

Lungworms: What I should know

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What are lungworms?

Lungworms, also known as *Dictyocaulus Arnfieldi*, are a roundworm, similar to the worms that live in the intestinal tract of equids. However, *D. Arnfieldi* makes its home in the peripheral bronchioles of the lungs. The complete lifecycle, what veterinarians call the prepatent period, is about 2-3 months. Lungworms can affect all equines, but normally can only reproduce in donkeys and mules. Less than 2% of horses seem capable of having the parasite complete its life cycle. While some research articles state that prevalence of lungworms is 68-80% in donkeys and 29% in mules.

So what is the concern?

In donkeys, where the parasite likely developed, it lives without causing the donkey any apparent concern, unless lungworm numbers are extremely high, the donkey has other respiratory concerns, or the donkey has recently been dewormed with a product that kills lungworm. However, this is not the case in horses, in which the parasite is not adapted to the host. In the horse, lungworms cannot normally complete their lifecycle. Since the horse is not the 'natural' host, the horse recognizes the lungworms as foreign its immune system tries to rid itself of the problem – the lungworm. An affected horse develops respiratory disease that can be very similar and often not distinguishable from heaves [also known as Chronic Obstructive Pulmonary Disease (COPD)].

How are lungworms diagnosed?

In donkeys and mules, it is easy! A fecal sample is analyzed by a veterinarian. However, you must inform your veterinarian that you want to check the sample for lungworms, as the testing is much different than a regular fecal. The test you must request is called a Baermann Fecal Test and checks for tiny larvae that have hatched prior to being passed in the feces. In a routine fecal exam for intestinal parasites, the sample is only examined for the presence of parasite eggs. The eggs don't hatch until they are passed in the feces. However, since you have collected a fecal sample, it's an ideal opportunity to evaluate the sample not only for lungworms, but also for intestinal parasites. With the development of resistance to dewormers, even donkeys on a regular deworming program may be found to have a significant parasite load. A fecal sample should be checked once a year to evaluate the effectiveness of your parasite control program.

In the horse, it is much harder to make a definitive diagnosis. In about 2% of horses, the lungworm can complete its lifecycle, so doing a Baermann fecal may be diagnostic. However, for the remaining 98% of the horses, other means of analysis must be used.

As with all problems, a good history is important to root out other potential problems. If horses are housed with or pastured on land where donkeys or mules have grazed in the past 2 months, lungworms need to be considered. If mature lungworms are present in the bronchioles, they may be visualized via endoscopy. Immature larvae may be visible in a lung washing, also known as a Bronchiolar Alveolar Lavage (BAL), or a type of white blood cell, an eosinophil, may be identified in the BAL fluid or in a complete blood count (CBC). The presence of eosiniphils suggests an allergic or parasite problem. Finally, the diagnosis may be made by a positive response to a dewormer that kills the *D. Armifieldi*.

How to prevent lungworms?

Conduct a Baermann fecal on all donkeys housed with horses and/or use a dewormer that is effective against lungworms, such as ivermectin or moxidectin. If possible, collect all manure at least twice a week and dispose of the manure in a manner, such that pastures are not contaminated. Also, it has been shown that the *Philobolus* fungi may facilitate the larvae's spread on pasture as it sporulates. The small lungworm larvae are carried on the fungal spores. Manure collected from the pasture, or from stalls may be composted. Composting kills the parasites. Whether spread on the pasture, spread on hay or crop ground, or used on your gardening sites, compost will enhance the soil quality wherever it is used. If manure can't be picked up from pastures, dragging the pasture on a hot, dry, sunny day will disperse the manure and facilitate the death of parasite larvae. For more information on composting and other manure concerns, visit www.canr.msu.edu/horseadults/index.html?url=publications/publications.html