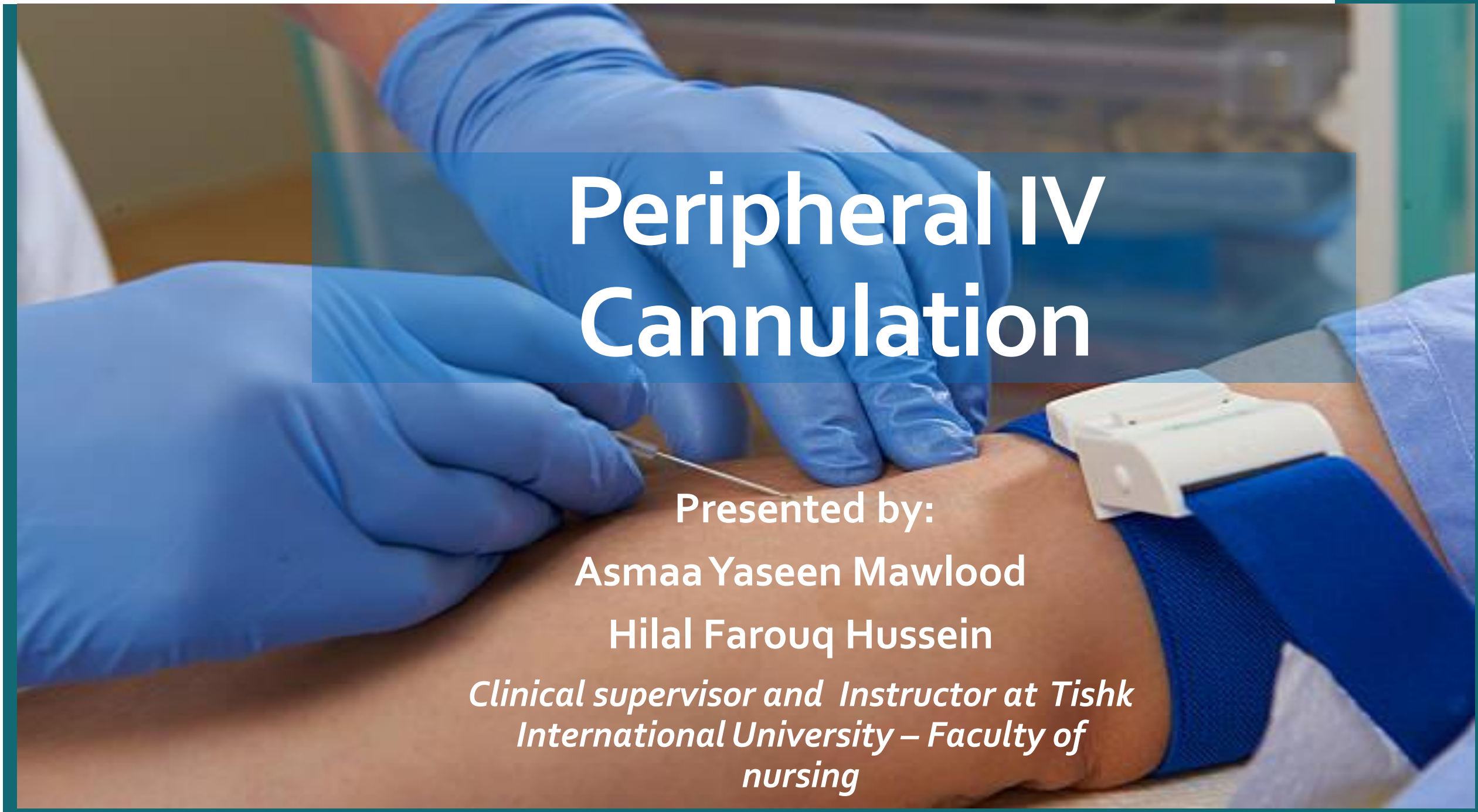

Peripheral IV Cannulation

Presented by:

