

KEEPING AN EYE ON **EPM** THIS FALL

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Though EPM can be diagnosed any time of year, it is more likely in the fall months. Before prescribing treatment, make sure a thorough diagnostic workup is completed.

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The risk of equine protozoal myeloencephalitis (EPM) is six times higher in the fall.¹ Opossums and other wildlife that serve as hosts to the EPM-causing parasites, *Sarcocystis neurona* and *Neospora hughesi*, are more active when the weather begins to cool. Autumn is also a time when months of heavy exercise, transport and other stressful events for horses can take a toll, which can increase their risk of EPM. Although the incidence of EPM clinical disease is low, up to 90% of the U.S. horse population has been exposed to *S. neurona*, depending on geographic location.¹ This creates a high seroprevalence in healthy horses, which can make diagnosis tricky, yet all the more important.



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DIAGNOSE BEFORE TREATING

While early treatment is critical to stopping the disease from causing further nerve damage, if the horse does not have EPM, an EPM treatment product will not be effective. Many diseases cause symptoms similar to EPM but will not respond to EPM treatment. If that horse has another disease, not only have we wasted money on unnecessary treatment, but also time that could have been better used pursuing the true cause of the horse's problem.

A thorough diagnostic workup is critical to make sure we are treating the horse appropriately and improving his chance of recovering. The best initial course of action is a combination of reviewing the health history of that horse and conducting a thorough neurologic and physical exam.

The organism will generally cause asymmetric deficits. Experts say it is rare to have equal deficits on both sides of the horse, so asymmetry is a tell-tale marker of a suspect EPM case. EPM is a progressive, multi-focal disease, often with muscle atrophy. While other clinical signs may be present, these are generally the more common signs in EPM cases and point to the need for antibody testing to further differentiate EPM from other neurological diseases.

The recommendation for antibody testing is to collect spinal fluid and blood samples and compare the

antibody titers in each to determine if there is evidence of a central nervous system infection.

EARLY DISEASE TREATMENT CRITICAL TO RECOVERY

For those that do succumb to EPM, irreversible damage to the brain or spinal cord is more likely to occur if the parasite has been present for long periods of time. Without treatment, many horses diagnosed with EPM progressively deteriorate to the point of recumbency. Horses treated with an anticoccidial drug, like PROTAZIL® (1.56% diclazuril) Antiprotozoal Pellets, are 10 times more likely to improve than untreated horses.¹

Diclazuril, the active ingredient in PROTAZIL, is proven to cross the blood-brain barrier and enter the cerebrospinal fluid within hours of administration at levels high enough to either limit the reproduction of protozoa or kill them outright – **without a loading dose.**² PROTAZIL is a top-dressed feed medication, ideal for horses with a reluctance to accept oral medication.

Few diseases are more frustrating than EPM. The industry continues to grapple with and study this “master of disguise,” including how best to definitively diagnose it in a live horse and whether any preventive strategies might be appropriate (or on the horizon). Of certainty, EPM

continues to threaten horses in large numbers and because it has no single defining clinical characteristic, any neurological horse could be a candidate – making your task in managing EPM a difficult one.

For more information on EPM, see the accompanying “Quick Facts” infographic. To learn more about PROTAZIL, please contact your Merck Animal Health sales representative or visit www.merck-animal-health-equine.com

IMPORTANT SAFETY INFORMATION

Use of Protazil® (1.56% diclazuril) is contraindicated in horses with known hypersensitivity to diclazuril. Safe use in horses used for breeding purposes, during pregnancy, or in lactating mares has not been evaluated. The safety of Protazil® (1.56% diclazuril) with concomitant therapies in horses has not been evaluated. For use in horses only. Do not use in horses intended for human consumption. Not for human use. Keep out of reach of children.

References

1. Reed SM, et al. Equine protozoal myeloencephalitis: an updated consensus statement with a focus on parasite biology, diagnosis, treatment and prevention. *J Vet Intern Med.* 2016;30:491-502.
2. Hunyadi L, Papich MG, Pusterla N. Pharmacokinetics of a low-dose and FDA-labeled dose of diclazuril administered orally as a pelleted top dressing in adult horses. *J of Vet Pharmacology and Therapeutics* (accepted). 2014, doi: 10.1111/jvp.12176

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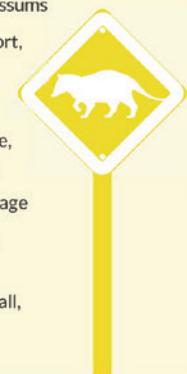
QUICK FACTS**What Is EPM?**

EPM is an infectious, progressive neurological disease that affects horses following environmental exposure to opossum feces. EPM can cause devastating and lasting neurological damage and any horse is susceptible.

