill bottle to the fill panel and repeat the steps 4-6 to flush the isopropanol out of the Blood System, using air.
15. Wait until there is no more fluid emitted from the Patient Simulator, then press Activate Filling once again so that filling is disabled (LED indicator should be turned off).
16. In LLEAP uncheck all boxes and move the sliders all the way to the left. Disconnect the fill bottle and wounds.

Caution

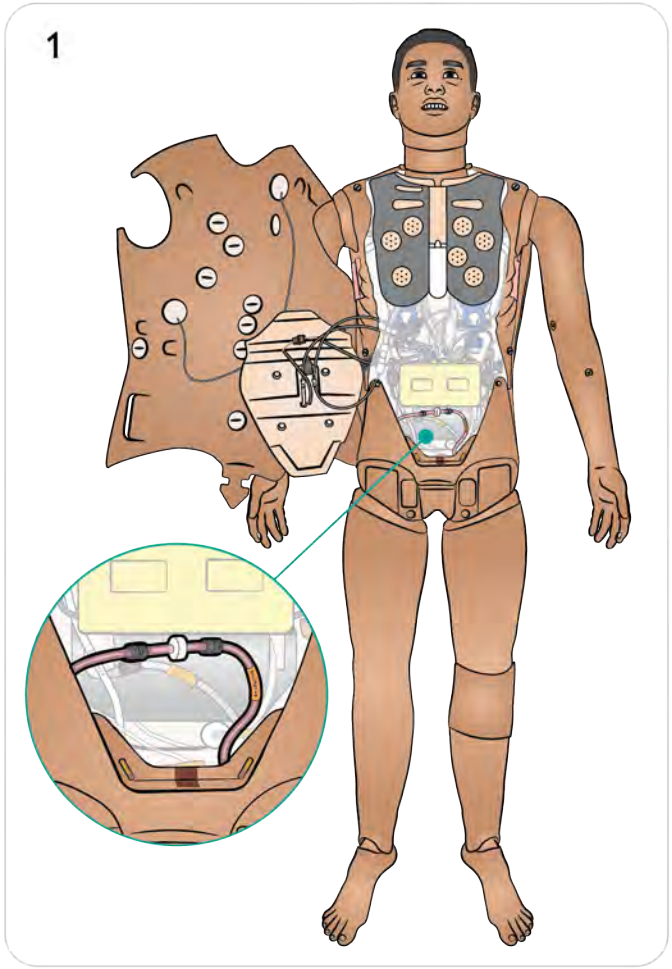
Never store the Patient Simulator with isopropanol or liquid in the Fluid or Blood System.

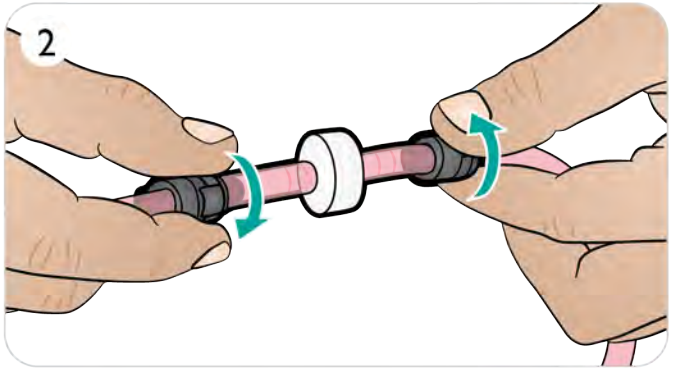
Replacing the Blood System Filter

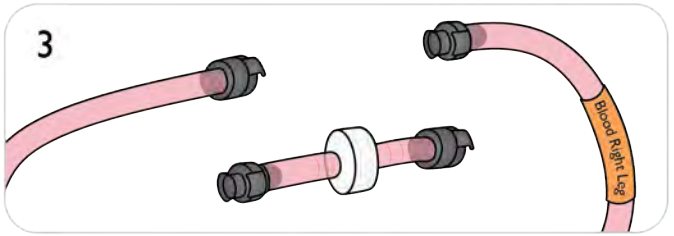
Replace the filter if it becomes clogged and reduces blood flow. Ensure the Patient Simulator is turned off.

