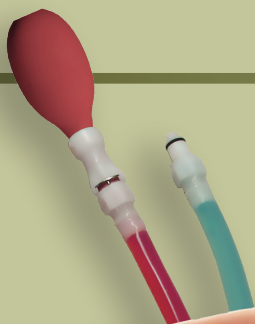


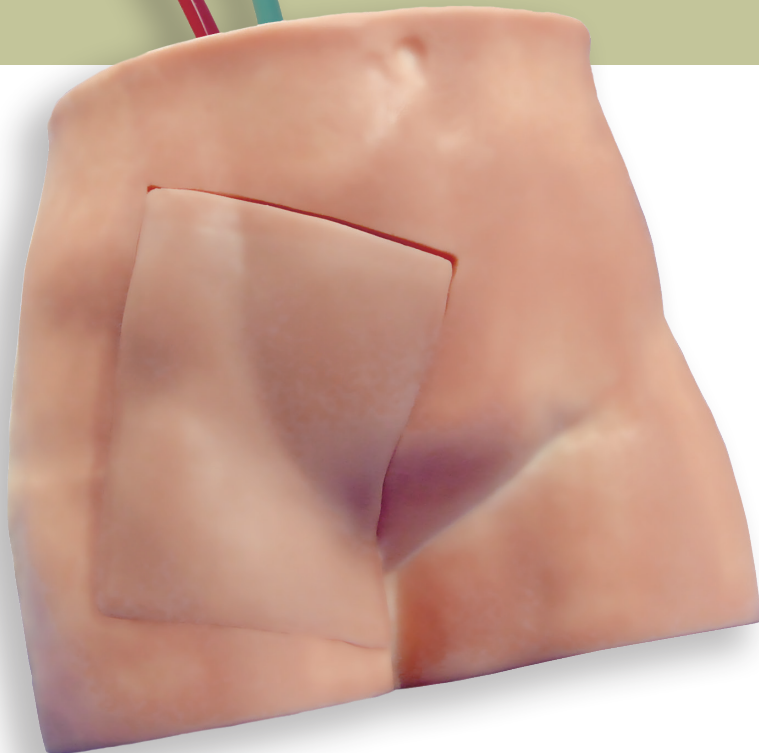


USER GUIDE  
VERSION 4



# FemoraLineMan™

Central Venous Catheterization Trainer



  
**SIMULAB**  
CORPORATION

[www.simulab.com](http://www.simulab.com)

# Table of Contents

<b>About the FemoraLineMan™ System</b> .....	3
FemoraLineMan System Overview .....	3
<b>FemoraLineMan System Components</b> .....	4
Replaceable Tissue Options .....	5
<b>FemoraLineMan Quick Start</b> .....	6
<b>Setting up FemoraLineMan</b> .....	7
Checking Replaceable Tissue Fluid Levels and Pressure .....	7
To Check for Excess Air in the Lines: .....	7
To Check the Fluid Pressure in the Lines: .....	7
Installing the Tissue .....	8
To Install the Replaceable Tissue: .....	8
Tips for Using FemoraLineMan During a Procedure .....	9
<b>Maintaining FemoraLineMan</b> .....	10
Replacing the Tissue .....	10
To Replace the Tissue: .....	10
Refilling Fluid Reservoirs .....	11
To Refill the Arterial or Venous Fluid: .....	11
To Refill the Venous Pressure Regulator: .....	12
To Refill the Pulse Bulb: .....	12
<b>Cleaning and Storing FemoraLineMan</b> .....	13
To Clean and Store FemoraLineMan: .....	13
<b>Troubleshooting</b> .....	14
Issue: Air Bubbles in Vein or Artery .....	14
Issue: Fluid Leaking out of Tissue .....	14
<b>Replacement Parts Catalog</b> .....	15
<b>About Simulab</b> .....	16

# About the FemoraLineMan™ System



## FemoraLineMan System Overview

**FemoraLineMan** offers an effective training solution for femoral line placement. This trainer utilizes the same highly acclaimed tissue properties as **CentraLineMan™** and allows medical professionals to train using real-time ultrasound guidance during catheter placement.