- Caused by infection with the parasite *Sarcocystis neurona* (*S. neurona*); less frequently with *Neospora hughesi* (*N. hughesi*)¹
- Up to 90% of the U.S. horse population has been exposed to *S. neurona*, depending on geographic location¹
- Not all horses infected with *S. neurona* or *N. hughesi* will develop disease
- Cannot be spread from horse to horse

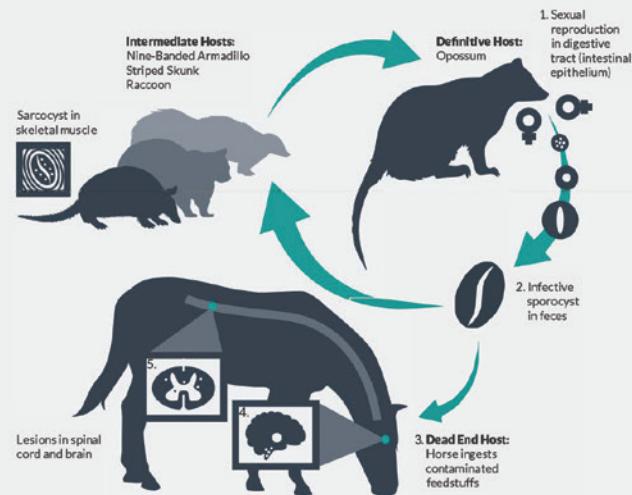
**EPM Risk Factors¹**

- Exposure to wildlife; presence of opossums
- Stress associated with illness, transport, strenuous exercise
- Young horses (1-5 years)
- Horses used for western performance, racing and other strenuous activities
- Immune-compromised horses of any age
- Immunosuppression associated with concurrent conditions
- Commonly seen in late summer and fall, but can occur any time

**Lifecycle of *Sarcocystis Neurona*¹**

- The sarcocyst organism is ingested by the definitive host, the opossum, by scavenging on intermediate hosts (cats, raccoons, skunks, armadillos, sea otters) that carry sarcocyst in skeletal muscle
- The infective stage of the organism (the sporocysts) is passed in the opossum's feces
The horse (dead-end host) acquires the infective sporocysts while grazing or eating contaminated feed or drinking water
- Once ingested by the horse, the sporocysts migrate from the intestinal tract into the bloodstream and cross the blood/brain barrier
- The resulting inflammatory response to sporocyst presence injures the horse's central nervous system

(The definitive or intermediate hosts for *N. hughesi* have not yet been identified.)¹

**Watch for These Signs**

- Gait abnormalities
- Ataxia (incoordination)
- Stumbling
- Muscle atrophy
- Weakness
- Depression
- Inability to chew or swallow
- Head tilt, ear droop
- Behavior change
- Blindness
- Seizures



Contact your veterinarian immediately if your horse exhibits neurological signs. Horses that are diagnosed early and treated aggressively have the best chance for recovery.

Diagnosis

Diagnosing EPM is difficult because it can mimic other neurologic diseases.

- Complete neurologic and physical exam to rule out other diseases
- Blood and cerebrospinal fluid (CSF) analysis to detect antiprotozoal antibodies

**Treatment and Recovery**

An FDA-approved EPM treatment such as PROTAZIL® (1.56% diclazuril) Antiprotozoal Pellets will be prescribed to control infection

Additional supportive treatment may be recommended based on the severity of neurologic deficits and associated complications

60-70% of horses show clinical improvement with early treatment¹



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Antiprotozoal Pellets

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Talk to your veterinarian if you're concerned about EPM and visit www.merck-animal-health-equine.com for more information on PROTAZIL® - the first and only alfa-1-based pellet EPM treatment.

¹ Reed SM, et al. Equine Protozoal Myeloencephalitis: An Updated Consensus Statement with a Focus on Parasite Biology, Diagnosis, Treatment and Prevention. J Vet Intern Med 2016;30:491-502.

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For additional information on EPM

In February 2016, the American College of Veterinary Internal Medicine published an updated consensus statement on equine protozoal myeloencephalitis (EPM), with a focus on parasite biology, diagnosis, treatment and prevention. The consensus statement is open access and can be downloaded at <https://onlinelibrary.wiley.com/doi/full/10.1111/jvim.13834>