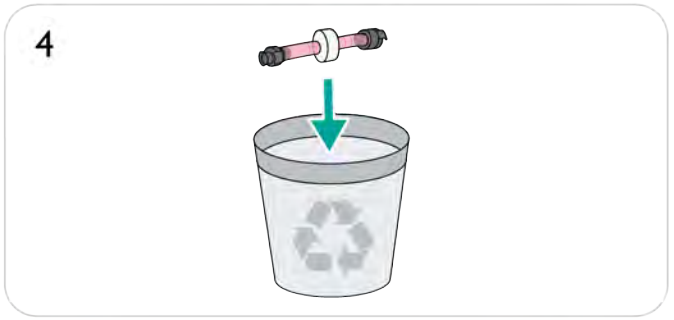
1. Open Torso as described in Opening Torso and locate blood system filter.
2. Disconnect the filter from the leg and pelvis blood tubes by unscrewing the black connectors at each end.
3. Remove filter from the Patient Simulator.
4. Discard clogged filter.
5. Select a new filter.
6. Connect a new filter by reversing the steps above.

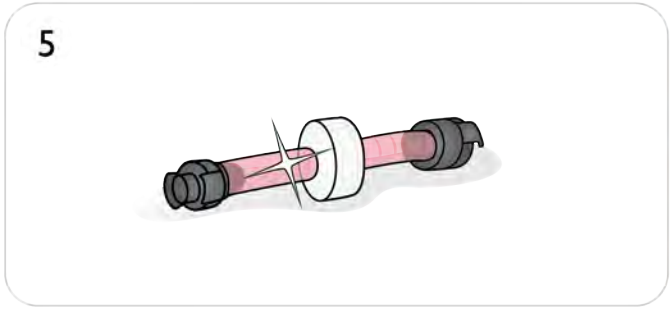
⚠ Caution
Do not run the Patient Simulator without a filter.

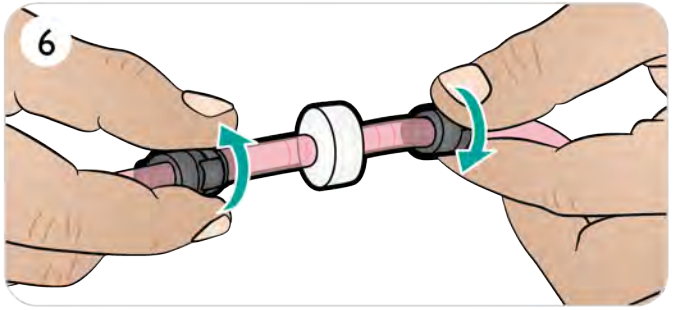












Emptying Fluid System

After the fluid system has been used, drain the internal fluid tank. The Fluid System should be cleaned thoroughly once or twice a month.

Emptying Internal Fluid Tank

1. Connect an empty fluid fill bottle to Fluid Inlet.
2. Fluid from the internal tank will automatically drain into the fill bottle.
3. When the flow stops, disconnect the fluid connector.

Note

Place the fill bottle on the floor or below the Patient Simulator to facilitate emptying the fluids.

