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## **TYING UP (Rhabdomyolysis)**

This is a common condition, invariably associated with exercise, which most frequently causes hind limb stiffness, but can affect any of the muscles of the skeleton. Other medical terminologies include 'acute myopathy' and 'Monday Morning Disease'. The name 'Monday Morning Disease' gives a clue as to the most commonly affected animals: horses that are exercised after a period of rest. However, even horses that are in regular work can suffer, particularly if they are on a high energy diet or have other dietary deficiencies or predisposing factors against them. Some horses can be incredibly sensitive, so that even a slight reduction in exercise level for just one day will precipitate an attack. These susceptible horses are often fillies and an association with their hormonal cycles has been suspected but not conclusively proved. A genetic predisposition may be involved in some cases.

### ***What are the signs of Tying Up?***

In the most common presentation, the horse will stiffen up and may eventually become completely immobile. The problem usually affects the muscles of the hind limbs, pelvis and back, so the first signs are a symmetrical shortening of the stride lengths of the hind limbs. The signs are always brought on by exercise, but this does not need to be strenuous and, in fact, most cases occur when the horse is just walking or trotting prior to beginning work. Less commonly, the disease affects horses at the end of a period of hard work or may even be so subtle as to cause only a drop in performance.

As well as the obvious gait abnormality, the muscles themselves may become hard and painful, although this only becomes obvious in quite severe cases. The condition is very painful, so the horse will often sweat, have an elevated heart rate and paw the ground. They may look as if they are trying to lie down, but can't. These signs can easily be confused with colic, and it is only when the horse is walked that the difference becomes obvious.



Some cases develop dark red/brown urine: this discoloration is caused by the oxygen carrying pigment in the muscles (myoglobin) leaking out of the muscle cells and through the kidneys. In severe cases, these waste products can cause damage to the kidneys, sometimes fatally.

If the signs are too subtle to allow a definitive diagnosis to be made on clinical grounds, a blood sample will make the diagnosis. Tying Up causes the release of enzymes into the blood that would normally be retained within the muscle cells (creatine kinase [CK] and aspartate aminotransferase

[AST]) and significant elevations of these enzymes are characteristically seen in Tying Up. Follow-up blood samples are then useful to allow the horse's response to treatment to be monitored.

### ***What should I do when my horse Ties Up?***

Stop exercise! The problem will only worsen with further exercise, even just walking. If the signs are not too bad, the horse should be walked back to the stable, dried off, kept warm and monitored. If the signs are more serious, or you're a long way from the barn, consider using transport. Most cases suffer for an hour or two before the painful signs resolve, but you should telephone your veterinarian immediately. Most cases respond well to the administration of painkillers, and light sedation can be very useful to relieve anxiety and calm the horse. Occasionally intravenous fluids and muscle relaxants are used.

### ***What causes Tying Up and how can I prevent it?***

Diet is an important factor, especially concerning energy levels and electrolytes. Make sure you feed quantity and quality appropriate for your horse's level of activity. High carbohydrate diets make a horse more prone to Tying Up. If your horse must be on a high energy feed, consider supplying a greater proportion of the energy as fat, which is metabolized differently and causes fewer problems. Electrolytes (especially calcium, sodium, potassium and magnesium) are vital for proper muscle function, and it is very easy for horses to deplete their own resources. If fed correctly, horses have an enormous reserve of electrolytes and need never become deficient. Problem horses may need an electrolyte supplement daily, increasing the dose at times when sweat loss is greatest. Remember that a horse can lose 10 liters of sweat in an hour, and each liter will contain 4g of sodium! Laboratory testing of your horse's urine may be of benefit to analyze electrolyte status in some cases. Speak to your veterinarian about daily electrolyte supplementation and about status testing.

Regular exercise is important if your horse is prone to Tying Up. Some horses can be working everyday, but if they just do a little less on one day, that's enough to trigger an episode the next day. Turning horses out for as long as possible helps, as does a period of walking before being ridden.

Drugs may help to reduce the occurrence in susceptible individuals, but are not usually necessary in the vast majority of cases. Dantrolene is a muscle relaxant that works very well, if given before exercise. Some horses, particularly excitable fillies, benefit from just simple acepromazine to help calm them down. Occasionally the disease appears to be associated with some mare's reproductive cycles and drugs can help to suppress estrus in affected mares.

There are a number of other treatments on the market, most of which have no scientific rationale or evidence to support them. If in doubt, speak to your veterinarian before spending money on spurious treatments. Remember that most Tying Up cases are sudden, often associated with a simple change in management that, with hindsight, can be avoided next time: long-term damage does not occur unless horses suffer very severe, repeated episodes.



**Veterinarian taking a blood sample**