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Objectives

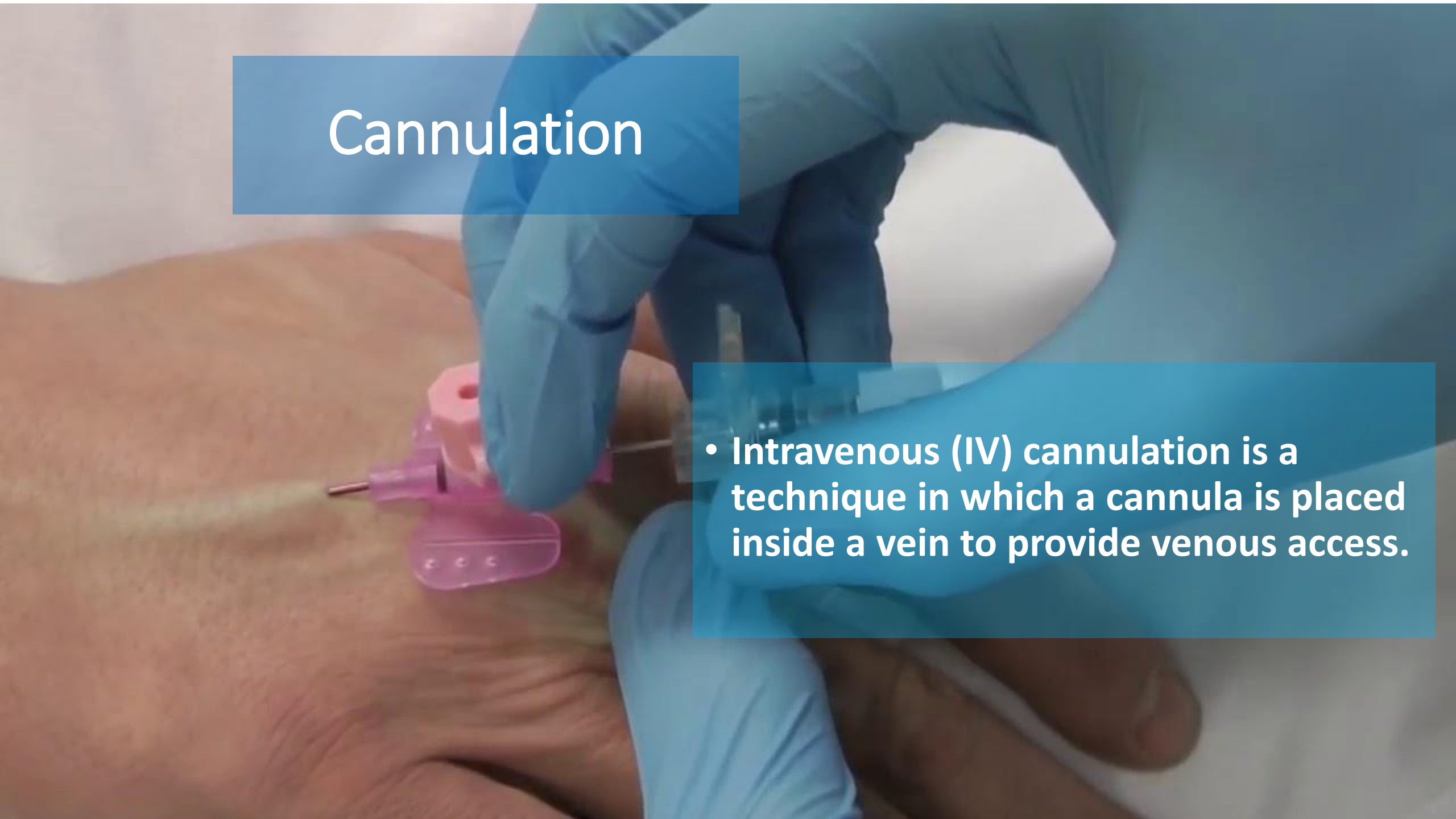
Having completed the IV cannulation training course you will be able to:

- Describe the basic anatomy and physiology of the superficial veins of the arms and hands
- Locate and assemble required equipment for IV cannulation or venipuncture.

