

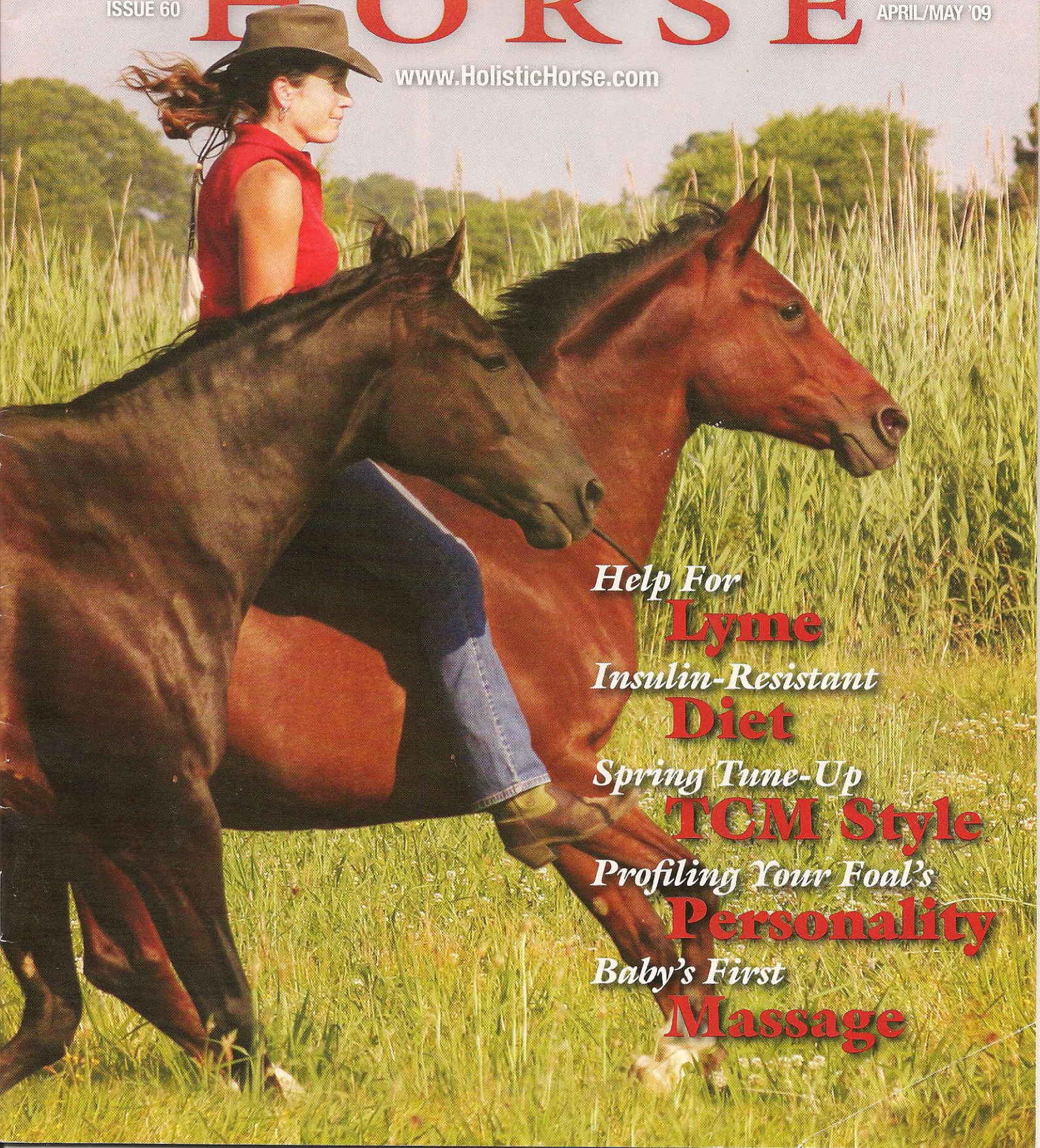
INTEGRATIVE THERAPIES for HORSE AND RIDER

# HOLISTIC HORSE

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by Frank K. Reilly, DVM  
and Jenna E. Smedley, DVM  
Equine Medical & Surgical  
Associates, Inc.



# Dietary Management Strategy for Your IR Horse

The key to feeding an insulin-resistant or laminitis-prone horse incorporates grass intake management, hay testing, and regulated feeding of snacks and grain

**E**ating the right foods in the proper amounts can help control carbohydrate metabolism, an important factor when managing horses at risk for laminitis or insulin resistance. Ideally, your horse should get some fresh grass, some hay, some grain, and some snacks. Often the scenario is the horse gets too much of one item, causing a laminitis trigger.

## Testing Terms: NSC vs. ESC

The term NSC (non-structural carbohydrates) has been used by feed companies to categorize low carbohydrate feeds of about 10-15% NSC. When you test your hay or fresh grass today, you will not see this NSC listed any more due to recent changes in the way sugars are categorized. The new category for sugar content of hay/fresh grass is called ESC (ethanol soluble carbohydrate, also called Simple Sugars), referring to sugars and a partial amount of fructans. Know that NSC is not ESC and that past sugar tests cannot compare to current tests.