### SKILL DEVELOPMENT

- › Central venous access using the femoral vein route
- › Using ultrasound guidance during catheter placement
- › Palpating anatomical landmarks significant to the procedure

### ULTRASOUND COMPATIBLE

- › Allows ultrasound imaging for guidance during needle placement
- › Provides highly realistic image quality

### LANDMARKS

The body form and tissue include as landmarks:

- › Anterior superior iliac spine
- › Pubic tubercle
- › Inguinal ligament

### FEATURES AND BENEFITS

- › Anatomically correct human pelvis with identifiable landmarks, including the anterior superior iliac spine, the pubic tubercle, and the inguinal ligament
- › Durable replaceable tissues that allow for multiple uses
- › Self sealing vessels and skin allow for multiple cannulations per tissue
- › Quick set up: tissues are self-contained and come pre-filled with fluid, red indicates the artery and blue indicates the vein
- › Vessels are long enough to allow for full catheterization
- › Arterial hand pump that creates a realistic arterial pulse, which can be palpated or identified with ultrasound

# FemoraLineMan System Components

FemoraLineMan System ships with the following pictured items.



## Replaceable Tissue Options

Two different Replaceable Tissue options are available with FemoraLineMan: Normal and Nerve Block. These tissues offer unsurpassed realism in ultrasound imaging, even after repeated full catheterizations and needle insertions—there is no perceivable residual image of previous procedures. They are also ultra-durable and self-sealing tissues—capable of enduring hundreds of needle insertions and dozens of full catheterizations. The tissues includes the necessary landmarks that are visible under ultrasound.

### Normal Replaceable Tissue (FLM-50)

### Nerve Block Tissue for FemoraLineMan (FNBT-50)

Practice femoral line placement and femoral nerve block insertion. Develop your skills in blind/landmark or ultrasound vascular access, as well as using ultrasound to identify target vessels and nerves, visualizing needle insertion, and administering regional anesthesia blocks.



# FemoraLineMan Quick Start



## Setting up your Classroom

- › Set up the table
- › Gather all suggested materials

## Setting up Your FemoraLineMan

- › Unpack and inspect your FemoraLineMan
- › Set all components on the table

## Preparing Your FemoraLineMan for Procedures

- › Check the Replaceable Tissue fluid levels and pressure
- › Install the Replaceable Tissue

## Checking and Replacing Tissues Between Procedures

- › Check the Replaceable Tissue fluid levels and pressure
- › Install a new or different Replaceable Tissue (if needed)

## Maintaining Your FemoraLineMan System

- › Install a new Replaceable Tissue
- › Refill the Arterial or Venous Fluid
- › Refill the Venous Pressure Regulator
- › Refill the Pulse Bulb

## Cleaning and Storing Your FemoraLineMan System

- › Clean the Body Form and Replaceable Tissue(s)
- › Wrap the Tissue(s) in plastic for storing
- › Store the Body Form and Tray, Tissue(s) and Articulating Head properly

# Setting up FemoraLineMan

FemoraLineMan must be properly set up before each procedure to ensure that students have the best educational experience. This includes checking the fluid level and pressure in the venous and arterial lines, and installing the Replaceable Tissue.

## Checking Replaceable Tissue Fluid Levels and Pressure

Before you perform a procedure, check the venous and arterial line fluids to ensure the following for the most realistic procedure experience:

- ▶ No excess air or air bubbles in the lines
- ▶ Proper fluid pressure and level

### To Check for Excess Air in the Lines:

1. Stand the simulator up as shown in the picture. This will allow any trapped air to rise to the top of the tubing. If there is less than ½" of air present proceed as is. Lay the body form back down.