Objectives

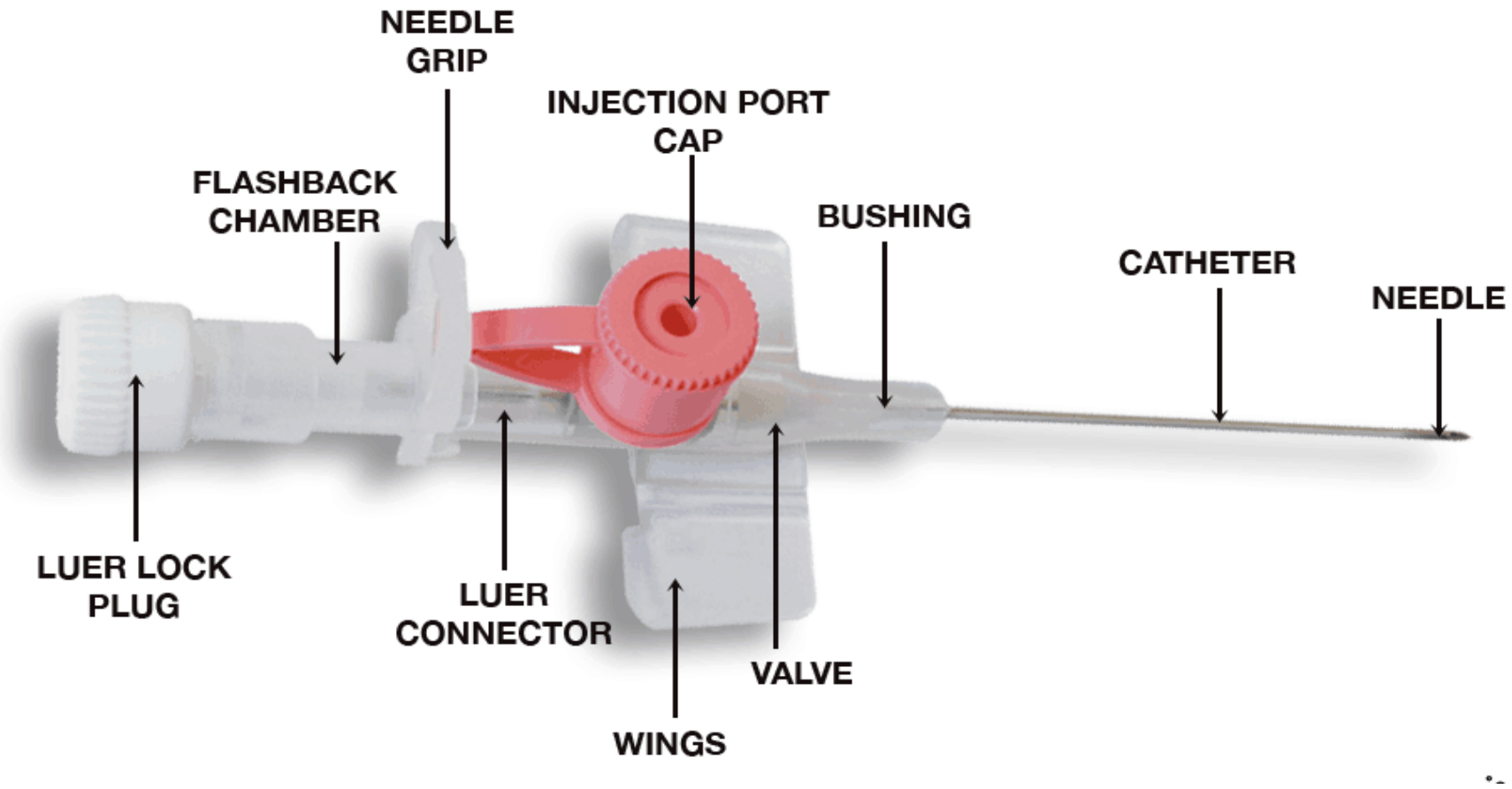
- Perform a successful IV cannulation on the training arm
- Demonstrate awareness of Infection Control guidelines
- Demonstrate critical thinking relevant to managing the risks and complications of IV cannulation
- Identify patient education requirements