The starch category is the same as always.

## Hay is Essential in Helping Prevent Laminitis

Hay provides fiber to steady glucose levels. Hay decreases stress which can modulate hormones. Hay stimulates gut tone and motility. If a horse has fasted several hours and then is fed, he can get an Insulin surge beyond the normal which can be harmful. We want a slow, constant, low level of hay moving through our horse's system.

- Spread the hay — make horses walk to multiple small piles in the field to increase exercise.

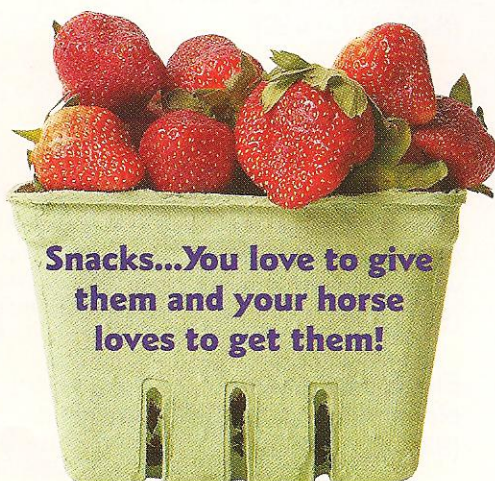
- Soaking hay — Soaking hay can lower carbohydrate levels and as a bonus has been shown to decrease allergens in “heave” horse reactions. If your hay test shows it has low ESC/sugar/starch, you will not need to soak your hay. Most laminitis is via fresh grass, not hay (pasture-associated laminitis accounts for 54% of equine laminitis; USDA Lameness and Laminitis National Health System 2000).

We recommend Equi-Analytical Laboratories ([www.equi-analytical.com](http://www.equi-analytical.com)) for hay testing and objective information on a variety of hays.

## What Hay Do I Feed?

- Timothy Grass Hay is a good choice, and generally easy to acquire. When tested, you want 8-12% protein, low end of normal range of ESC (4.7-10.9%), and low end of normal range of starch (1.5-4%). Example: If the hay test shows 15% ESC and 6% starch, do not buy it, as it's a probable laminitis trigger. If the test shows 5.7% ESC and 1.8% starch, it's OK to buy and no need to soak.

- Alfalfa Hay can mix with Timothy up to a 50:50 ratio. Alfalfa actually has



slightly lower ESC, starch, and sugar than Timothy Hay. If someone tells you Alfalfa is a problem in Insulin Resistant horses, they do not have the facts. ESC is generally 4.2-8.2% and starch is around 0.8-3.2%.

- Orchard Grass Hay is very similar to Timothy Grass Hay.
- Bermuda or "Coastal" Hay has double the starch of Orchard or Timothy, so you would need to soak these hays prior to feeding. Starch averages 6% (range 3.1-9.0). Timothy, Orchard, Timothy/Alfalfa, Orchard/Alfalfa are better choices.

**Avoid Totally:** Wheat hay, Oat hay, Barley hay. All very bad. Huge starch.

### How Much Hay Do I Feed?

Your horse, if not getting any fresh grass, will need 2% of its body weight in hay daily. A normal 1,000 pound horse needs 20 pounds of hay daily. In most insulin-resistant horses, we're trying to reduce weight, so feed less hay (1.8% or 18 pounds of hay).

Encouraging your horse to eat slowly will help avoid any fasting periods. Whenever possible, eliminate competition for hay among herd members. Consider putting the hay in a hay net, or even a double net. The net(s) will slow your horse's ability to get big mouthfuls of hay.

**Avoid feeding** Blue Seal's Hay Stretcher - it has molasses and an ESC of 22%. It comes in a large pellet.

### Are Fat/Oil Supplements OK?

No! Do NOT use in Insulin Resistance horses. A study by the University of Kentucky's Department of Veterinary Science in 2002 showed that an infusion of fat actually induced Insulin Resistance in horses in less than 2 hours time. This can lead to a laminitis trigger. High fat diets can cause a crisis.

High Insulin levels already are promoting fat which in turn release toxins to further cause more and more Insulin. This cycle is not helped by promoting more fat with a high fat diet.

**NO OILS** - No corn oil, no rice bran oil, no wheat germ oil.

### NO RICE BRAN

- two big reasons:  
(a) According to a 1994 Rice Science Study, rice bran is approximately 16% fat. This is going to promote fat on your horse, add weight, and cause problems.  
(b) Rice bran is loaded with starch, 5 to 7 times more than timothy/orchard hay or beet pulp. Rice bran has an ESC level of about 25 which is very close to that of Wheat bran (30). Both need to be strongly avoided in these horses.

On the ingredient list of many low-carb, low-fat feeds you may see rice bran. Don't panic. Generally, it's an extremely small amount for flavor. These products have low ESC values (10%) and low fat values (3-5%). The main point is not to add more rice bran or wheat bran to the diet.

### What About Grain?

Yes, you will feed grain to an overweight insulin-resistant horse. Why?