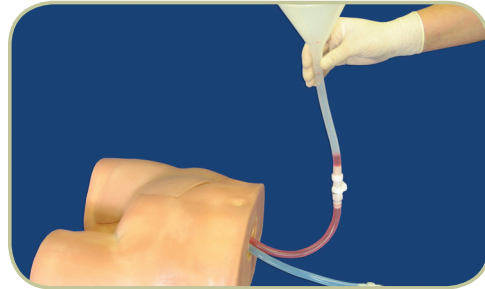


2. If there is more than ½" of air exposed, go to the "Refilling Fluid Reservoirs" on page 11 for further instructions.

**NOTE:** Throughout the course, periodically tilt the model to check for trapped air that may be caused by putting fluid back into the vessels.

### To Check the Fluid Pressure in the Lines:

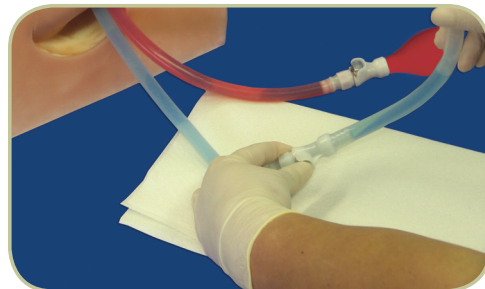
1. Attach the Fill Port to a line and hold the Funnel so the connector is even with the Body Form top.



2. Fluid released into the Funnel line indicates the vessel is over-pressurized. Allow the Funnel to fill and disconnect over a paper towel once it stops.



3. If no fluid appears in the Funnel, see if the vessel accepts more fluid—if so, continue until it is full, then, disconnect the Funnel over a paper towel.



4. Drain extra fluid from the Funnel by placing the Fill Line into its fluid bottle. Attach the Funnel to the Fill Line and the fluid will empty into the bottle.



**Setting up FemoraLineMan** *continued*

**Installing the Tissue**

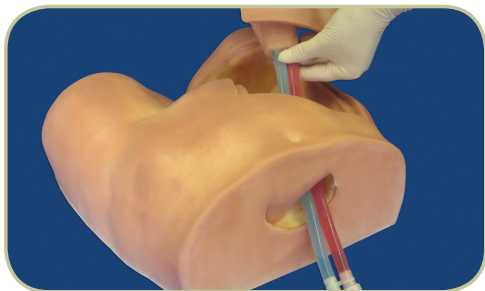
The FemoraLineMan has two different Replaceable Tissues that each provide a unique procedural experience: Normal and Nerve Block. Select the desired Replaceable Tissue and prepare to install it.

**To Install the Replaceable Tissue:**

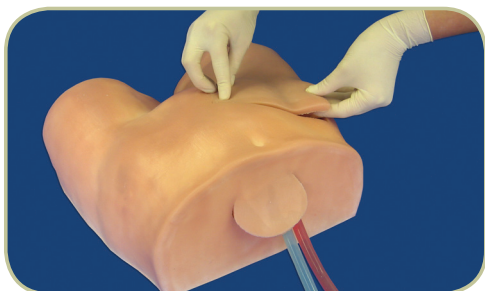
1. Check the venous and arterial lines of the tissue for air bubbles. Replace fluids if needed. See *"Refilling Fluid Reservoirs"* on page 11.



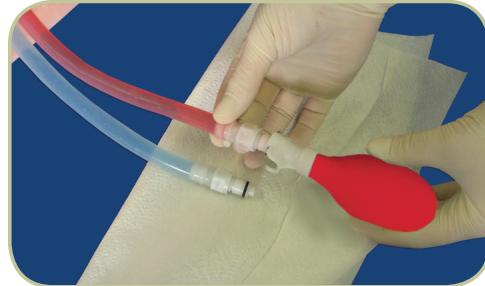
2. The body form has an opening on the upper portion of the simulator's base for the extending lines to be inserted through until the tissue set is properly placed onto the body form.