Cannulation

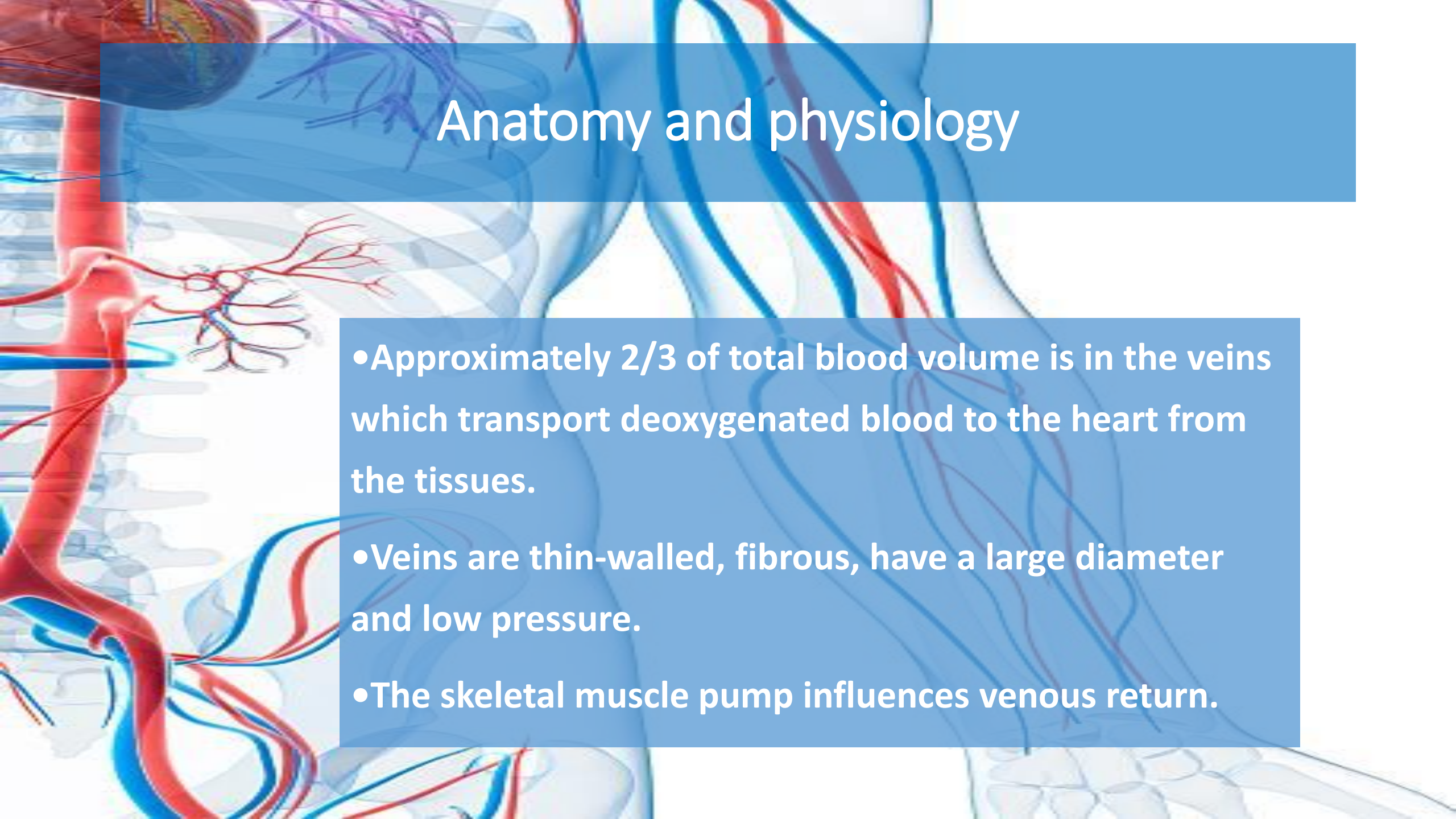


- **Intravenous (IV) cannulation is a technique in which a cannula is placed inside a vein to provide venous access.**

Anatomy of Cannula



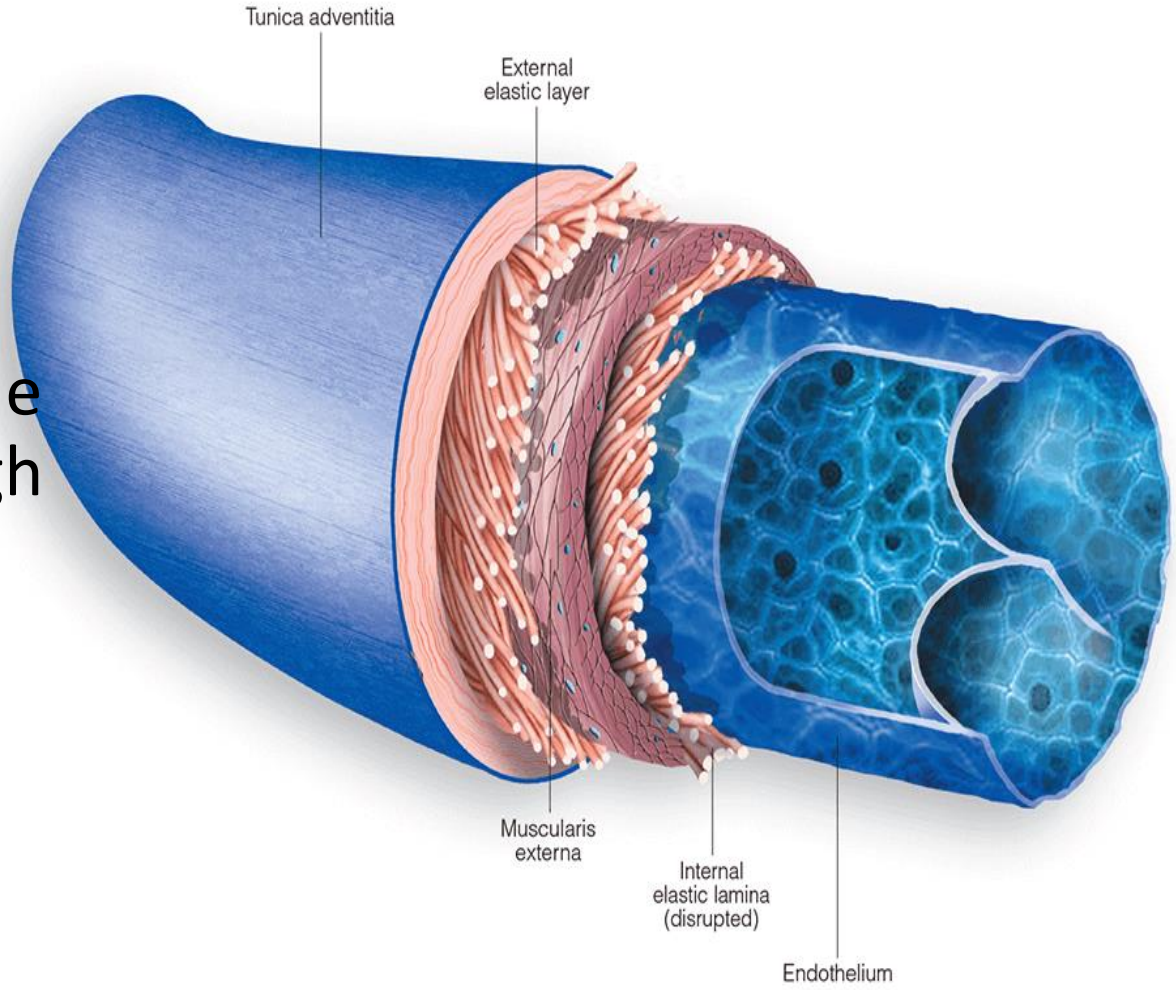
Anatomy and physiology



- Approximately 2/3 of total blood volume is in the veins which transport deoxygenated blood to the heart from the tissues.
- Veins are thin-walled, fibrous, have a large diameter and low pressure.
- The skeletal muscle pump influences venous return.

