

# **Simulator Pediatric IV Hand**

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## **Instruction Manual**

 **KYOTO KAGAKU co.,LTD**

**CE**

## Simulator Pediatric IV Hand

A flexible, life-like child hand simulator for IV puncture/injection practices, this simulator can share the circulation pump with Intravenous Arm, Intravenous Hand, which accurately reproduces not only the vein location, but also the circulation of human blood flow, including flash-back as with actual patients. Trainee can practice injection and blood collection from two vein lines. Easy to set up and easy to care for, it is usable for objective, structured, clinical examinations of clinical skills.

The simulator is designed for training in IV injection and blood collection. Do not use for improper purpose.

Please read the instruction carefully before use.

### Features

1. Fingers and back of hand are flexible and may be gripped or pulled as in real procedures.
2. Thin, soft child vessels are simulated.
3. Catheter securement procedures can be practiced.
4. Life-like touch and resistance of the injection sites simulates real human hand.
5. Resistance of hand and veins felt through the injection needle simulates that of a real human.
6. Accurate layout of blood vessels.
7. Two vein lines are available for practice.
8. Special circulation pump reproduces the circulation of the human blood flow.
9. Flash-back of the artificial blood into the injection needle can be observed.
10. Supporting stand with pivot joint, which allows the hand model to be held up smoothly like actual procedures.
11. No puncture trace of injection needle remain.
12. One-touch, leakage free connections.
13. Quiet pump.

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Step C2; Dismantle and Storage

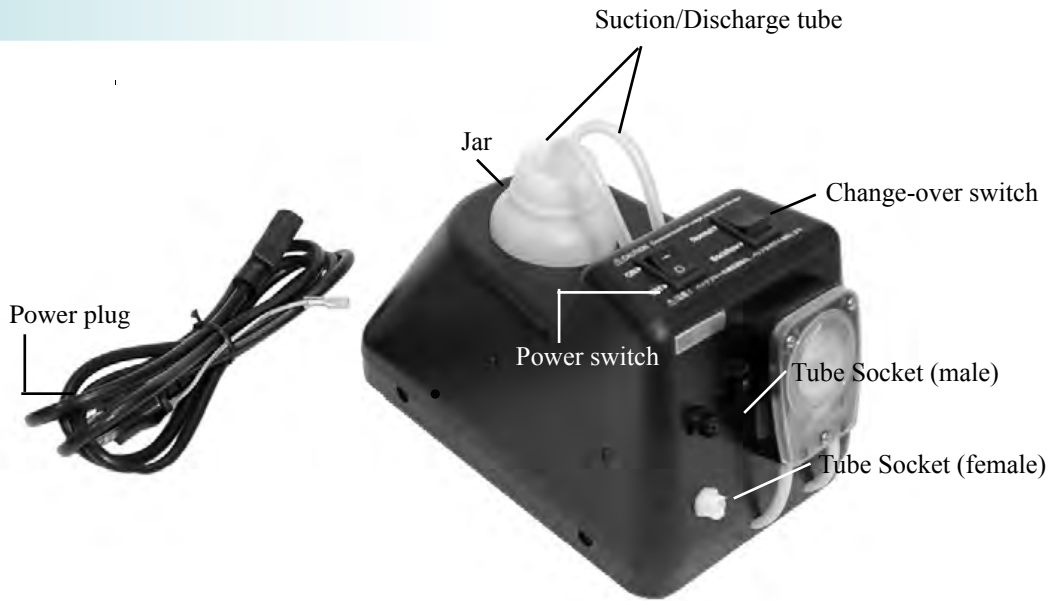
### Installation of replacement parts-

Step D1; Replacement of injection hands

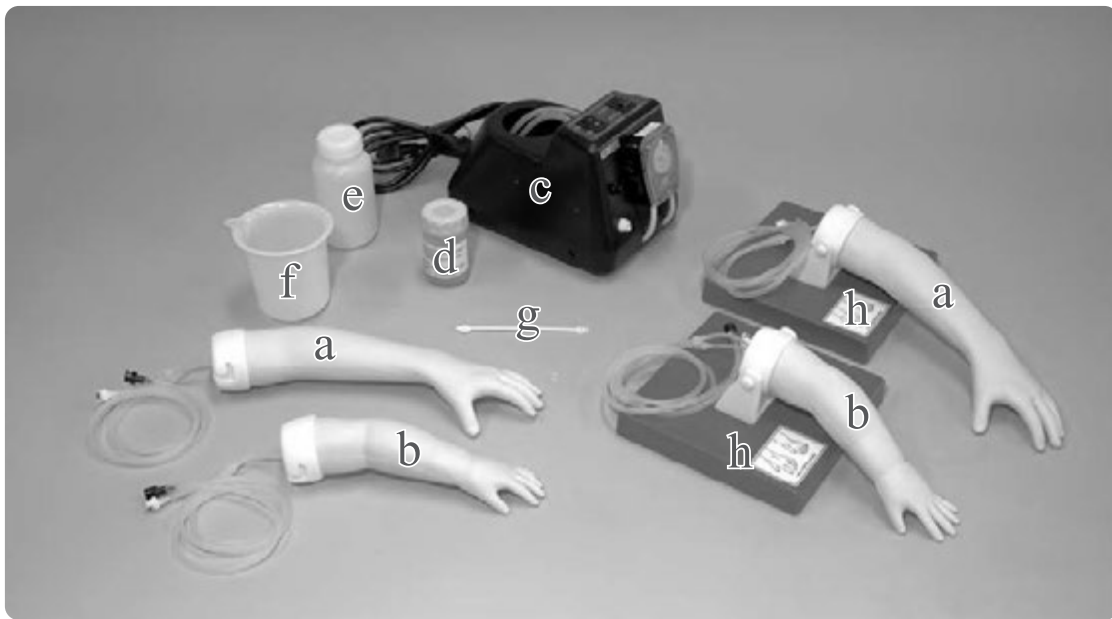
Step D2; Replacement of the injection pads

