



STEP-BY-STEP

PERIPHERAL CATHETER PLACEMENT



Any member of the veterinary team (ie, veterinarian, veterinary technician, veterinary assistant) can legally place a peripheral catheter in most states in the United States, and practices should adhere to the law in their state.

Use any well-lit practice treatment area (eg, examination room, operating room) for placing a catheter in a patient.

Patients often behave unpredictably during this procedure and should be restrained appropriately (eg, using physical restraint, chemical restraint [sedation], restraint tools [gloves, blankets, muzzles]). Always have the necessary supplies (eg, clippers, antibacterial scrub, rubbing alcohol, gauze, medical tape, IV catheter, injection plug, 0.9% NaCl) on hand.

For more tips on placing IV catheters, watch *Veterinary Team Brief's* video at brief.vet/iv-catheter

1 Shave enough hair so the vein can be visualized (**Figures 1 and 2**). Depending on practice protocol, shave the area over the vein only, or the entire circumference of the leg. Shaving around the entire circumference helps ensure that hair and bacteria do not physically contaminate the insertion site when the catheter is taped.



Figures 1 and 2. Shave the patient's hair to visualize the vein.

2 Nonsterile medical gloves should now be worn¹; wearing gloves before this step may result in the gloves touching the shaved hair.



Figures 3 and 4. Prepare the site with an antibacterial solution on sterile gauze and a rubbing alcohol gauze.

3 Prepare the site in a manner similar to surgical preparation (**Figures 3 and 4**). Place an antibacterial solution (2%-4% ChlorhexiDerm or povidone-iodine) on sterile gauze and alternate with a rubbing alcohol gauze.¹⁻³ The antibacterial solution should maintain contact with the skin for a full minute.² Avoid palpating the insertion site following the scrub.¹

4 The catheter (see **Definitions**) should not be touched when the package is opened. Discard any catheter that touches anything other than prepared skin.

Definitions

- **Catheter:** A flexible tube with a long needle inside that is inserted into a vein
- **Stylet:** The long needle inside the flexible tubing used to breach the skin to access the vein
- **Bevel:** The small hole on the stylet.

5 Before inserting the catheter, place any necessary restraint devices (eg, muzzle, towels, Elizabethan collar) on the patient. At this step, the team member placing the IV catheter and the team member restraining the patient have equally important responsibilities. One team member places the IV



Figure 5. Restrain the patient while placing the catheter.

catheter to occlude the vessel (similar to a tourniquet); the vessel dilates and fills with blood. Another team member positions the leg, restrains the patient, and ensures team safety throughout the procedure (**Figure 5**). Most patients will try to pull their leg back when they feel the catheter.



Figures 6 and 7. The catheter must be inserted at a 10°-30° angle to breach the skin.



Figure 8. A flash of blood should be visualized in the catheter hub.



Figures 9 and 10. The catheter should be carefully leveled parallel to the vein and slowly advanced forward.



Figure 11. The catheter is pushed off the stylet and all the way into the vessel.

6 Grasp the hub of the catheter firmly with the dominant hand, using at least 2 fingers and taking care not to touch the catheter itself. With the other hand, firmly grasp the patient's leg below the area where the catheter will be placed to prevent leg movement during placement.

7 The area for catheter insertion should be at a point that is as close as possible to the foot to allow for any subsequent attempts to use the same vein. Do not palpate the vein and do not touch the prepared insertion site.

8 The slanted part of the needle tip, or bevel, should point upward so that the opening can


be visualized. Insert the catheter at a 10° to 30° angle to breach the skin (**Figures 6 and 7**).³⁻⁵ A flash of blood should be visualized in the catheter hub (**Figure 8**). At this point, carefully level the catheter parallel to the vein and slowly advance forward (**Figures 9 and 10**) approximately 2 mm to 3 mm to ensure that it is fully seeded within the vessel.


9 If blood is still flowing into the catheter hub and it has advanced smoothly to this point, advance the catheter off only the stylet and into the vein without moving the stylet. Using one finger (usually the index finger), push the catheter off the stylet only and all the way into the vessel (**Figure 11**).

10 Flush the catheter with 0.9% NaCl when it is fully inserted up to the hub into the vein, tape it, and wrap it securely. Heparinized saline is not necessary.⁶ Cap the end of the catheter with a sterile injection plug, extension set, or T-set.

11 Consider an Elizabethan collar for patients that may be prone to removing the catheter from their leg.

Conclusion

A successful catheterization depends on a veterinary team well prepared with knowledge and understanding of the procedure's basic principles and with all the needed supplies on hand. 

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Editor's note: Amy Breton is a veterinary technician specialist in emergency and critical care who has vast experience with catheter placement. She has received numerous awards, is well-published, and speaks and gives instruction laboratories nationally and internationally.

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