3. Use your fingers to gently push the replaceable tissue into place.



4. Attach the Pulse Bulb to the fitting on the end of the red fluid line (arterial line).



5. Attach the Venous Pressure Regulator to the fitting on the blue fluid line (venous line).



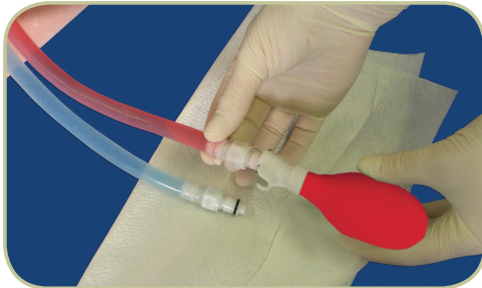


## Tips for Using FemoraLineMan During a Procedure

FemoraLineMan is designed to provide a realistic CVC line insertion experience. The following tips will ensure your students have the most optimal experience.

### Creating an Arterial Pulse

1. Attach the Pulse Bulb to the artery (red line).



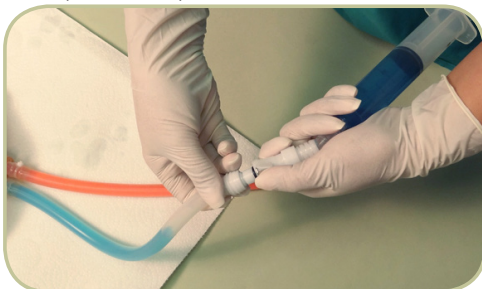
2. To achieve arterial pulse, squeeze the bulb 1/4 to 1/3 of the way and continue pumping to achieve arterial pulse.



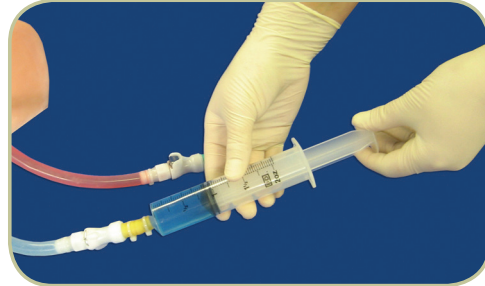
*(The bulb should be attached to the artery and is pre-filled with red simulated blood).*

### Demonstrating Venous Pressure

1. Attach the Venous Pressure Regulator to the vein (blue line.)



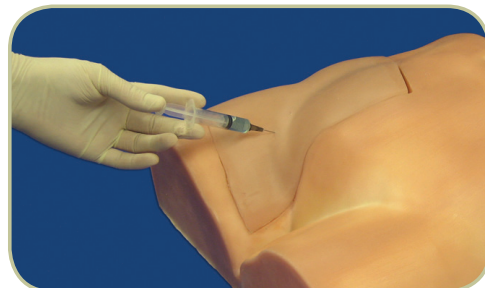
2. To achieve low venous pressure, withdraw 20 ml of venous blood using the syringe.



**NOTE:** When the student uses the correct technique to correct low venous pressure, you can re-inject the simulated blood to attain normal venous pressure.

### Reinserting Fluid into the Lines

1. After the procedure, have students reinject any simulated fluid back into the vein before pulling the needle out.



2. If the user pulls the needle out before re-injecting the fluid back into the system, please have the user reinsert the needle and

### Removing the Pulse Bulb or Venous Pressure Regulator

1. Unhook the junction over paper towel, as there will be a small release of fluid.



# Maintaining FemoraLineMan

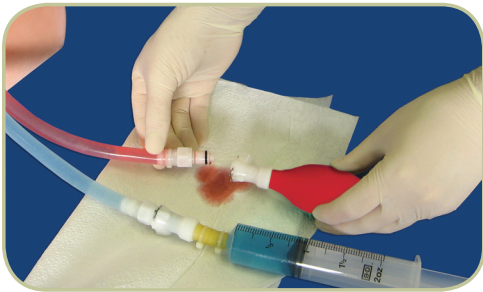
Between procedures, you may need to change the Replaceable Tissue, refill the fluid reservoirs, or clear air bubbles in the lines.