An all-hay diet could lead to problems due to vitamin/micro nutrient

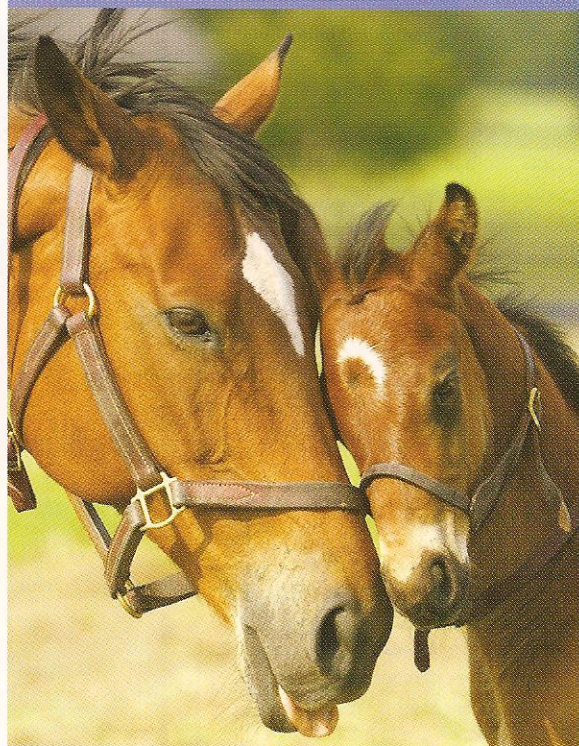
deficiency. If you're told that the way to avoid laminitis in an insulin-resistant horse is to feed it only hay and keep it on a dirt lot, you are getting inadequate and incorrect information.

Again, our goal: some grass, some hay, some grain, some snacks.

In the winter, grass options are lost, so grain is even more important at this time. You want a low ESC pellet feed which will provide vitamins/micro nutrients and a high amount of protein. These special feeds are very concentrated, so you will feed only a small amount to your horse each day. Normal horses can get up to 1% of body weight in grain a day for maintenance: 10 pounds of grain in a 1,000 pound horse. With a low ESC concentrated feed, that same horse gets only 1 pound a day.

Not all low ESC/low carb pellet feeds on the market are good for an Insulin Resistant horse because they may also have high fat. We want a low carbohydrate (low ESC), high protein, and low fat diet.

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## Dietary Management Strategy for Your IR Horse

Name of Feed	Company	ESC	Protein	Fat
Enrich 32	Purina Mills	10%	32%	5%
Grow N Win*	Buckeye Feed	10%	32%	5%
Triple Crown 30	Triple Crown	9.5%	30%	3%
Moormans Gro Strong Mintrate	Alliance Nutrition	12%	33%	2%

\*Avoid Grow N Win GC (contains glucosamine)

Like these four feeds, Purina Mills' Well-Solve is a low ESC, low fat feed; however, due to a protein content of 12%, a 1000-pound horse would require 5 pounds of feed per day, instead of just 1 pound.

Why these?

- ✓ High protein means increased muscle. Muscle is the biggest user of insulin and this helps lower blood glucose.
- ✓ High protein helps increase magnesium absorption which helps lower insulin.
- ✓ High protein diets lower glucose uptake in the intestine, decreasing insulin surges.

### SNACKS

You love to give them and your horse loves to get them. It is one of the best parts of having a horse. The important thing is to know what can and cannot be eaten.

#### Good Snacks

- Beet Pulp with no molasses added (see equinemedsurge.com for best way to prepare beet pulp)
- Strawberries
- Cherries without the pits
- Roasted peanuts in the shell
- Pumpkin seeds
- Sugar-free candy for diabetics. Ones we have used that horses like: Estee Sugar Free Peppermint Swirl hard candy and Sorbee Sugar Free Lite hard candy with Cherry, Grape, Orange, Strawberry flavors.
- Hay cubes are a good snack to give in the afternoon. You can slice them up into 4 pieces per cube and give 2-3 cubes (8-12 pieces). Either alfalfa or timothy cubes are fine to use.
- Alfalfa Pellets – a handful in the morning feed or as an occasional snack is fine. Alfalfa pellets have an added bonus of helping to prevent stomach ulcers due to its buffering ability.
- Chopped Low ESC Hay

#### Bad Snacks


- Cookies – loaded in corn, oats, sugar, and molasses. The cookies at the tack shop also need to be avoided.

- Candy – only use special candy (see good snacks).
- Bran mash – lots of Carbohydrates. Higher Glycemic Index than many grains. Wheat bran and rice bran should be avoided. Rice bran has 8 times more starch than alfalfa cubes and over 10 times more than beet pulp.
- Certain grains – corn, oat, wheat
- Certain fruits/vegetables – apples, carrots, applesauce (3 times worse than apples), watermelon
- Yogurt
- Pretzels, chips
- Lawn clippings
- Frosted Mini-Wheats

Equine Insulin Resistance puts your horse on the edge of a cliff. Any stress such as surgery, vaccines, mild colic, diet change, weather changes, or infections can push them off the edge into Laminitis. By being proactive, you guide them away from the edge.

Source: Equine Medical & Surgical Associates, Inc. For expanded article, see [www.equinemedsurge.com](http://www.equinemedsurge.com)

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