The following list contains the possible symptoms of Tying Up. Tying up is usually exercise-related. Symptoms below are most likely to appear within the first 1/2 hour of work. Some horses may not exhibit all symptoms. Tying up seems to be more common in young Quarter Horses and Thoroughbreds who are either not fit or high strung, however, it can occur in any breed.

**Most common symptoms:**
- Obvious discomfort
- Abnormally short strides, muscle stiffness
- Difficulty in movement. Horse may refuse to move
- Muscle hardening/contracting with hindquarter spasms, mostly in croup area
- Elevated pulse & respiration

**Possible additional symptoms:**
- Flaring of the nostrils
- Slow capillary refill time
- Pawing
- Pale gums
- Sweating
- Short, stiff gait
- Brown colored urine

**Management of Tying Up**

Call your veterinarian immediately. Ask the veterinarian if you should administer any treatment prior to his arrival. Ask what you may do to comfort your horse until he arrives.

Do NOT move your horse! Moving your horse even a few steps may make the condition even worse. However, you do want to keep him on his feet.

Protect the horse from chills by using a blanket.

Encourage the horse to drink, it will help flush his kidneys of waste.

**Why do horses become Tied-up?**

A horse becomes tied-up when his muscles have been overworked. The muscles become damaged from toxic by-products that are produced during the work. These toxic by-products are produced from the blood's inability to carry enough oxygen to the muscles. High glycogen content and abnormal polysaccharide in the muscles.
Sometimes, defective calcium regulation. When a horse ties up repeatedly, it may lead to kidney damage.

**What can you do to prevent Tying-up?**

Feed a low or no-carbohydrate diet with high fat. Warm up and cool down your horse properly with at least 15 minutes of walking. Don’t exercise the horse to a point where it is stressful. Provide turnout as often as possible.

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**References, Resources and Links:**

- **Management that may help prevent Tying up**
  Dr. Pat Harris, WALTHAM Centre For Equine Nutrition and Care.

- **Equilibrate - Azoturia/ER**
  Nutrition for the Balanced Horse: Michaela Bowles, Equine Nutritionist.

- **Azoturia**
  EquineHospital.net - The Royal Veterinary College 2001.

- **Azoturia/Tying-up Syndrome**

- **Polysaccharide Storage Myopathy**
  One Important Cause of Exertional Rhabdomyolysis, Research

- **Exertional Myopathy**
  University of Findlay

- **Tying-Up Loose Ends**
  Dr. William E. Jones, DVM

- **Equineworld: Azoturia**
Tying Up Research
WRITTEN BY: RIRDC Equine Research News  [January 1999]

Change in Diet May be the Solution for Horses that Suffer from "Tying Up"!

*Rhabdomyolysis*, commonly known as "tying up", is a muscular problem that affects all types of horses. In its mild form it may result in cramps but in severe cases it may lead to horses being unable to rise and even death. While the cause of the problem remains unknown, it appears that some of the affected horses have an inability to handle a diet with a high energy content. It has been observed that horses often 'tie up' after they have had a few days of rest while fed on grain and then recommence exercise.

A group of researchers at Cornell University investigated if changes in the diet from one of high energy content to one of low energy content reduced the chance of tying up reappearing (BA Valentine, HF Hintz, KM Freels, AJ Reynolds and KN Thompson Dietary Control of Exertional Rhabdomyolysis in Horses Journal of the American Veterinary Medical Association 1998 Vol. 212, No. 10, pg. 1588). 19 horses with histories of tying up were selected for this study. The research showed that with the change in diet, there was a significant reduction in two enzymes (CK and CPK) in the blood of these horses. These enzymes are abnormally increased in the blood when there is muscle damage. The changes took place within 3-6 months after the change in diet and coincided with the disappearance of signs of tying up following exercise.

With these results, it may be worth checking the energy content of the diet of horses that experience episodes of tying up, and gradually change this for one with a lower energy content (less grain and more oil).

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