## Replacing the Tissue

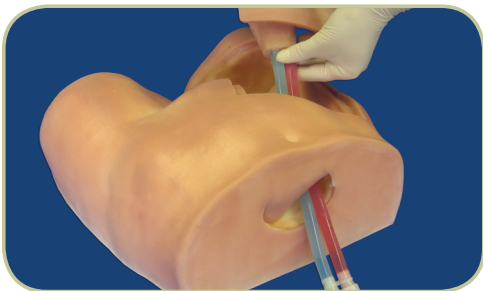
The FemoraLineMan has two different Replaceable Tissue options. Each tissue provides a unique procedural experience: Normal and Nerve Block. Select the Replaceable Tissue that you wish to use.

### To Replace the Tissue:

1. Remove the Pulse Bulb and Venous Pressure Regulator over a paper towel—there will be some leakage.

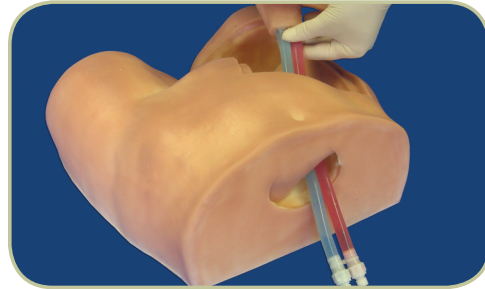


2. Remove the current Replaceable Tissue and set it aside. In between trainings, place all used tissue in a zip lock bag for storage or disposal. This will contain any leakage.

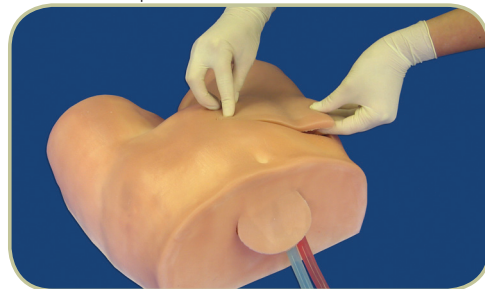


3. Locate the new Replaceable Tissue and check the lines for air bubbles. Replace fluids if needed. See *"Refilling Fluid Reservoirs"* on page 11.

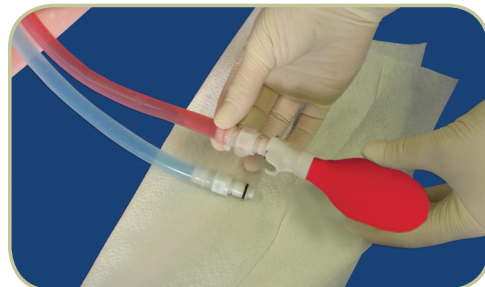
4. Place the new Replaceable Tissue in the opening in the Body Form Tray, extending the lines through until the tissue set is seated properly onto the body form.



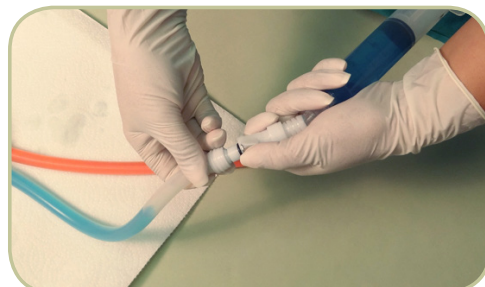
5. Use your fingers to gently push the replaceable tissue into place.



6. Attach the Pulse Bulb to the fitting on the end of the red fluid line (arterial line).



7. Attach the Venous Pressure Regulator to the fitting on the blue fluid line (venous line).



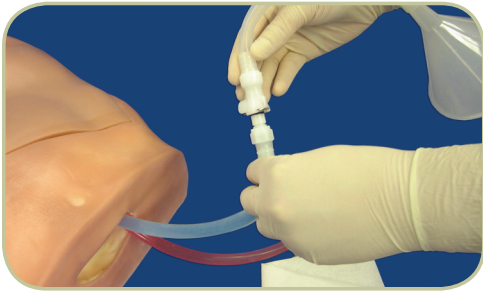
## Refilling Fluid Reservoirs

If there is air present in either of the arterial or venous lines, you should add fluid for optimum performance and ultrasound image.

