



Percutaneous Needle Biopsy Technique

Supplies:

- Sedation
- Local anesthetic
- Sterile gloves
- 4x4 Gauze
- Clippers or scissors
- Hibiclens and alcohol
- 15 or 11 scalpel blade
- Skin suture material
- Al foil
- Tissue cassette (optional)
- Modified Bergstrom muscle biopsy needle – 6mm
 - There are 3 parts - a pointed trocar (outer diameter 6 mm) with a sampling window, a cutting cannula that fits inside the trocar, and a central stylet used after collection to remove sample.

cassette



Stylet Cannula Trocar

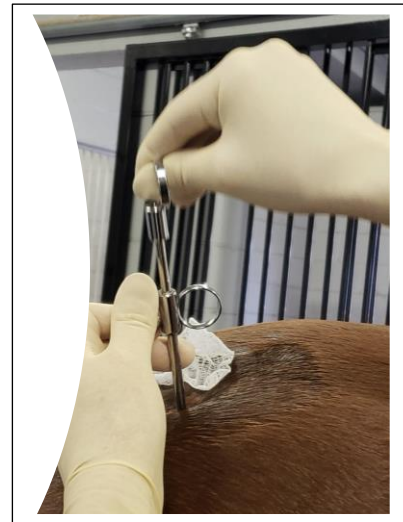
- Biopsy Needles (KRUUSE # 290035) are available from Provet for \$289

https://connect.provet.com.au/products/BIOP_N_K6

- Tell the owner that the trocar will stay in one place in the muscle while the cannula will move up and down and let them know it may take two or three tries to get enough tissue.
- The horse can go back to work the next day.

Technique

1. Draw a line from the highest point of the tuber coxae to the tail head. The biopsy site is 20 cm (8 inches) from the tuber coxa along this line over the middle gluteal muscle.
2. Clip a 3 cm (1.5 inch) square. On show horses I use scissors to hand clip a small area (0.5 x 1 cm)
3. Do a sterile surgical prep with Hibiclens and alcohol (some horses get a skin reaction to betadine).
4. Infiltrate the subcutaneous in tissue (not muscle) with 3 mls of local anesthetic.
5. Make a stab incision through the skin, subcutaneous tissue and fascia using an 11-scalpel blade and extend the skin incision to 1 cm (0.5 inches).
6. Put the cutting cannula into the trocar, have the trocar window pointing toward you.
7. Keeping the canula down in the trocar insert the trocar through the skin.
8. Pop through the fascia to a depth of 6-8 cm (3 inches) depending on the size of the horse keeping the cannula down.
9. Turn the needle slightly so the window faces the tuber coxa on the side you are standing on.
10. Wedge the window into the muscle by pushing the rings of the trocar away from you. It helps to put your middle finger on the needle to stabilize it.
11. Keeping the trocar still, pull the cutting cannula up halfway and push up and down quickly about 10 times while wedging the window into the muscle.
12. If you don't feel pressure against the window, turn the needle slightly until you do and repeat cutting with the cannula.
13. The sample will keep moving up into the cannula as you cut into the muscle.
14. Fully insert the cannula to the bottom of the trocar.
15. Remove the needle from the muscle keeping the cannula deep in the trocar.
16. Take the needle over to the al foil or the tissue cassette.
17. Point the tip of the trocar upward and quickly pull down to remove the cannula. Point the cannula down over the al foil/cassette and pass the stylet into the cannula to express



the sample. If muscle is left in the trocar, push it gently to the window and use a needle or scalpel to put it into the cassette.

18. Try not to squeeze or handle the sample.

19. You **MUST** have a 2.5 cm long sample minimum. A smaller sample is nondiagnostic.

20. If you don't get a large enough sample on first try (common), then reinsert the needle through the same incision and repeat. You can change the angle slightly once in the muscle to get the next sample. It may take 1 – 3 tries to get an adequate sample.



21. Place one simple suture to close the incision site.

22. Leave the sample in the air for 5 min while you suture the incision then place the sample into fresh 10% buffered formalin either free floating or in the tissue cassette. A urine sample cup and 60ml formalin is ideal. It is also possible to fix the muscle for 24hrs in formalin prior to placing in saline soaked gauze in a tightly sealed specimen container to prevent dehydration. For the IHC desmin stain it is best if the formalin was purchased within the last 6 months.

23. Send to the Uni of Melbourne Vet path lab asap so the sample can be processed in 48h. Avoid sampling at the end of the week as delivery delays over the weekend are not ideal.

24. Horses can go back to work the next day.

25. Remove suture in 5 days.

Ensure the horse is current on tetanus vaccine.

The only complication I have experienced is hemorrhage when you inadvertently biopsy part of an artery. If this happens, place pressure on the site, place a suture and if you have not gotten an adequate sample, biopsy the other gluteal muscle in a slightly different spot (1 cm more medial or cranial).