



IV Injection Arm Trainer P51

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IV Injection Arm Trainer P51

1. Introduction

1.1 Product Overview

The P51 IV Injection Arm is a realistic task trainer designed for practicing venipuncture, intravenous cannulation, IV injection, blood collection, and infusion procedures.

The model represents a female adult **left arm** with anatomically accurate superficial veins and a soft, flexible skin surface. It enables repeated training under realistic conditions and supports the development of safe and accurate vascular access techniques. A pressurized internal blood reservoir provides visible blood flashback upon successful venous puncture and allows the use of standard vacuum blood collection systems.

1.2 Intended Use

- P51 is intended exclusively for educational and training purposes.
- The trainer allows practice of the following procedures:**
- Venipuncture
 - Intravenous cannulation
 - IV injection
 - Blood collection
 - Infusion therapy
- Training can be performed at four anatomically relevant insertion sites:**
- Median cubital vein
 - Basilic vein
 - Cephalic vein
 - Dorsal metacarpal veins (dorsal venous network)

1.3 Product Variants

The P51 IV Arm is available in the following skin tones:

1027069 | IV Injection Arm Trainer P51 – light skin

1027070 | IV Injection Arm Trainer P51 – dark skin

1.4 Delivery Content



- | | |
|-----------------------------------|--|
| 1. P51 IV Arm | Adult left arm with pad system (pre- installed) |
| 2. Antecubital Replacement | Exchangeable cubital insertion site |
| 3. Hand & Forearm Replacement | Exchangeable dorsum hand insertion site including forearm vein section |
| 4. Artificial blood powder (20 g) | For preparation of artificial blood solution |
| 5. Carry bag | For storage and transport |

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2. Instructions for Use

2.1 Preparation Before First Use

1. Remove all components from the packaging.
2. Inspect the arm and insertion sites for visible damage.



3. Connect both tubes to the blood reservoir and attach the opposite ends to the arm connectors.



4. Ensure all tubing connections are secure.



5. Mount the arm onto the holder on the reservoir.

6. Prepare the artificial blood solution (see Section 2.2.1).

2.2 Blood Reservoir – Filling and Draining

The system includes a pressurized reservoir for realistic flashback and fluid circulation.

2.2.1 Preparing the Artificial Blood Solution

The artificial blood is supplied as a powder concentrate.

Mixing ratio: About 7 g powder + 730 ml water

Preparation Steps:

1. Pour 730 ml of clean water into the blood container (Up to marked level)
2. Add 7 g of artificial blood powder.
3. Stir thoroughly until the powder is completely dissolved.
4. Ensure the solution is free of undissolved particles before filling the system.



- Use only clean water.
- Do not use hot water.
- Prepare fresh solutions when needed.
- Adjust the water-to-powder ratio as needed to achieve the desired blood color and consistency.



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2.2.2 Blood Reservoir Tubing Check

The blood reservoir is delivered pre-configured and tested to ensure correct fluid circulation and pressure.

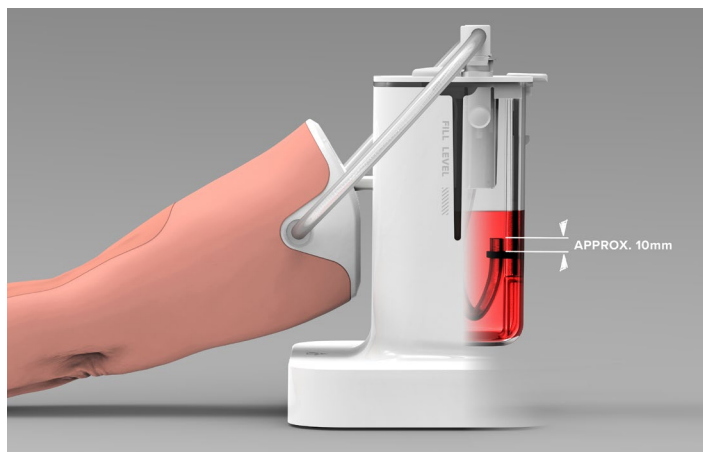
However, tubing inside the reservoir may shift during:

- Transport
- Handling
- Cleaning or refilling

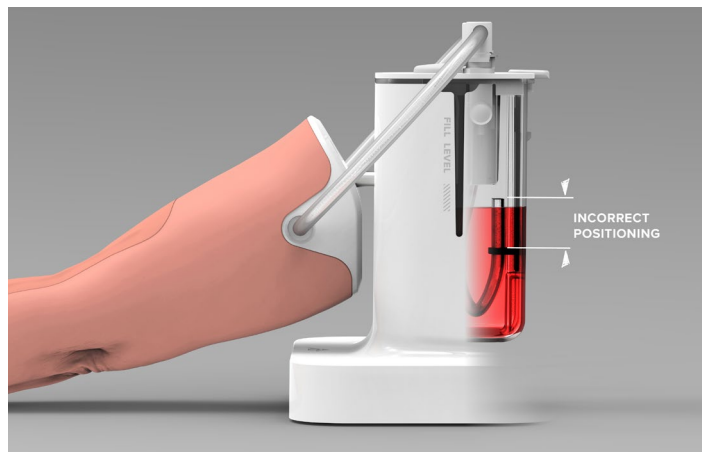
Before first use and after refilling, always verify the tubing position.

