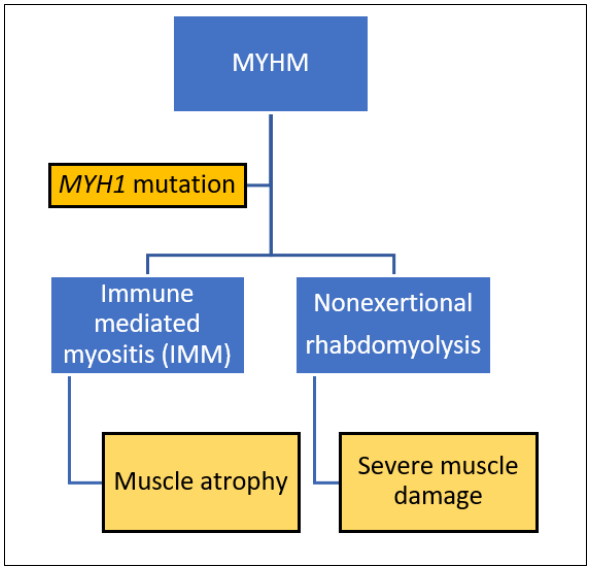
AMERICAN QUARTER HORSE ASSOCIATION - NEW ZEALAND (INC.)

# Mysoin-Heavy chain Myopathy (MYHM):

**What is it?**

Genetic mutation seen in Quarterhorse or related breeds which can cause two clinical syndromes; **immune mediated myositis (IMM)** and **non-exertional rhabdomyolysis.**

The mutation involves fast twitch type 2X muscle fibres (50% of muscle fibres are fast twitch in QHs) in where the animals own immune system attacks the muscle fibres containing the mutation after a certain trigger.




**IMM:** Immune system attacks type 2X muscle fibres along the back & rump causing muscle atrophy (reduction in size and strength).

- Stimulating triggers: Streptococcus infections (often seen after strangles vaccination) or immune stimulants.
- Treatment: Steroid therapy

**Nonexertional Rhabdomyolysis**: Some horses with the MYH1 mutation can develop severe muscle damage that is NOT triggered by exercise. Horses show stiffness and swelling or muscles along their back and haunches

- Relatively rare
- Exact mechanism is unknown that causes it to develop
- Quarterhorse breeds with MYH1 mutation are more susceptible.
- Prognosis is guarded with some serious complications often developing as well.

## How can I test it?

Genetic testing can now be done through Massey University: IMM test is actually testing for the MYHM mutation

## How can it be inherited?

MHCM is a co-dominant trait meaning ONE copy of the gene is enough to make horses susceptible to developing disease and will pass mutation on to **50% of offspring**. Horses with TWO copies will have more severe and frequent symtoms and will pass on mutation to **ALL offspring.**

**Approx 80% of horses with ONE copy will not develop any signs of muscle atrophy/damage and have no reaction to vaccinations.**

**Incidence is highest in reining, cutting and halter lines, seen in around 7% of Quarter Horses.**

**Sources:**

https://cvm.msu.edu/research/faculty-research/comparative-medical-genetics/valberg-laboratory/inflammatory-myopathies
https://www.aqha.com.myhm