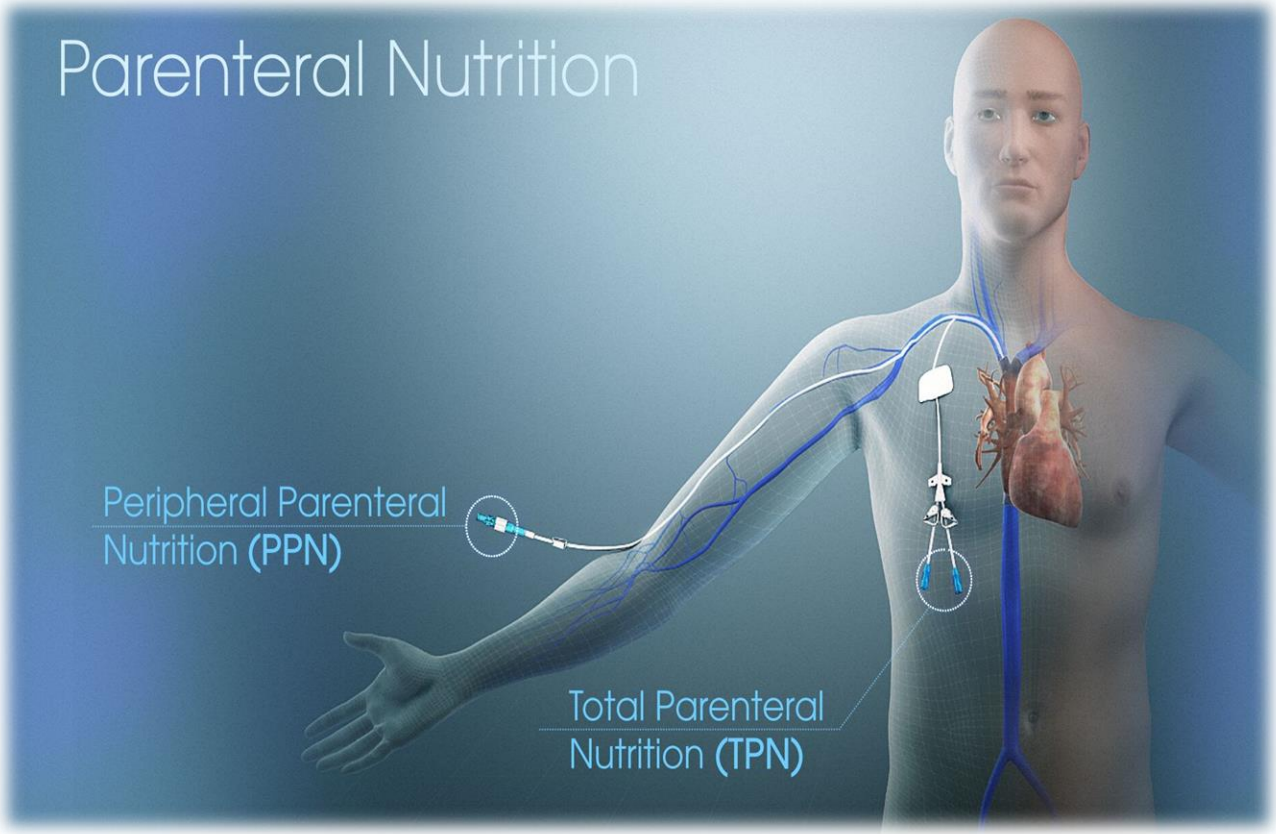
Vein layers

- Venous valves encourage unidirectional flow of blood and prevent pooling of blood in the dependent portions of the extremities; they also can impede the passage of a catheter through and into a vein.



