



## TECHNICAL REVIEW SHEET

# MFM Pellet

## Muscle Recovery and Repair

MFM Pellet™ contains several important amino acids, including cysteine, a key component in many antioxidants. Also included in MFM Pellet are the branched-chain amino acids (BCAA) leucine, isoleucine, and valine, all three of which are essential amino acids that must be obtained from the diet. BCAA may be used as a substrate for energy production in skeletal muscle. Research in human athletes has shown that BCAA may stimulate protein synthesis and delay onset of fatigue. MFM Pellet also contains the essential amino acids lysine, methionine, and threonine.

The understanding of muscle disease in horses has broadened considerably over the last few decades. Researchers continue to discover nuances in muscle dysfunction, and one disease continues to gain recognition within the Warmblood and endurance communities: myofibrillar myopathy (MFM).

Like those diagnosed with polysaccharide storage myopathy (PSSM), horses with MFM demonstrate exercise intolerance and occasional episodes of tying-up. Microscopic examination of muscle tissue reveals, however, that the underlying cause of MFM is much different than it is for PSSM.



*"In our studies, horses with MFM improved considerably once their diets were modified to include the recommended ratios of energy sources and MFM Pellet to support muscle repair and recovery."*

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## Understanding Myofibrillar Myopathy

Sarcomeres are the basic contractile units of muscle fiber. Each sarcomere is composed of two main protein filaments, actin and myosin, which are the structures responsible for muscular contraction. These structures lie side by side in a staggered formation, while another protein called desmin stabilizes the filaments to maintain their alignment. In horses with MFM, the alignment between the actin and myosin strands fails, causing tears and gaps in the filaments. Muscle biopsies of affected horses show abnormal desmin deposits at these disruption sites.

## Nutritional Management

Researchers continue to delve into the intricacies of this recently discovered myopathy, including how best to nourish affected horses. Rations for horses diagnosed with MFM should focus on providing high-quality protein and specific amino acids, which may support the regeneration of sarcomeres.

Horses with MFM should consume 1.5%–2% of body weight per day of hay; use good-quality grass or mixed hays (aim for a range of 55%–65% NDF, 10%–12% CP, 10%–17% NSC). If concentrates are required to maintain body condition, look for products with moderate levels of NSC (20–30% NSC) and lower fat (4–6%), as fat increases oxidative stress. Contact Kentucky Equine Research for recommended products available in your area. Use MFM Pellet to increase the amount of key amino acids and high-quality protein to protect the muscle from oxidative stress and rebuild damaged muscle fibers.

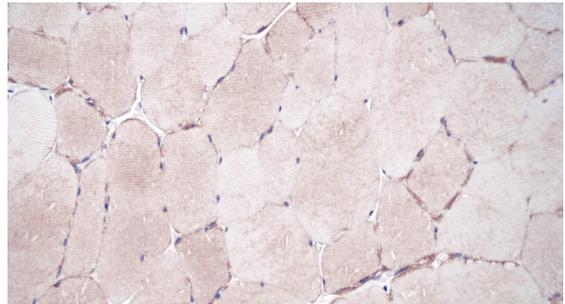
## References

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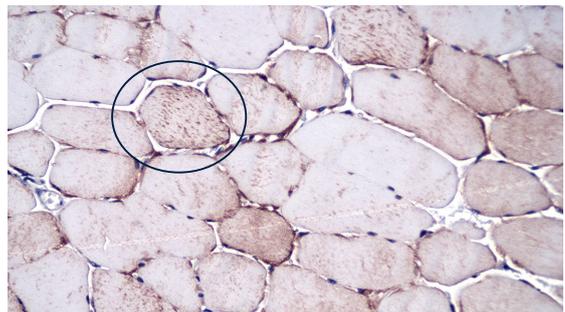
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Healthy horse

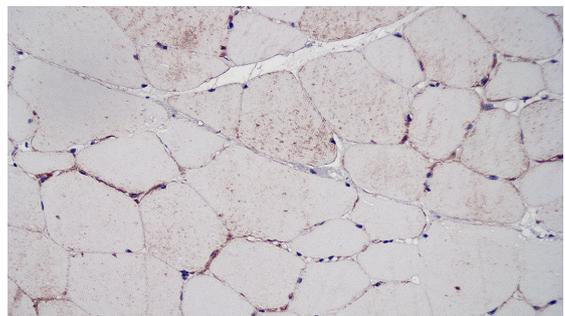


Cross section of muscle cells

Desmin aggregates in MFM-affected horse



Same horse supplemented with MFM Pellet



## MFM Pellet Feeding Directions

Top-dress on feed.

Divide between two meals.

Feed 120 g per meal twice daily.

Consult your veterinarian to see if this product is appropriate for your horse.