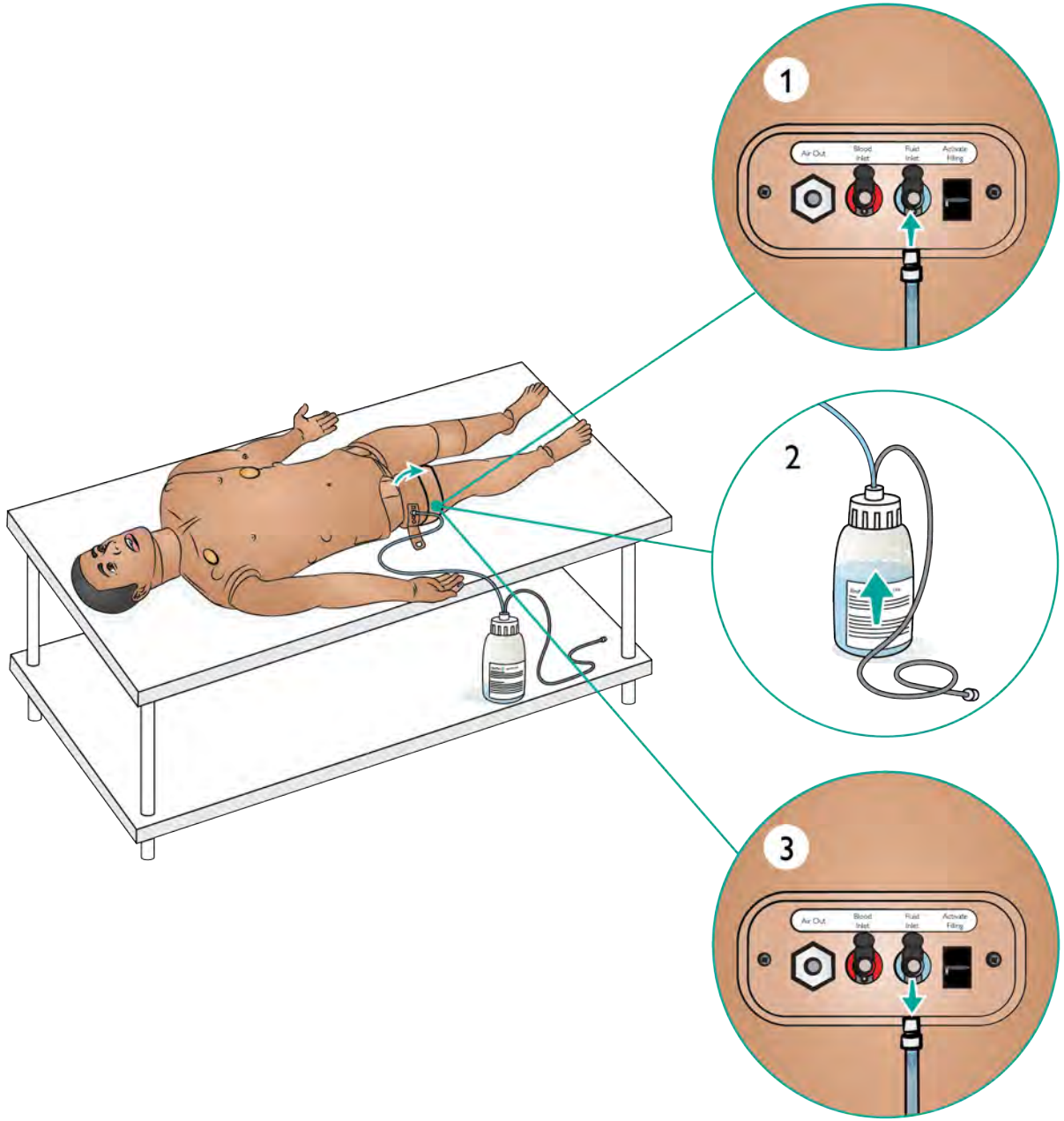
Warning

Connecting a full fill bottle to a Patient Simulator with an already full internal tank will result in system overflow. Fluid will drain out of the right leg. Repeatedly overflowing the system may damage the product.

How to Empty Internal Fluid Reservoir

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"



Cleaning the Fluid System

The Fluid System should be cleaned thoroughly once or twice a month.

Note

During the cleaning procedure – Tank empty warning - may occur in LLEAP Software. This message can be disregarded during the cleaning procedure.

How to Clean the Fluid System

Watch the "How-to video"

Click on link or scan QR code to watch the "How-to video"

Empty the System of Fluids

1. Ensure that the simulator's power is ON.
2. Ensure that the simulator's internal fluid tank is drained. See Emptying Fluid System.

Flush System with Water

3. Press the fill button located on the fill panel. The LED indicator on the fill button will light up.
4. Connect a fill bottle with water to the fluid and air connector in the fill panel.
5. Open the Circulation and Fluids tab in LLEAP and check the boxes for Sweat, Ears, Eyes, and Urine (polyuria).
6. Wait until there are no more fluids emitted from the simulator, then uncheck all boxes.
7. Disconnect the empty fill bottle.

Flush System with Isopropanol

8. Connect a fill bottle with isopropanol to the fluid and air connector in the fill panel; filling of isopropanol into the internal tank will start.
9. In LLEAP, check the boxes for Sweat, Ears, Eyes, and Urine (polyuria).
10. Isopropanol will be emitted from all fluid ports.
11. After the system has been flushed with isopropanol, press the fill button again to deactivate filling (LED indicator should be off).
12. Leave the isopropanol fill bottle connected for approximately 30 seconds to let the internal tank drain completely.
13. Uncheck all of the secretion boxes in LLEAP and disconnect the fill bottle.