# Part names and functions

## Circulation pump



## Set includes



- |                                   |   |   |   |
|-----------------------------------|---|---|---|
| a. Hand model (3 years old) ----- | 2 | f. Beaker -----                                 | 1 |
| b. Hand model (1 years old) ----- | 2 | g. Spoon -----                                  | 1 |
| c. Circulation pump -----         | 1 | h. Stand for Hand -----                         | 2 |
| d. Blood powder -----             | 1 | i. Storage and transport case (no picture) ---- | 1 |
| e. Plastic jar -----              | 1 |   |   |

## Before training: Step A1-A3



### A1. Preparation of simulated blood

- 1) Take blood powder with the tip of the small spoon supplied.
- 2) Dissolve it in half a jar of water. (approx. 150cc)
- 3) Place the jar into the jar holder in the circulation pump
- 4) Insert the suction/discharge tubes into the simulated blood.

Make sure the both tips of tubes are properly placed undersurface of the fluid.

**PLEASE NOTE:** The solution is not designed for prolonged storage.

Please prepare new simulated blood for each session.



### A2. Setting up the circulation pump

Plug the tips of tubes from the arm-hand models into the tube sockets at the side of the pump in accordance with the colors. Then lock them by turning clockwise.

Connection: Plug in and turn clockwise.

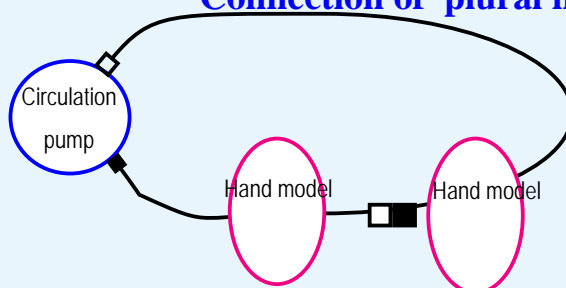
Disconnection: Turn the plug counterclockwise and pull it out.

**PLEASE NOTE:** To avoid leakage, please disconnect while the motor stops.

When you pull a tube, please be sure to hold it by the plastic plug, or the tube may separate from the plug.

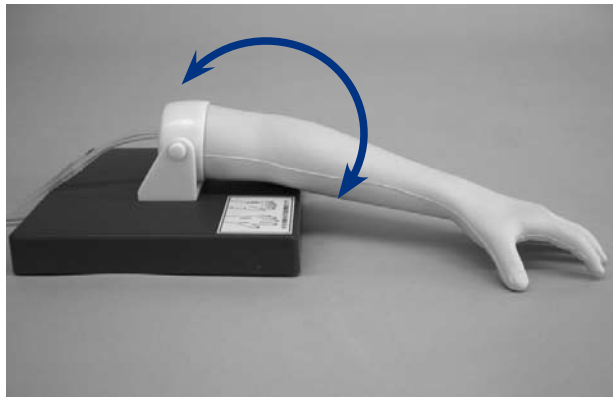
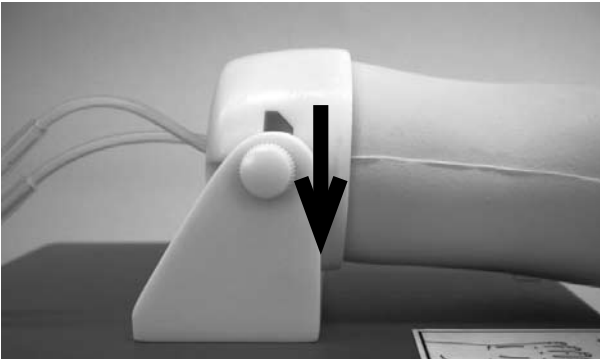
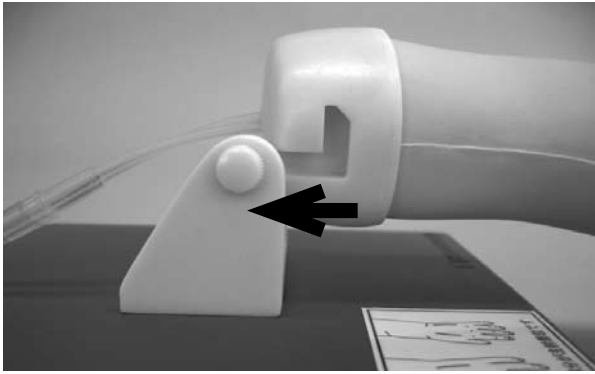


### Connection of plural hand/arm models



Connect the hand/arm models in series.