Check the Following:

- All internal tubes are **securely connected**
- Tubes are **not kinked, twisted, or disconnected**
- The intake and return tubes are **correctly positioned inside the reservoir**
- The tubing follows the **same configuration as shown in the reference images**



Correct tubing layout



Incorrect positioning (example)



Incorrect tubing position may result in:

- No or weak blood flashback
- Air entering the system
- Irregular pressure or fluid flow

If necessary, reposition the tubing according to the reference images before operating the trainer.

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2.2.3 Filling the Reservoir



1. Place the blood container securely into the reservoir base.



2. Close the reservoir lid firmly to prevent leakage.



3. Ensure the reservoir handle is fully pushed down.

4. Connect the tubing from the arm to the reservoir. Make sure both connection points are securely attached.



5. Push the circulation pump repeatedly to fill the venous system with artificial blood.



6. Continue pumping until no air bubbles are visible in the return tubing, and the tubing is completely filled with artificial blood.

7. For a more realistic blood flashback, press the circulation pump 1–2 times immediately before performing a puncture. with artificial blood.



Ensure all connections are secure before pumping.

Important: Always maintain the artificial blood level at the marked fill line (approx. 730 ml).

Operating the reservoir below or above the marked level may result in incorrect pressure and reduced flashback performance.

Arm needs to be kept at the same level as the blood reservoir during training! Otherwise, the pressure can be too high or too low

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2.2.4 Draining the Reservoir

1. Connect the tubing from the arm to the reservoir. Make sure both connection points are securely attached.



2. Pull the reservoir handle upward.

4. Continue pumping until all artificial blood has returned to the blood reservoir.

5. Confirm that the veins and tubing are empty before disconnecting the system.

6. If required, remove the reservoir cap and dispose of the artificial blood solution according to local regulations.



3. Press the circulation pump repeatedly.



Ensure the system is fully drained before storage.
Do not disconnect the tubing or the Skin inserts while fluid is still circulating.

2.3 Exchange of Spare Parts

The task trainer features independently replaceable insertion sites. Ensure the system is drained before exchanging any parts.

2.3.1.1 Removal:

1. Drain the venous system completely (2.2.4).
2. Gently detach the insertion site from the arm housing.
3. Unscrew the Luer lock tubing connections on both sides of the insertion site.
4. Carefully remove the insertion site from the system.



2.3.1 Replacing an Insertion Site

The following insertion sites are exchangeable:

- Antecubital area
- Hand: Forearm and Dorsum of the hand area



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2.3.1.2 Installation

1. Position the new insertion site in the designated cavity.
2. Reconnect the tubing to Luer lock connectors of the insertion site.
3. Tighten the Luer locks securely (do not overtighten).
4. Ensure the insertion site is properly seated and aligned with the arm surface.
5. Refill and pressurize the system (see Section 2.2.2).
6. Perform a test puncture to confirm proper function.



Ensure both Luer lock connections are securely fastened before pressurizing the system. Do not operate the trainer if tubing connections are loose.

3. Maintenance & Care

Proper maintenance ensures long product life and consistent performance.

3.1 Cleaning the Fluid System

After each training session, the venous system should be flushed with clean water.

3.2 Flushing Procedure

1. Empty the artificial blood from the system (see Section 2.2.4).
2. Fill the reservoir with clean water up to the marked level.
3. Close the reservoir properly and ensure the handle is pushed down.
4. Pump the circulation pump repeatedly to fill the venous system with clean water.
5. Drain the system by pulling the reservoir handle upward and pumping until all water returns to the reservoir.
6. Repeat the fill-and-drain procedure if necessary until the system runs clear.
7. Ensure the veins and tubing are completely empty before storage.



Always drain and clean the system after use. Leaving artificial blood in the system may result in dried residue, leading to blockages and potential damage to the fluid system

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3.3 Cleaning the Skin Surface

- 1. Wipe the skin surface with a damp cloth.
- 2. If necessary, use mild soap and water.
- 3. Dry thoroughly.
- 4. Apply a small amount of talcum powder to maintain skin flexibility.



Do not use aggressive cleaning agents or disinfectants that may damage the material.