Flush System with Air

14. Connect an empty fill bottle to the fill panel and repeat steps 4-7 to flush isopropanol out of the fluid system using air.
15. Press the fill button to deactivate filling (LED indicator should be off) and disconnect the empty fill bottle.

Caution

Never store the Patient Simulator with isopropanol or liquid in the Fluid or Blood System.

Replacing Batteries 1/2

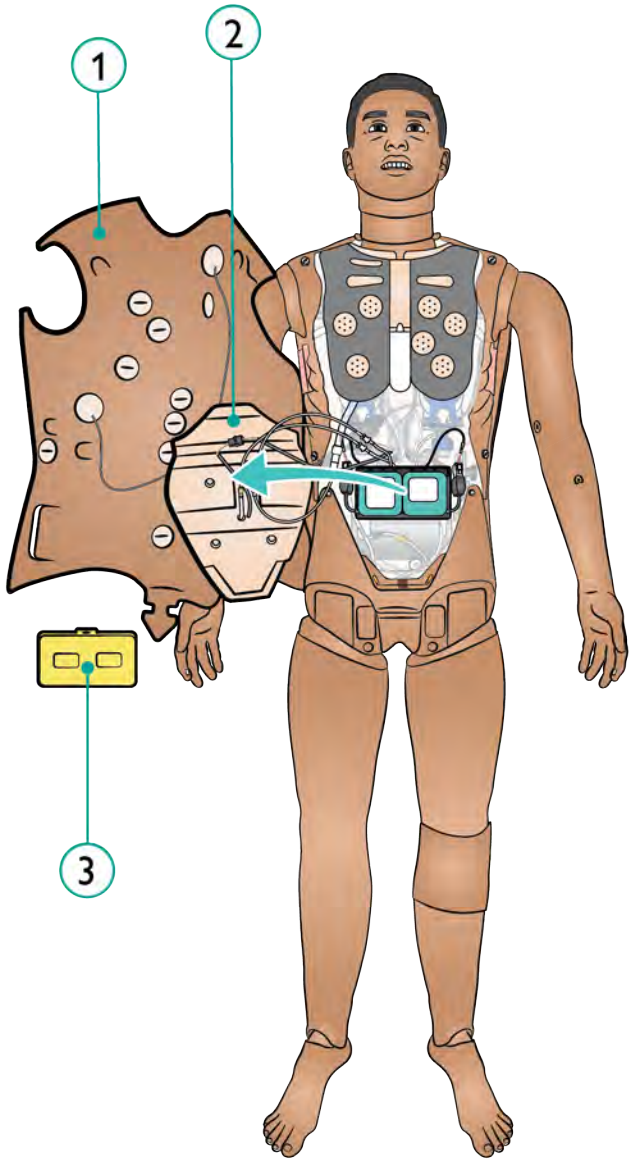
Ensure the Patient Simulator is switched off.

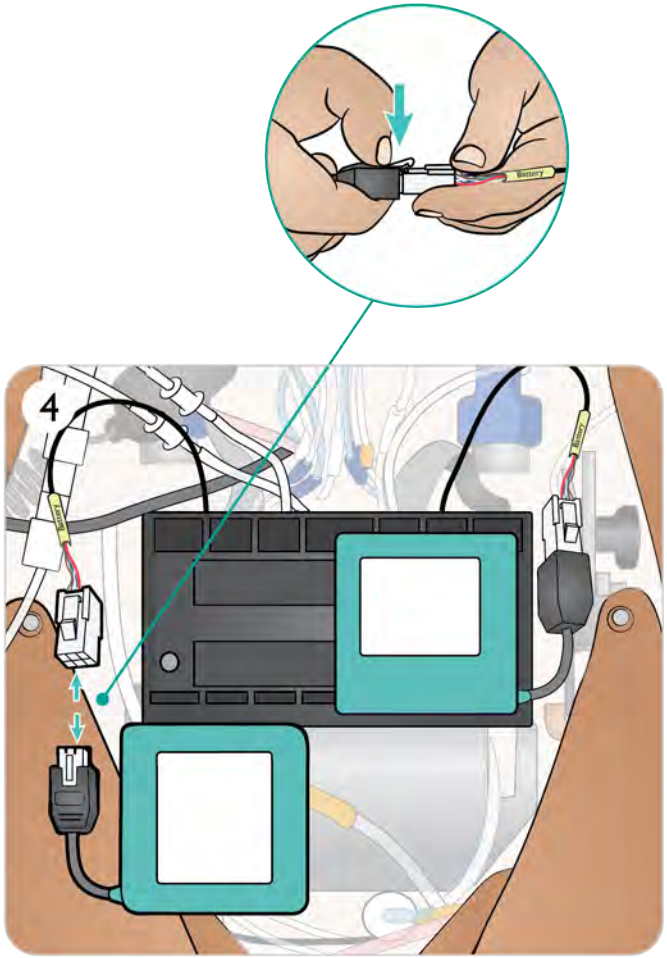
1. Unzip the skin at shoulders and torso and place to one side.