**NOTE:** Air in the Pulse Bulb or Venous Pressure Regulator can introduce air bubbles into the lines.

### To Refill the Arterial or Venous Fluid:

1. Fluids can also be added to the lines using the included Funnel. Start by attaching the Fill Port with Funnel to the vessel that needs refilling.



2. Slowly add the fluid using the Funnel. Make sure to use the proper color of fluid for each vessel.



3. To fill the line and release all the air, gently squeeze the Replaceable Tissue or the Fill Port's tubing to allow the air to rise and the fluid to enter into the lines.



4. Once filled, release the Fill Port from the line, using paper towels to absorb any leakage. Place the Fill Line into the appropriate bottle of fluid.



5. Then attach the Funnel to the Fill Line and the fluid will drain.



## Maintaining the FemoraLineMan System *continued*

### To Refill the Venous Pressure Regulator:

1. Begin by attaching the Fill Line to the Venous Pressure Regulator.



2. Fill the syringe with the included blue fluid and slowly pull it out of the blue fluid bottle. Use paper towels to absorb any spilled fluid.

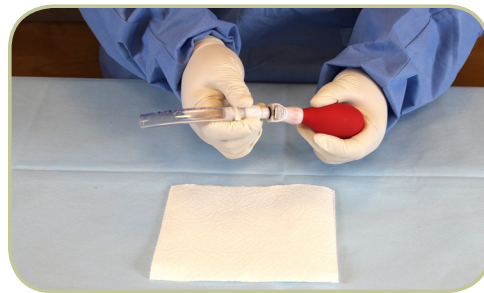


3. Remove any air from the syringe and then remove the Fill Line over a paper towel—a small amount of fluid may release.



### To Refill the Pulse Bulb:

1. Make sure that the Pulse Bulb is filled with fluid before reattaching it to the Replaceable Tissue. To add fluid to the Pulse Bulb, start by attaching the Fill Line.



2. Add red fluid to the Fill Line.



3. Squeeze the Pulse Bulb. Air will be replaced by fluid. Do this until the Pulse Bulb is full.



4. Remove the Fill Line over a paper towel—there will be a small release of fluid—and reattach to the Replaceable Tissue.



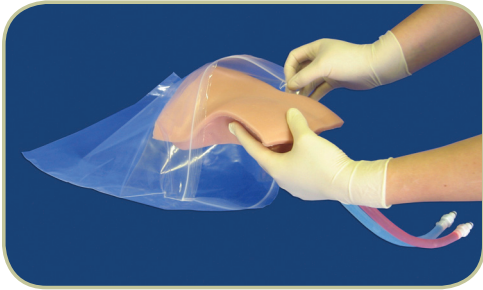
# Cleaning and Storing FemoraLineMan

The Body Form and Body Form Tray should be cleaned after each class with soap and warm water. This will help preserve the Body Form and Body Form Tray and minimize any major staining from the simulated blood.

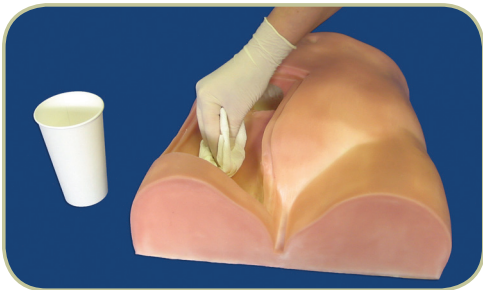
When repacking the Body Form and Body Form Tray, position the neck towards the case's handle. The optional Articulating Head must be stored separately.

## To Clean and Store FemoraLineMan:

1. After each class, please remove replaceable tissue set from the body form and place into supplied zip lock bag for storage or disposal. The bag will contain any leakage that may occur.



2. The body form should be cleaned after each class with soap and warm water. This will help preserve the body form and minimize any major staining from the simulated blood.



3. Store the body form, tissue sets, and all other parts in the carrying case. It is recommended that all tissues and the simulated blood be stored in zip lock bags. Position the body form so the umbilicus is on the same side as the case's handle so the simulator stands upright when the case is closed, stored or carried.



