

# Questions & Answers


BY KATHLEEN CRANDELL, Ph.D.

**I have owned an eight-year-old Welsh pony mare for one year. Because she needed to gain weight after I bought her, I slowly increased her sweet feed. This caused the first episode of founder. And although I turned her out gradually in the spring, she foundered again on the early grass. Since then, she has foundered on two other occasions. As it is, she's too thin, but I don't know what to feed her. If I mix alfalfa hay cubes, beet pulp, a handful of oats, and a vitamin/mineral supplement, would this be an adequate and appropriate diet?**

Your pony has a problem handling excess starch and sugar in her diet. Sources are grains (starch), molasses (sugar), and spring grass (sugar). Keeping exposure to feeds high in starch or sugar to a minimum can control chronic founder. The complicating element with your pony is her need to gain weight, and the fact that the feeds commonly used to achieve weight gain are the very ones that precipitate founder. Fortunately, there are ways to solve this problem. Because you need to avoid high energy starch feeds, but need to get more energy in the pony for weight gain, the energy will have to come from other sources. The use of high quality dry forage as the base of the pony's diet is a good idea. Alfalfa cubes and beet pulp are highly digestible fiber energy sources that do not contain starch and will provide more calories than normal grass hay. The beet pulp may contain some residual sugar, but this can be eliminated by rinsing the beet pulp before setting it up to soak. The pony will need another source of forage, which I assume will be pasture (any time other than when it is lush) and hay in the winter. It is imperative to keep the pony off spring grass because it has a high sugar content. Providing high quality grass or mixed (grass and alfalfa) hay free choice to the pony will help her gain weight when pasture quality is poor. While there is energy in hay, it is not the type that causes founder, so she can be given as much as she will eat. Oats are higher in fiber and lower in starch than any other grain and may add palatability, but you should keep the amount fed minimal because of the starch content. Incorporate fat into the diet in the form of oil or rice bran. Fat is energy dense and highly digestible in the small intestine, so it will not interfere with fermentation in the hindgut. Adding one-half to one cup of oil to the alfalfa or beet pulp would be a simple way to increase the energy in the feed significantly. Another way to increase fat in the diet is with rice bran, such as Equi-Jewel. Unlike wheat bran, rice bran is 20% fat and contains highly digestible fiber and very low starch, so it is an excellent source of calories for underweight horses and ponies sensitive to starch and sugars. You can feed one-

half to four cups (1 lb) per day. Introduce fat gradually so the pony can become familiar with the taste. Increase inclusion until you are feeding recommended amounts.

**Reading feed tags is very important to me because I want to know what is going into my horse. I feed a high quality feed formulated by the nutritionists at Kentucky Equine Research, and I noticed in the ingredients that there are added B vitamins. Are they necessary for my Thoroughbred three-day event horse? In addition, he has poor quality hoof walls. Should I feed a hoof supplement, or is there enough biotin in the feed?**

B vitamins such as niacin, riboflavin, thiamin, and biotin are essential for many functions in the body, particularly the efficient use of fuels for energy generation. During the process of fermentation of fiber from grass or hay, the microbes in the hindgut will normally produce adequate amounts of the various B vitamins to meet the requirement of the horse. This is possible provided that there is enough fiber in the diet and that the microbial population is functioning properly. Additional B vitamins are added to high-end commercial feeds as a security blanket of sorts in case B vitamin production by the microbes is inadequate. Factors that affect microbial production of B vitamins are increased workload, inadequate fiber intake, excessive amounts of grain, diarrhea, stress, or disease. During these times, it would be beneficial to the horse to receive supplemental B vitamins in the diet because the body does not have an effective way to store them. For many performance horses, the microbial population is unable to produce enough to meet the demands for the higher workload. Under normal circumstances, the amounts added to our commercial feeds are adequate to meet this demand. There are times when additional B vitamins may be needed. Horses with anemia benefit from B vitamin supplementation as well as the iron that usually accompanies this in a supplement. Megadoses of individual B vitamins are also used to address specific problems. For example, feeding additional B1 (thiamin) is thought to have a calming effect on some horses. More commonly, the use of biotin for hoof problems has become prevalent. Research studies have found improvement in hoof wall integrity with an additional 20 mg of biotin per day for at least six months. Only horses that have poor hoof quality will respond to megadoses of biotin. Adding large quantities of biotin to a general feed is unnecessarily expensive. The amount of biotin usually found in quality commercial feeds is beneficial to all horses but not adequate to address a hoof problem. 

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