Note

Ensure the LiveShock cable has been disconnected.

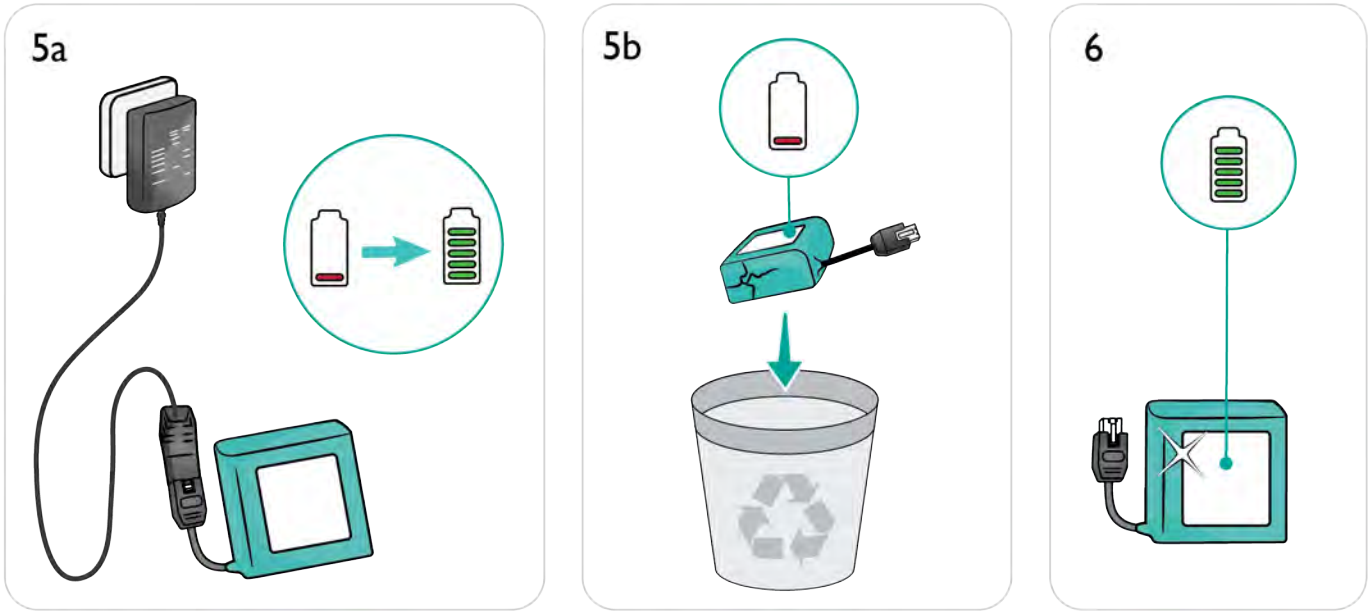
2. Move the stomach foam carefully to one side to avoid pulling on connecting tubes and cables.
3. Remove battery cover.
4. Disconnect the battery cable from the torso cable as shown.