# Troubleshooting

## Issue: Air Bubbles in Vein or Artery

1. Stand body form on its end and raise fluid lines in the air. If a large bubble rises, follow instructions starting on page 13 for Refilling Simulated Fluid.



2. If there is any air in the lines see *"Refilling Fluid Reservoirs"* on page 11 for further instructions.

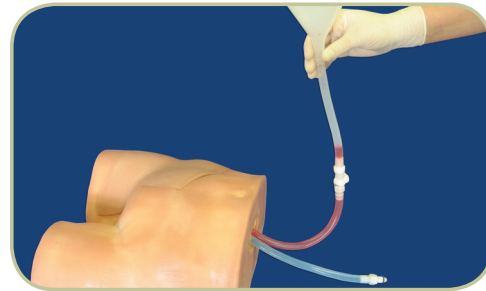
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**NOTE:** Air in the Pulse Bulb or Venous Pressure Regulator can introduce air bubbles into the lines.

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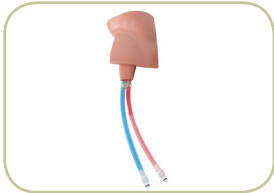
## Issue: Fluid Leaking out of Tissue

1. If arterial or venous fluid is leaking out of the surface of the Replaceable Tissue, you may have over-pressurized the fluid in the line.



2. See *"Checking Replaceable Tissue Fluid Levels and Pressure"* on page 7 to reduce the fluid pressure.

# Replacement Parts Catalog



**FLMT-50**  
FemoraLineMan Normal  
Replaceable Tissue



**FNBT-50**  
FemoraLineMan Nerve  
Block Replaceable Tissue



**NSG-10**  
Non-Sterile Guidewires



**CLP-1008**  
Arterial Pulse Hand  
Pump



**CLP-1001**  
Venous Pressure  
Regulator



**MA-8**  
Simulated Arterial Blood  
(Red - 8 oz)



**MV-8**  
Simulated Venous Blood  
(Blue - 8 oz)



**CLP-1004**  
Fill Line



**CLP-1003**  
Fill Port with Funnel



**PLM-1004**  
FemoraLineMan  
Carrying Case



**PLM-1001**  
FemoraLineMan User  
Guide

## About Simulab



**S**imulab has been described as a practical engineering and manufacturing company—with a bit of mad scientist thrown in for good measure. They are truly passionate about human simulation realism that saves lives and money.

Simulab's goal over the past 20 years has been to create easy-to-use, portable, affordable, and clinically-relevant substitutes for both animal and human subjects used in medical training. And they have succeeded. Simulab's TraumaMan® and CentralLineMan™ are both the top trainers, worldwide, in their respective fields.

But the best is never good enough. Simulab is constantly pushing the bounds of human realism. The company's mission is to create a human mimic so perfect that participants will feel immersed—truly and completely—in each and every procedural training.

Each day they get a little closer.

Simulab has contributed significant advances to the field of simulation. TraumaMan was originally designed for use in the Advanced Trauma Life Support (ATLS) training program and is now used worldwide. TraumaMan has also become widely used in military courses, EMS training and other trauma surgery simulations.

Simulab also offers a complete line of task trainers that offer realistic, durable and affordable tools for highly effective training. These include central line trainers such as CentralLineMan and VascularAccessChild, partial task trainers such as Lumbar Puncture and Paracentesis trainers, an array of laparoscopic trainers, and various tools to improve suturing and knot tying skills.

Simulab has numerous United States and European patents granted, and additional patents pending for medical simulation technology, synthetic anatomy, and videoendoscopic training technology.



# Experience Our Passion for Human Realism

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Realistic **Feel**

Realistic **Cutting**

Realistic **Suturing**

Realistic **Bleeding**

Realistic **Ultrasound Guidance**

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But even more, we are committed to patient safety. We are passionate in our belief that realistic simulation is key to providing training that will reduce Never Events and improve patient safety throughout the medical community. Our products have been proven effective in academic and clinical settings.

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**for the Simulab experience.**

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All components of the **FemoraLineMan™** System are made in the U.S.A.

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