

## **MH / EMH**

**Malignant Hyperthermia** is an inherited dominant disease identified in Quarter Horses, Appaloosa, and Paints that can cause severe tying up and even death when horses are subjected to anesthesia. A gene mutation causes a dysfunction in skeletal muscles resulting in excessive release of calcium inside the muscle cells. This results in a hypermetabolic state and/or death. Symptoms include fever, excessive sweating, elevated heart rate, irregular heart rhythm, shallow breathing, muscle rigidity, and death. Horses who also have Polysaccharide Storage Myopathy (PSSM) can exhibit more severe symptoms of tying up, even without anesthesia. *Horses with a single dominant gene EXPRESS the disorder (at some point) AND can pass it to their offspring 50% of the time. Horses with two dominant genes will always produce afflicted offspring.*

### **Lethal:**

–Potentially yes.

### **Inheritance:**

–DOMINANT. Homozygous horses are often more severely affected than heterozygous horses.

### **Affected breeds:**

–Quarter Horse, Appaloosa and Paint and cross breeds--even mules/hinnies of these crosses

### **Statistics:**

–Less than 1% of QHs with indications leading to 2 specific sources/bloodlines.

### **Available Tests:**

– Yes.

### **Treatment:**

–Determine if horse also is positive for PSSM. If yes, then feed the horse in such a way that minimizes PSSM symptoms, namely the provision of a diet that is low in starch and high in fermentable fiber and fat. The diet should also ensure vitamin E and selenium levels are adequate. Both vitamin E and selenium function as antioxidants and each can offset a deficiency of the other as long as both are not deficient. Several studies have shown that water-soluble, natural vitamin E (d-alpha-tocopherol) is better absorbed than synthetic vitamin E and will more quickly achieve higher concentrations in the tissues.

### **Prevention:**

–The only way to prevent foals born with MH is to not breed MH positive individuals.

### **Links:**

<http://www.aqha.com/en/News/News-Articles/02032012-Genetic-Testing.aspx>

<http://www.horsetesting.com/Equine.asp>

<http://www.equinews.com/article/malignant-hyperthermia-horses>

<http://www.thehorse.com/ViewArticle.aspx?ID=5426>