3.4 Storage

- Ensure the system is fully drained and dry.
- Store the task trainer in the provided storage bag.
- Keep away from direct sunlight and extreme temperatures.
- Do not place heavy objects on the arm.

4. Troubleshooting

4.1 No Blood Flashback

Possible Cause	Solution
Reservoir not filled to marked level	Fill reservoir to approx. 730 ml
Air in the system	Check that all Luer lock connections are secure. Continue pumping until no air Bubbles are visible.
Incorrect tubing position inside the reservoir	Check that the internal tubes in the reservoir are correctly positioned and securely connected (See section 2.2.2)
Insufficient pressure	Press pump 1–2 times before puncture
Loose tubing connection	Check that all Luer lock connections are secure. Continue pumping until the veins are fully filled.

4.2 Low Pressure / Weak Flashback

Possible Cause	Solution
Blood level too low	Refill to marked level (approx. 730 ml)
Handle not fully pushed down	Push handle down completely
Internal air remaining	Continue pumping until veins are fully filled

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4.3 Leakage at Insertion Site

Possible Cause	Solution
Maximum insertions exceeded	Replace insertion site
Large needle size used frequently	Use recommended 21G
Insertion site not properly seated	Reinstall insertion site correctly
Arm positioned lower than blood reservoir	Ensure the arm is positioned at the same level as the blood reservoir during training to maintain correct system pressure



For optimal performance and to prevent false pressure or leakage, always position the arm at same surface level as the blood reservoir during training.

4.4 IV Dressing Not Adhering Properly

Possible Cause	Solution
Skin surface is wet, oily, or dusty	Clean and dry the area before applying the IV dressing
Poor adhesion during repeated use	Apply a small amount of baby powder to improve handling and reduce surface tackiness
Silicone surface characteristics	Note that the hand and antecubital pad are made of silicone material, which may make long-term IV dressing attachment more difficult



For best adhesion results, ensure the application area is clean and dry before attaching the IV dressing. Due to the silicone material properties of the hand and antecubital pad, IV dressings may not remain attached for extended periods during repeated training sessions.

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5. Safety Information



5.1 General Safety Warnings

- The P51 IV Arm is intended for training purposes only. It must not be used on real patients.
- Use only artificial blood solutions or suitable training fluids. Do not use real blood or hazardous substances.
- Always ensure the system is properly assembled and all tubing connections are securely fastened before pressurizing the reservoir.
- Maintain the artificial blood level at the marked fill line (approx. 730 ml) to ensure correct system pressure.
- Position the arm and the blood reservoir at the same surface level during training to prevent incorrect pressure or leakage.
- Do not exceed the recommended needle sizes. (maximum 18G)
- Do not modify the product.
- Inspect the trainer regularly for visible damage before use.

5.2 Needle Use and Disposal

Recommended needle sizes:

- 21G (preferred)
- 20G

Limited use:

18G (may reduce durability of insertion sites)



- Always dispose of needles and sharps in approved sharps containers according to local regulations.
- Do not leave needles inserted in the model when not in use.
- Repeated use of oversized needles may reduce insertion site lifespan and cause leakage.

5.3 Proper Positioning of Arm and Reservoir

For optimal performance:

- Place the arm and the blood reservoir on the same horizontal surface level.
- Avoid positioning the arm significantly lower than the reservoir.
- Ensure stable placement during training (sitting or supine patient simulation).

Incorrect height positioning may cause:

- Pressure imbalance
- Weak flashback
- Leakage at insertion sites

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6. Technical Data

6.1 Physical Dimensions and Weight

Dimension	680x240x220mm
Weight	1.7kg
Skin Tones	Light and Dark
Storage	Supplied with carry bag

7. Spare Parts

The following spare parts are available separately:

SAP	Qty	Item	Description
1027071 (Light skin) 1027072 (Dark Skin)	1	Antecubital Replacement	Exchangeable cubital insertion site
1027073 (Light skin) 1027074 (Dark skin)	1	Hand & Forearm Replacement	Exchangeable dorsum hand and forearm insertion section
1027075	1	Blood Reservoir	Pressurized reservoir unit with pump mechanism
1027194	3	Connection Tubing x 3 set	Pair of tubes connecting the arm and the blood reservoir
1027188 (Light skin) 1027190 (Dark skin)	5	Antecubital Replacement - 5 set	Exchangeable cubital insertion site
1027191 (Light skin) 1027192 (Dark skin)	5	Hand & Forearm Replacement- 5 set	Exchangeable dorsum hand and forearm insertion section
1023954	1	Blood Powder 100g	3B Scientific® water-soluble blood powder
1022654	1	Transport Bag	For storage and transport

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IF YOU HAVE ANY QUESTIONS OR NEED SUPPORT, PLEASE SCAN HERE

