



**March 2006**

## **WHAT IS HYPP?**

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HYPP (HYperkalemic Periodic Paralysis) is a genetic condition that originated with IMPRESSIVE. When it was discovered that the condition could be tested for, it was thought that the disease could be eliminated through breeding. As usual, selection of the muscling of these horses by halter and Western pleasure judges has resulted in new generations of animals with the condition.

The most common clinical signs seen are:

1. Muscle tremors in the shoulder and flank
2. Protruding of the third eyelid
3. Sweating and signs of distress

Signs can vary from minimal muscle twitching to death from heart muscle and laryngeal spasms. Episodes can last 15 - 60 minutes, or more. Episodes seem worse in younger animals. Stress can bring them on, I have seen episodes following sedation, vaccinations, breeding, etc.

The clinical signs are actually caused by a problem with how potassium ions move across cell membranes which affects muscle function. In this condition, too much potassium is released from cells.

You may have heard about POSITIVE-POSITIVE or POSITIVE-NEGATIVE animals with HYPP. Genes occur in pairs. A POSITIVE-POSITIVE animal has both genes positive for HYPP (HH). A POSITIVE-NEGATIVE animal (NH) has one positive gene while a NEGATIVE animal (NN) has both negative genes.

A POSITIVE-POSITIVE (HH) animal have a much higher incidence of clinic signs and tend to have more severe episodes than do POSITIVE-NEGATIVE (NH) animals.

Therapy is divided between treatment of an episode and prevention.

Treatment is involved with calming the horse and trying to drive the potassium ion back into the cells. Light episodes may be helped with oral glucose (syrup) and sedation. Many times we use anti inflammatory drugs to help with muscle pain later.

Harsher episodes may require IV dextrose, sodium bicarbonate, calcium gluconate and/or insulin.

Prevention is directed at decreasing potassium consumption . This can be accomplished by decreasing or eliminating alfalfa and brome hay. Severe cases may require daily drugs to remove calcium from the body.

The whole problem can be avoided through selective genetics. If you are buying a horse, INSIST on a HYPP test. If the horse is anything other than NN avoid purchasing the animal. If you're breeding, know what the HYPP status of the parents early in your breeding plan. The table below shoes the chances of passing HYPP to offspring.

| <u>STUD</u> | <u>MARE</u> | <u>% FOALS WITH GENE</u> |
|-------------|-------------|--------------------------|
| HH          | HH          | 100%                     |
| HH          | NH          | 100%                     |
| HH          | NN          | 100%                     |
| NH          | HH          | 100%                     |
| NH          | NH          | 75%                      |
| NN          | NH          | 50%                      |
| NN          | NN          | 0%                       |

**Table 1 Depicts the chances of passing HYPP to Offspring**

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