

Cardiac Output Measurement Using the Thermodilution Method

Technique for Thermocouple & Catheter Preparation



Patience and care are required in preparing the thermocouple and catheter for insertion into an arterial vessel.

Step 1:

Thread the thermocouple through the Touhy Borst.



Step 2:

Thread the thermocouple through the provided 23G needle.



Step 3:

Thread the thermocouple through a length (approx 10cm) of PE50 (0.58 mm ID x 0.96 mm OD) tubing.



Step 4: For use in rats and rabbits

Connect the Touhy Borst to the needle hub and attach the catheter to the needle. The thermocouple should be exposed through the end of the catheter (approx. 0.5 cm). This catheter thermocouple arrangement is ideal for use in rats or rabbits. Make sure the Touhy Borst is closed around the thermocouple before inserting into the artery. Once inserted the catheter can be secured with a silk tie gently knotted around the vessel and catheter.

If using the catheter and thermocouple in mice continue to Step 5 – 7 on the next page

Step 5:

Thread the thermocouple through a 2-2.5cm length of PE10 tubing (0.28mm ID x 0.61mm OD).



TIP: Flat tip forceps may be used to hold the tubing to make it easier to thread the thermocouple through the tubing. Do not use the forceps to hold the thermocouple or squeeze the thermocouple after it has been inserted. To reduce friction and facilitate the insertion of the thermocouple in the PE10 tubing, saline can be injected into the tubing.

Step 6:

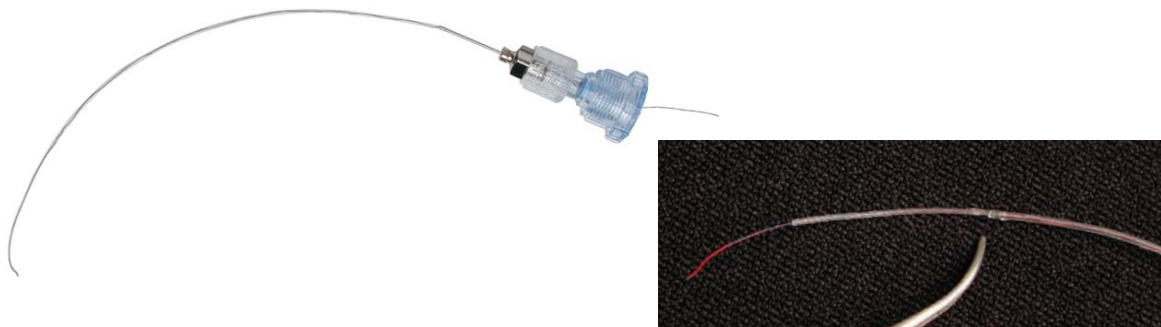
Once the thermocouple is threaded through each of the components, connect all components together

- Slide the PE50 tubing over the PE10 tubing (it should fit tightly over the PE10).
- Insert the blunt end of the 23G needle into the PE50.
- Attach the Touhy Borst to the needle hub. Make sure that a small length of the thermocouple is exposed at the end of the catheter (approx 0.5 cm).

Step 7:

- Close the Touhy Borst before inserting the thermocouple and PE10 catheter into the mouse artery.

Final Product Shown Below



TIP: The end of the catheter may be dipped into heparin to reduce the formation of blood clots at the tip.