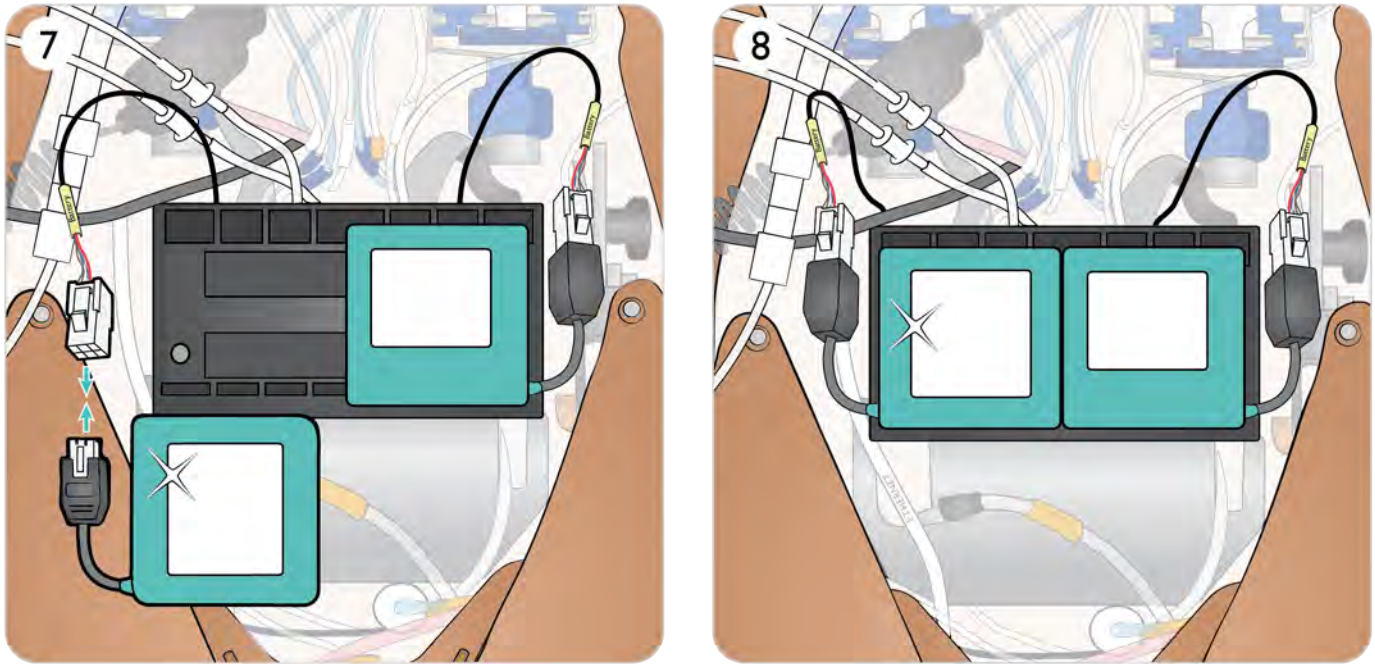




Replacing Batteries 2/2

5. **a.** Charge battery
   b. If battery(ies) are damaged, dispose or recycle in accordance with local regulations, and replace with a new battery.
6. Fully charged battery / new battery
7. Insert battery and connect battery to the torso cable as shown.
8. Replace cover once battery/batteries are connected and in place.





⚠ Warning
Inserting and connecting batteries incorrectly, short circuiting or exposure to fluids pose an explosion hazard.

⚠ Caution
Do not use the batteries if they are visibly damaged, malfunctioning or appear to leak electrolyte.

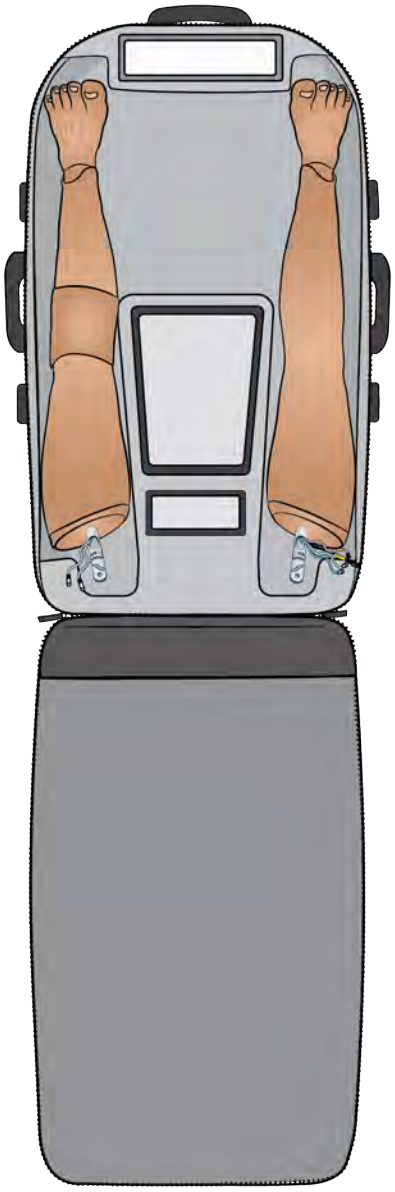
Note
If both batteries are removed while the simulation is paused, the Patient Simulator will shut down and simulation data will be lost.