**Please note :** It is recommended not to connect more than three hand/arm models at a time.



### A3. Installation of Hand model

- 1) Set the hand model to the holder by inserting the holder bars into the grooves at the both sides of arm model base.

Be careful not to pull the vein tubes excessively.

The hand model can be rotated at the pivot joint to facilitate the handling procedures.

## While training: Step B1-B2

### B1. Filling the model with simulated blood

- 1) Connect the pump to the power source and switch the power switch on.
- 2) Turn the change-over switch to 'NORMAL'.

**PLEASE NOTE:** When a tube is folded, the fluid does not circulate properly.

- 3) When the simulated blood in the jar runs low, please refill the jar.

### B2. Perform the practices

**Two puncturable line on the back of the hand of the model are available for practices.**

#### Puncture

Insert the needle slowly. When the needle reaches a vein properly, the change of pressure will be felt through the needle.

#### Flash-back confirmation

Turn the changeover switch to BF position. When the needle has reached a vein properly, simulated blood will be flow up into the syringe.

**PLEASE NOTE** Having observed flash-back, please change over the switch to 'NORMAL' swiftly.

#### Blood collection

When the puncture is successful, simulated blood can be aspirated to the syringe.

**PLEASE NOTE** Do not inject the simulated blood back into the pad. Please return the fluid into the jar.

#### Injection

Perform the practice by using water.

## The function of changeover switch

**NORMAL:** Fluid circulates CLOCKWISE to produce negative pressure in the vessel tubes.

**OFF:** Stop the flow.

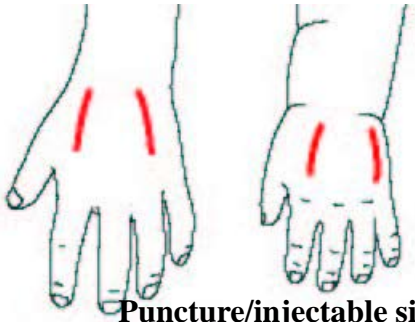
**BF(Back Flow):** Fluid circulates COUNTER-CLOCKWISE to produce positive pressure in the vessel tubes.



**PLEASE NOTE;** [BF] function is for "flash back" confirmation procedure only.

Do not leave the pump working in [BF] mode too long while training, otherwise fluid may leak.

Please turn the switch in two steps, one step at a time. Do not turned it between NORMAL and BF at once. Too quick and frequent changeover may cause malfunction of the pump.



Puncture/injectable site

## After training: Step C1-C2



### C1. Discharge the simulated blood

Pull up the top of the suction/discharge above the surface of the fluid and switch- on the pump. The simulated blood returns into the jar.

### C2.Cleansing

- 1) Dispose of the simulated blood and fill the jar with water.
  - 2) Fill the model vein with water, then discharge it following the procedures listed in B1 and C1.
  - 3) Wipe the model gently with dry soft cloth and wipe the pump with a wet cloth.
- PLEASE NOTE:** Never wipe the model with thinner or organic solvent.
- 4) If the pump is heavily soaked with fluid, pull off the cap at the bottom of the pump and discharge the fluid through the drain. Dry the remaining fluid with a cloth or sponge it off.

### C3.Dismantle and Storage

- 1) Turn the changeover switch to OFF position.
- 2) Switch the power switch off
- 3) Disconnect the tubes
- 4) Storage in the storage case.

## DOs and DON'Ts

### DO's

#### Operate the system under the designated circumstances

Power input: AC 230V plus or minus 10% , 50Hz/ 60Hz .

Temperature range: between 0 degrees C and 40 degrees C (no congelation)

Relative humidity; between 0% to 80 % (no condensation)

#### Follow the instruction on labels



“Warning label” indicates there is a danger of an electric shock when the part is opened up.

Opening up any lids, caps or covers with warning labels is discouraged.

Never run the system while the warning labeled part open.

#### Safe disposition

To avoid short circuit, do not run the simulator set above a power receptacle.

#### Handle with care

The materials for the models are special compositions of soft resin.

Please handle them with utmost care at all times.

#### Storage

Store the training set at room temperature, away from heat, moisture and direct sunlight.

Storage under the temperature above 50 degrees C may reduce the performance quality of the simulator.

### **DON'Ts**

**Never wipe the models and pads with thinner or organic solvent.**

**Don't mark on the phantom and models with pen or leave any printed materials in contact with their surface.**

Ink marks on the models won't be removable.

#### **Do not give shocks**

The circulaion pump is a precision instrument. Strong shock or continuous vibration may cause breakages of its internal structure.

**Do not run the pump continuously over 2 hours.**

Please take at least 30 minutes shutdown, turning off the power, every 2 hours.

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