

NEW YORK THOROUGHBRED BREEDERS, INC.

Drug Free Management To Help Prevent Tying Up

by Babette Gladstein, VMD, Certified Acupuncturist

The other day, I was in a barn attending to my veterinarian duties, when a two-year-old thoroughbred entered, sweating and walking in a very stilted fashion. I could tell right away that she was suffering from tying up.

Tying up, also known as rhabdomyolysis, has nothing to do with being tied up with ropes. It refers to a range of muscle disorders in horses, usually caused by a buildup of too much lactic acid in overworked muscles, which leads to cramping and tension.

In the past, most veterinarians would have treated this horse with potent drugs to relieve her symptoms. However, drugs tend to be a stopgap measure. These days, many veterinarians, like myself, prefer to treat tying up with alternative methods, which usually include prescribing a controlled diet in concert with massage, acupuncture, ultrasound and exercise. Studies show that these drug-free treatments can more effectively stop the cycle of tying up from recurring.

That said, I did treat this horse to one oral dose of banamine to help her cope with the initial pain. Then I provided her with ultrasound therapy for one hour on her various problem areas. Ultrasound therapy uses an ultrasound probe to send high-energy sound waves into desired tissues. As the tissues absorb the waves, they are converted to heat. In that sense, ultrasound therapy works very similarly to heat therapy, decreasing swelling while improving circulation, thereby increasing the pliability of muscles.

In particular, she'd exhibited pain in her shoulders. So after the ultrasound session ended, I placed a slew of acupuncture needles into her shoulder area as well as her withers, back and other problem spots. She calmed down and relaxed with these needles for an hour and a half. Once I took the needles out, I walked her. And for the next two days, I repeated the ultrasound treatment. By the second day, she was training again. In fact, she hasn't shown any signs of tying up since.

Which horses are at high risk of tying up?

Typically, two to three year olds who've just begun training are most at risk for tying up, which



usually manifests in bundles of hard, painful muscles in their rear and back regions. The muscles can also be intermittently soft, and then firm and swollen. Stiffness and cramping can become extremely painful and, at its worse, immobilize the horse. When the pain is severe, sweating may occur. Another way to tell if a case is really severe is by the color of the horse's urine, particularly if it resembles the color of port wine.

More often than not, these afflicted young fillies are the nervous, high-strung type. They usually exhibit symptoms of tying up in the beginning of their training careers, even after light exercise. **Recurrent tying up** often indicates a genetic predisposition for the disorder.

There is also **sporadic tying up**, which happens when a horse's exercise schedule is accelerated too quickly after an idle period that may have ranged from as little as a few days to a few months. Sometimes, something as simple as a fast race or breeze can cause a negative energy balance, which, along with sweating and dehydration, increases the risk of tying up.

In the acute stages, drugs may be needed. In any case, your veterinarian should always be called.

Why avoid drugs?

The drug most commonly used to treat serious cases of tying up is a muscle relaxant called roboxin.

One side effect of roboxin is that it depresses the central nervous system. For that reason, long-term use is contra-indicated. Once a horse stops taking roboxin, and its effects have worn off, the horse often reacts by going to the opposite extreme — becoming highly exuberant and hyperactive — thereby running the risk of overexerting themselves and repeating the tying up cycle.

For milder cases of tying up, veterinarians sometimes use non-steroidal, anti-inflammatory drugs such as banamine. However, these have a negative long-term effect on the gastric lining of the stomach. They inhibit the gastric juices, giving a horse a greater predisposition for gastric ulcers.

The enzyme and glucose factors

Tying up doesn't always occur as a result of a muscular workout. In fact, some signs may be asymptomatic or sub clinical, meaning you can barely discern a problem. Sometimes, a horse's CPK and AST enzymes are extremely high when they are sub clinical.

Scientifically speaking, the basis for this defect is a deficiency in the timely release of calcium in the muscle, thereby causing a contractile defect. Glycogen (glucose) buildup in skeletal muscle can cause additional calcium in the muscle cells, in turn causing destruction of the muscle fibers.

Muscle glycogen buildup has proven to be reduced by decreasing the level of starch in the diet. But clearing out the abnormal amount of glycogen and carbohydrate from the muscle tissue through diet may take up to a year. In fact, several months may pass before seeing any improvement.

How diet can help

A horse's diet is key in successfully treating tying up. For instance, we've learned that high grain diets of oats combined with irregular exercise worsens the condition of a horse with tying up. So does a high starch diet. The starch heightens a horse's tendency to tie up because it enhances the breeding of bacteria in the gastrointestinal tract, which causes greater lactic acid buildup.

On the other hand, foods designed to maximize fat intake seem to improve a horse's

condition. High fats tend to stabilize the digestive processes in horses and help prevent colic. A high fat diet also helps to alter behavior — it has a calming effect. Another added benefit is cosmetic — horses' skin, coat and hooves take on a healthier appearance.

Experts say that vegetable oil can be supplemented if the fat content of their food is not high enough: Vegetable oils provide three times as much digestible energy as oats, and over two times as much as corn. Your veterinarian should be able to determine how much to supplement in your horse's diet. I recommend a gradual increase of vegetable oil so as not to affect the foods palatability.