Refer to Transport and Storage for more infomation relating storing and transporting batteries.

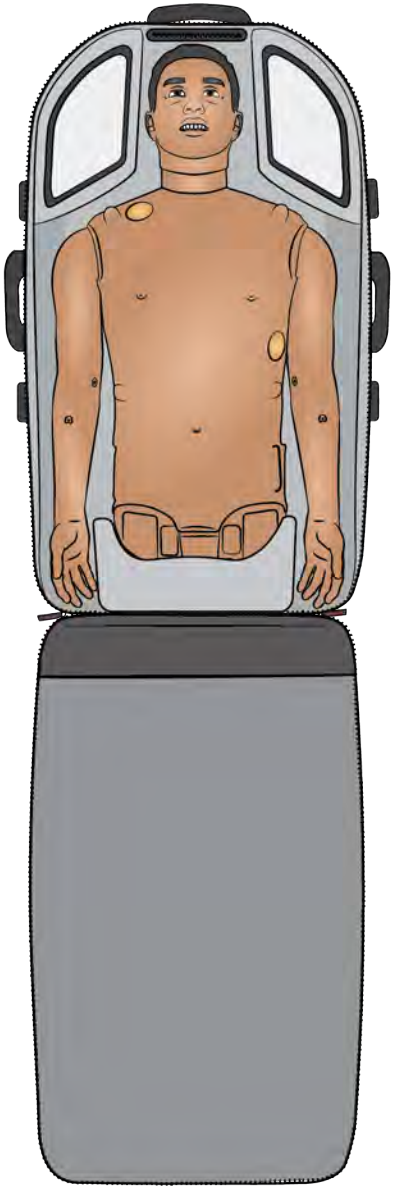
Transport and Storage 1/2

The Simulation System is supplied with two cases for easy transport and storage; one for the Patient Simulator legs and one for the torso.

1



2



Transport and Storage 2/2

Before Storage or Shipping

- Flush the simulator's fluid and blood systems with isopropanol 60%-70%, and then leave to dry to remove any isopropanol residue from the system. Refer to Cleaning the Fluid System and Cleaning the Blood System.
- Detach the Patient Simulator's legs from the torso and pack into their cases.

Battery Storage and Transport

- Store in a refrigerator i.e. temperature 0°C - 4°C (32°F - 40°F).
- The two simulator batteries can be transported in the Patient Simulator during air freight. When transporting spare batteries contact the airline or freight company for the latest transport regulations.

⚠ Warnings

- *The suitcases are heavy. Always ensure that they are firmly secured during transportation and storage so as not to cause personal injury or damage to the product.*
- *When unpacking the torso, do not use the leg openings as lifting points, use the genitalia opening! The slides might come loose and cause personal injury or product damage.*

⚠ Cautions

- *Do not store this product outside the storage conditions specified in the **Important Product Information**.*
- *Store simulator in a clean, dry area. Storage in a damp area will cause corrosion of electronic parts.*
- *Remove stomas prior to storage. Stomas should be stored in a plastic bag when not in use.*
- *Do not store the Patient Simulator with fluid.*
- *Do not store the Patient Simulator with wet injection pads.*
- *Do not store the Patient Simulator with tape or other adhesive products attached to the skin.*
- *Patient Simulator should be stored on its back with adult cervical collar in place.*
- *Do not stack Patient Simulators or store with heavy objects on top.*
- *The Patient Simulator's neck should be supported at all times during transport.*
- *Do not try to lift the Patient Simulator alone, unless this is part of a simulation where correct lifting techniques shall be demonstrated.*
- *Lifting the Patient Simulator alone may lead to muscle strains.*
- *Ensure that the Patient Simulator is properly secured during transportation to prevent personal injury or damage to the product.*
- *Always keep the thumb lock pins inserted in the hip joint (leg) connections. The pins could wrap around internal cables and tubes, risking damage.*