Indication of cannulation

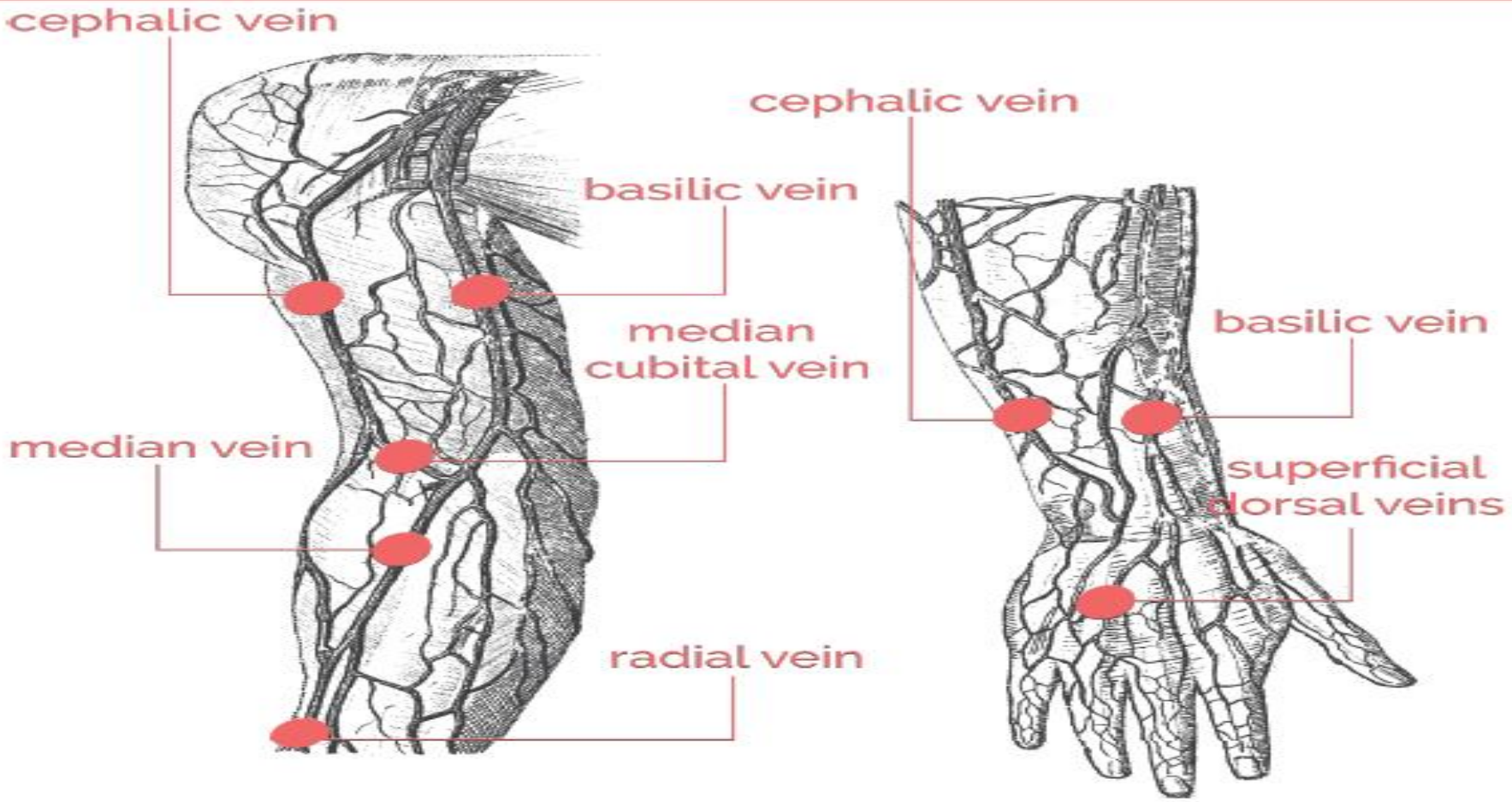
- Repeated blood sampling.
- Intravenous fluid, medication and chemotherapy administration.
- Nutritional support.
- Blood or blood product.
- Radiological contrast agents for computed tomography, MRI or nuclear imaging.

