



Do Friesians Need Fat?

Beth A. Valentine, DVM, PhD
Diplomate of the Animal College of
Veterinary Pathologists
Department of Biomedical Sciences
College of Veterinary Medicine
Oregon State University, Corvallis, OR

Reprinted from THE FRIESIAN
July/August 2005, page 16

We can hardly pick up an equine publication these days without finding an article that includes reasons to feed fat instead of grain to horses. You may have wondered whether this recommendation applies to Friesians. After all, Friesians are different than other horses, aren't they?

Although I can think of some reasons why Friesians are special (I confess to a secret yearning for a Friesian some day), as it turns out they are not so different when it comes to the right way to feed their muscles. And manes, tails, forelocks and feathers aside, isn't the impressive muscling of the Friesian an important part of what makes them special?

For the past 10 years or so I have been working with horses that are "metabolically different" and prone to developing a muscle disorder we call Equine Polysaccharide Storage Myopathy (EPSM, also known as PSSM and EPSSM). Horses with this type of metabolism store abnormal amounts of glycogen in their muscles. Glycogen is the muscle cell storage form of glucose (sugar), and is supposed to be there to break down to glucose and provide energy to fuel muscle activity during exercise. Although we still don't know the exact problem in the muscle cell metabolism of horses with EPSM, we do know that feeding a high fat and fiber and low starch and sugar diet can greatly alleviate problems. Starch and sugar are the primary energy sources in grains, and so minimizing grain intake is important for EPSM horses.

Instead of grain, what EPSM muscles seem to need for fuel is fat. Where can a horse get fat? The most available and least expensive source is vegetable based oil, such as soy oil, corn oil, canola oil, etc. These days there are also dry fat supplements, and many feeds have added fat that can reduce the amount of extra

Photography by
Laura Zugzda©

100% fat in the diet. EPSM diets aim for at least 1 pound of fat per 1000 pounds of horse per day, increased gradually (of course). This equates to 2 cups of vegetable based oil or 4 cups of a dry 100% fat supplement per 1000 pounds of horse per day. When using

feeds that are at least 10% fat, you can calculate fat supplied by the feed by multiplying pounds of feed fed per day by the percentage of fat. For most horses we don't alter the amount of forage from hay or pasture, although if a horse is an "easy keeper" and prone to weight gain, the 2000 calories per cup of added oil might mean that some reduction in feed intake elsewhere will be desirable. EPSM horses also benefit from as much turnout and regular exercise as possible. Like the doctors say, diet and exercise is the key to good health.

EPSM definitely occurs in Friesians. As a veterinary pathologist with a special interest in equine muscle disease, I have worked with a growing number of Friesian and Friesian-related horses. Looking at muscle biopsy samples I have seen the characteristic changes of EPSM. Affected horses have had clinical histories varying from lack of energy, tying up (exertional rhabdomyolysis, known years ago as Monday Morning Disease or azoturia), poor muscling, reluctance to move in a forward manner under saddle or in harness, and stiff gait. I am sorry to report that EPSM in one Friesian led to death. The good news is that all of the others have responded positively to a change to an EPSM diet and exercise conditioning.

My favorite story is of a young Friesian with a lack of energy whose owner called me a few months after diet change to report that her horse was now bouncing off the walls! As fat supplementation has been shown to calm nervous horses, my best explanation for this behavior is that feeding fat instead of



starch and sugar results in an EPSM horse feeling really good for the first time in a long time. A few months on diet change with as much turnout as possible and most such horses get used to feeling good and "get their brains back."

How can you tell if your Friesian is "metabolically different?" Clinical signs as I have described are one indication. Some EPSM horses have increased blood levels of the muscle enzymes CK (CPK) or AST (SGOT) when blood is drawn 4-6 hours after a hard workout. Normal levels of these enzymes don't rule out EPSM, though, as they are only released into the blood from damaged muscle, and EPSM muscle can be dysfunctional (weak, stiff, painful, cramped, etc.) without breaking down. The best diagnostic test for EPSM is a muscle biopsy of the semitendinosus or semimembranosus (the hamstring muscles at the back of the thigh). This is not a difficult or dangerous procedure and it can be performed by your veterinarian at your barn, using sedation and local anesthetic. I have an instruction form that I can send to veterinarians who have not performed this simple procedure before.

If you have a Friesian (or other breed – EPSM affects a wide range of horses and pony breeds) that you and your vet suspect may have EPSM, you can also try a 4-6 month trial of an EPSM diet. There is more information on EPSM and EPSM diets on the Rural Heritage web site at www.ruralheritage.com in the

Vet Clinic, and I am happy to answer questions and provide the latest on EPSM diets, if you contact me at my office email: Beth.Valentine@oregonstate.edu. This type of diet is safe and nutritious for most horses, and may be lifesaving for others. If at the end of 6 months of an EPSM type diet, you and your vet don't see any positive changes in your horse, you will not have done anything dangerous, you will have reduced the risk of colic and founder, you will not have had to take a second mortgage to pay for treatment and, at the very least, you should have a horse with a really shiny hair coat!



For even more information about PSSM please visit the University of Minnesota's web site at:
www.cvm.umn.edu/umec/lab/Advances_in_PSSM.html



Friesian Dressage



Eli W.

Ridden and trained by Gigi Brittain
Owned by Norma Archambeault

Highest score in US (82.5) in under saddle IBOP test, 2007 Colorado FHANA inspection.
Now showing 2nd Level dressage with scores in the high 60s.

Give your Friesian the excellence he deserves.

Top FEI rider Gigi Brittain now offering limited spots at the premier Colorado facility 8TH HEAVEN FARMS.

303.688.5727
info@8thheavenhorses.com



5555 S. Lake Gulch Rd.
Castle Rock, CO 80104