



VET NOTES

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Dr. Amanda Avison is from a small town in Southern Ontario where she grew up riding horses. She moved to Guelph, Ontario where she obtained a Bachelor of Science with honours in Animal Biology, her Doctorate of Veterinary Medicine and met her husband, Mitch.

Her professional interests include cardiology, lameness and neonatology. When she's not at the clinic you will likely find Amanda in the pool, trying to hide from the Florida heat!

Failure of Passive Transfer in Foals

Amanda Avison, DVM

What is passive transfer?

When a foal is born, their immune system is completely naïve, and their bodies are not yet producing antibodies that are an essential part of their immune system. Antibodies are quite large relative to other things that travel in the bloodstream. Unlike humans and dogs, in horses, these large proteins do not cross the placenta, and therefore do not enter the foal during pregnancy. The newborn foal only gets its antibodies from the first milk produced by the mare – colostrum. Colostrum is rich in many nutrients and contains a high amount of antibodies that are absorbed from the digestive tract of normal, healthy foals. This process of absorbing antibodies from the colostrum is called passive transfer.

When do I need to be concerned?

Normal, healthy foals should stand and nurse within 2 hours of birth. When this occurs, the foal is absorbing antibodies to help fight off any potential infections. Anything that makes a foal unable to stand or nurse will predispose to failure of passive transfer, and thus predispose to infection. Some examples of such conditions are 'dummy foal syndrome', or musculoskeletal abnormalities. If a newborn foal does not appear to be nursing well, attempts should be made to supply the foal with an appropriate source of colostrum. In addition, conditions where the mare has been dripping colostrum prior to foaling, can decrease the amount available for the foal. If you have any concerns, talk to your veterinarian about testing for antibody levels (IgG) in your foal or examining the quality of colostrum (via a refractometer)

My foal has failure of passive transfer, what do I do?

Unfortunately, the window where foals are able to absorb large proteins, like antibodies, is short. Within 18 hours, most foals are unable to absorb further antibodies, and therefore may require another source if they have

complete (IgG < 400 mg/dl) or partial (IgG 400 < 800 mg/dl) failure of passive transfer. This window is why it is important to test foals prior to closing, in order to allow intervention. If detected early, there are two ways to supplement antibodies: banked colostrum, and oral plasma. After 18 hours, the only effective method to increase a foal's antibody levels is through intravenous plasma or wait until they produce their own, which leaves them susceptible to infection.

What can I do to help prevent failure of passive transfer?

If your foal is not nursing well within the first few hours of birth, you should contact your veterinarian to investigate. Additionally, it is important to ensure that the mare is properly vaccinated and boosted 4 to 6 weeks prior to foaling. Vaccinating mares prior to parturition boosts their antibody levels for specific diseases of concern to the unborn foal. By increasing the mare's antibodies, there are more available in the colostrum for the foal to consume. Specific vaccine recommendations should be discussed with your veterinarian. If you notice your mare dripping substantial amounts of colostrum prior to parturition, you should contact your veterinarian to discuss whether intervention is recommended or if an additional colostrum source will be necessary for the foal. Finally, until the foal has consumed adequate colostrum, they do not have a fully functional immune system. Care should be taken to ensure that they are kept in an area free of manure and other bacterial sources, as well as ensure that the mare and her udder are clean to minimize bacterial exposure to the naïve newborn.

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