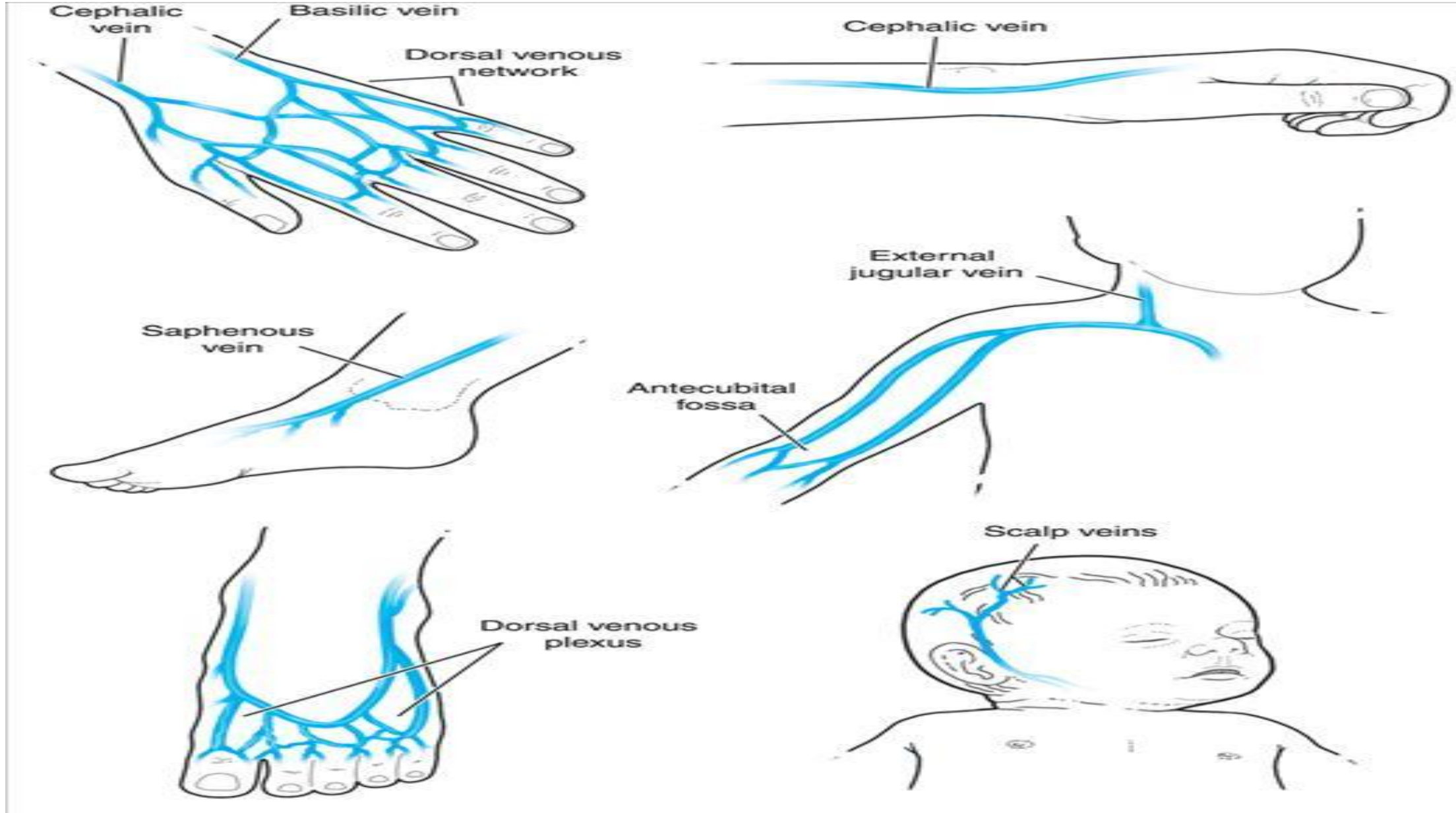


Contraindications

- Planned use of very concentrated or irritating IV fluids: Use a central venous catheter or intraosseous infusion
- Infection or burned skin at a prospective cannulation site
- Injured or massively edematous extremity
- Thrombotic or phlebitis vein
- Arteriovenous graft or fistula
- Ipsilateral mastectomy or lymph node dissection
- In the above situations, use another site (eg, the opposite arm).

Common sites of peripheral IV Cannulation




Cephalic vein
Basilic vein
Dorsal venous network
Cephalic vein
External jugular vein
Saphenous vein
Antecubital fossa
Dorsal venous plexus
Scalp veins

Size Of Cannula

- 14G • Large volume replacement
- 16G • Rapid transfusion of whole blood or blood components
- 18G • IV maintenance, NBM **(Nil by mouth)** patients
- 20G • IV analgesia
- 22G • Pediatrics, elderly, chemotherapy patients
- 24G • Pediatrics, neonates