Vitamin Supplements

Dr. Carey Williams, an equine specialist at Rutgers University, released research last January suggesting that proper amounts of vitamin E and lipoic acid, which is found in all plants, may decrease the incidence of tying up. She recommends giving horses with tying up daily supplements of 1000 IUs of vitamin E. Another veterinary professor at Rutgers, Dr. Sarah Ralston, recommends 10 cc's of B complex daily, given orally.

Give your horse plenty of water & moderate electrolytes

Imbalances in electrolytes (sodium, calcium, and phosphorus) also contribute to tying up. Therefore, proper amounts of water and electrolytes are extremely important to your horse's health. An average sized horse needs 6-8 gallons of water a day. When undergoing daily workouts in hot weather, they may need as much as ten gallons.

Also, whenever there is sweating, there is a loss of electrolytes, sodium, potassium and chloride. However, supplementing with packaged electrolytes may be misleading because many of them have a high proportion of sugar and small amount of electrolytes.

One alternative is to provide your horse with table salt in combination with lite salt (potassium chloride). I recommend giving one tablespoon twice a day at feeding times.

Electrolyte imbalances of sodium, potassium and magnesium may also be due to imbalanced diets. By feeding a high grain diet, lactic acid readily build ups in the stomach, hindering the absorption of minerals.

Some tests to run if you suspect tying up

It is recommended that one blood and urine sample be taken before a horse exercises and a second blood sample be collected two to six hours after exercise.

A lab should assess these samples to determine the electrolyte and mineral status of the horse. In

particular, your veterinarian should check the horse's CPK, AST, SGOT liver enzymes and run tests to rule out the herpes virus.

Mealtime and what to feed?

Experts tend to agree that a horse's feed should be reduced on days when the horse doesn't exercise. For instance, if you know that your horse is not going to exercise the next day, you should feed them half as much feed as usual the night before. Big meals should also be avoided before exercising.

Conversely, horses that are prone to tying up tend to be more nervous than others. They tend to waste energy. They even sweat more than others. Therefore, these horses' body scores should be evaluated to determine caloric needs.

R.M. Hoffman, a professor in the Department of Animal & Poultry Sciences at Virginia Polytechnic, recommends that you feed your horse four times a day, as she believes that the feeding-fasting cycle may contribute to disorders such as tying up.

She also says that milling and grinding of oats and corn is required to increase the digestibility of starches. Specifically, she says, "Starches that are within whole grain or waxy seed coats, such as rice or corn, hamper the digestibility of the starch. Milling and grinding increases digestibility of the seed coats and cell walls."

In addition, she says, "Effects of cooking on starch for horses should be considered carefully: steam flaking appears to be beneficial, but heating a wet mash or gruel using high starch feeds may be contraindicated and may contribute to carbohydrate overload."

Today, packaged commercial foods that balance the proper amounts of fat, dietary starch and fiber are available. Re-leve is one formula that's been specially designed to minimize the starch and maximize fat intake. It can be purchased across from Belmont Racetrack at Stanley Penn & Son Feed Co.

Which physical therapy techniques should be used to treat tying up?

Physical therapy is integral to the recuperative process. Such alternative treatments as massage, stretching, acupuncture and ultrasound therapy speed recovery. If you'd like to learn more about these alternative treatments, I invite you to visit my Web site: www.animalacupuncture.net.

In addition, horses suffering from tying up should be turned out as much as possible. Regular exercise is necessary and normal routines should be resumed as quickly as possible. However, even with exercise, improved management and dietary supplements, tying up may not completely stop. When all else fails, the best solution may be to turn a horse out to pasture for a short time to break the cycle.

Facts about Re-leve

Experts say that thoroughbreds in training need 32,000 – 36,000 calories per day. Re-leve nutritionists recommend that you provide 50% of these calories by feeding your horse Re-leve and provide the other 50% through hay.

In other words, you should feed your horse 10 lbs of timothy hay, 5 lbs of alfalfa hay, and 10-12 quarts of Re-leve per day. (If your horse is very nervous, you should increase that amount to 12-13 quarts/day.)

Caloric content in Re-leve:

1 qt of feed = 1 ¼ lbs Releve
1,456 calories = 1 lb Re-leve
200 IUs of vitamin E per 1 lb Re-leve

Twelve Tips for Treating Tying Up

1. If your horse ties up severely, call your veterinarian.
2. Use therapeutic ultrasound to relax affected muscles.
3. At first sign, check for herpes viral infection.
4. Check enzymes CPK, AST, SGOT.
5. Gradually replace all other feed with Re-leve food.
6. Do not feed oats and cut back food before a rest day.
7. Administer 10 cc's of vitamin B complex orally each day.
8. Administer 1000 IUs of vitamin E orally each day, along with a small amount (less than ¼ cup) of vegetable oil supplement.
9. Administer one tablespoon lite salt and one tablespoon table salt twice daily.
10. Warm up your horse before exercise.
11. Use a magnetic blanket if possible.
12. Accupuncture weekly.

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