24G
22G
20G
18G
16G
14G

SUN 24G

SKY 22G

20G

18G

17G

SOIL 16G

LAVA 14G

Complication

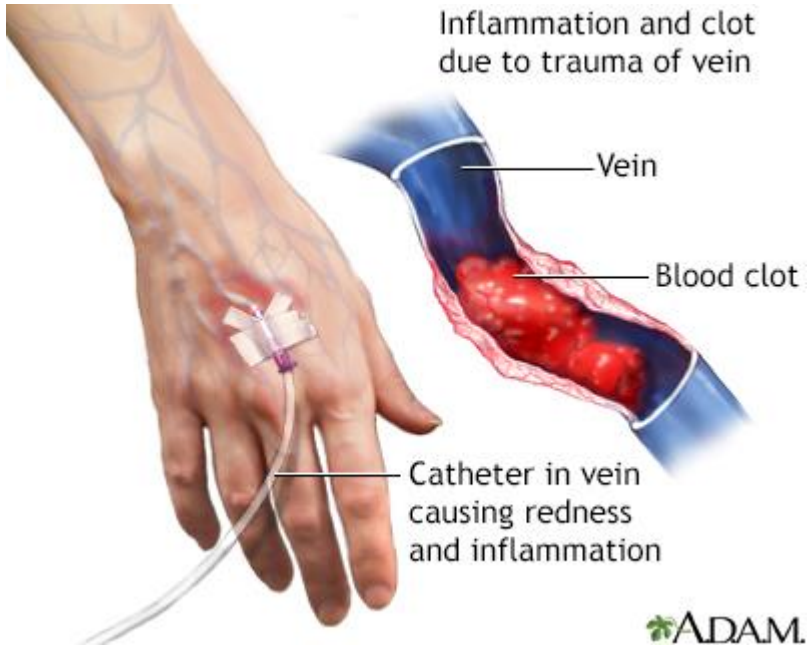
Complications are uncommon and include

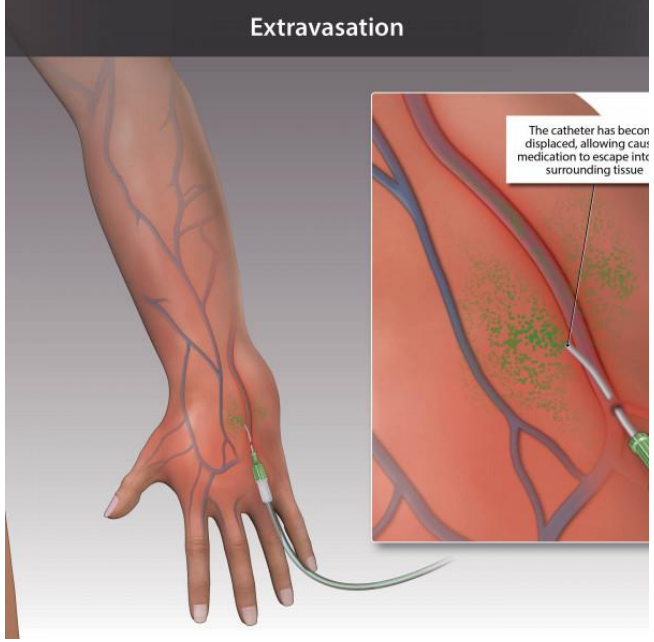
- Local infection
- Venous thrombophlebitis
- The above complications can be reduced by using sterile technique during insertion and by replacing or removing the catheters within 72 hours.

Complication

Other complications include

- Extravasation of infused fluids into surrounding tissues
- Arterial puncture
- Hematoma or bleeding
- Damage to the vein
- Nerve damage
- Air embolism
- Catheter embolism





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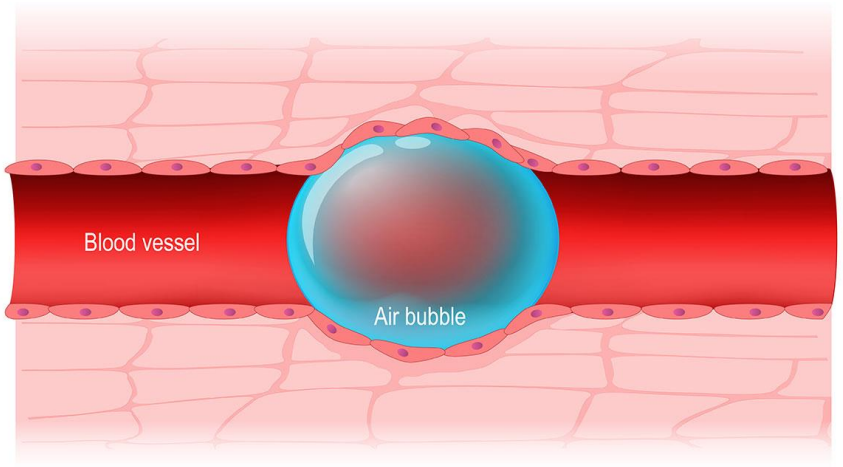

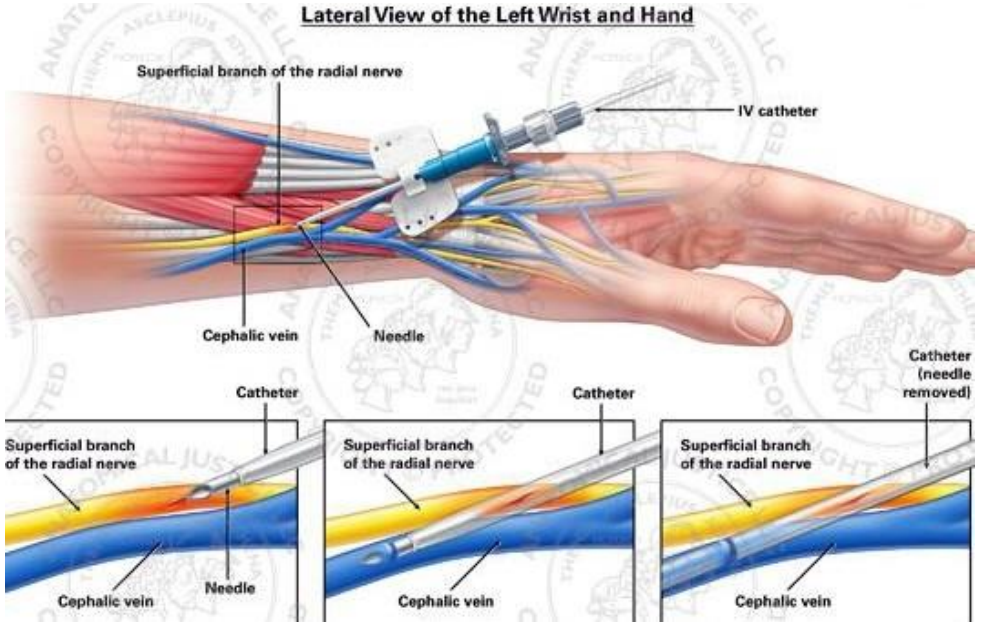

Warnings and Common Errors

- Use only mild tension when applying the tourniquet; it is a venous, not an arterial, tourniquet.
- If the vein is not entered, do not try to reposition the needle by moving the tip to one side or another.
- Never withdraw the catheter back over the needle or reinsert the needle into the catheter. Doing so could shear off the catheter tip within the patient.

Tips and Tricks

- Nitroglycerin ointment or warm compresses may help dilate veins.
- Consider using double tourniquets (a second tourniquet is placed distal to the anticipated catheter-insertion site *after* placement of the first tourniquet) to engorge the veins for large body habitus or edematous limbs.
- You can use vein scanner for very complicated vein.


AccuVein

How to do Cannulation