



FACT SHEET

Department of Animal Science, University of Connecticut

Effective Horse Management – Horse Health Series

Vaccination For Optimizing Health and Performance

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Introduction to Vaccines:

As a horse owner, you should view vaccination as a part of the routine maintenance of your horse's health. Vaccination can prevent disease, reduce the severity of disease, and minimize the spread of disease. With one horse, your focus is on disease prevention. With more than one horse, your focus is on reducing the impact of an outbreak.

The horse has no specific defense when faced with a new pathogen (virus or bacteria). Therefore, the horse shows the full range of symptoms of disease. To prevent this from occurring you want your horse's immune system to recognize and destroy the specific pathogen. Vaccination primes components of the horse's immune system so that when the horse is exposed to the specific pathogen it can more quickly and effectively respond to prevent or minimize clinical symptoms.

Vaccine Types:

There are three types of vaccines, all of which contain antigens. Antigens mimic the pathogen and usually contain protein chemical fragments of the pathogen of interest or the whole dead pathogen.

- **Component vaccines** also contain adjuvants to help increase the immune response.

- **Killed vaccines** consist of dead microorganisms (pathogens) mixed with adjuvants.
- **Modified live vaccines (MLV)** contain active viral particles rendered harmless but that contain enough fragments of the original pathogen to stimulate the immune system.

Vaccine Administration:

Most vaccines are administered by **intramuscular (IM) injection**. Muscle contains a great blood supply so vaccine antigens can be picked up by cells in close proximity to the bloodstream. Vaccines must be administered away from solid structures in the muscles like ligaments, tendons and bones. A common mistake is to give an IM vaccine too high in the neck, causing the vaccine to enter the nuchal ligament rather than the muscle. Also if given too close to the skin, there can be an inflammatory reaction since skin and subcutaneous (beneath the skin) tissues of horses are very sensitive to most vaccines. IM injections stimulate production of antibodies in the blood that prime the immune system to prepare it for future interactions with specific pathogens.

Intranasal (IN) vaccines may help to improve immunity against pathogens that affect the respiratory system and are intended to provide the respiratory tract lining with protective antibodies where the pathogen enters. Examples of IN vaccines are strangles and influenza. These types of vaccines have been effective in field trials, but it is not known how long they are effective. Therefore, these vaccines should be given at key times or at least every six months.

Vaccine Considerations:

One method of deciding whether or not to vaccinate is by measuring the horse's antibody titer (antibody level). Measuring the antibody titer before deciding to vaccinate is not a good idea in practice. This leads to vaccinating less, and vaccines are generally short-lived and not effective after a few months. A titer is generally low after vaccination and this is hard to interpret. No one knows how much of a titer is protective against disease. Treatment of disease in unvaccinated animals can be prolonged and more expensive than vaccination. Unvaccinated animals may die from diseases such as tetanus and encephalitis that are wholly preventable.

Do not use vaccines in sick animals for protection against the disease the animal has or other pathogens. Proper timing is required to generate a meaningful immune response and a sick or stressed horse's immune system can't respond to the vaccine or a reaction caused by vaccination.

Vaccination Schedules:

Most horses in the United States are regularly vaccinated against Tetanus, Eastern, Western and Venezuelan Encephalomyelitis, Influenza, Rabies and Rhinopneumonitis. Vaccines are also available to confer protection against Equine Viral Arteritis (in the case of breeding stock), Strangles, Botulism, Potomac Horse Fever, and West Nile Virus. **Vaccines should be administered by a veterinarian since serious**

mistakes in administration and allergic reactions can occur. A veterinarian can effectively deal with these problems if they arise.

The following is a general timeline of when to vaccinate your pleasure and performance horses. However, you should consult your veterinarian for an appropriate schedule for vaccinating pregnant mares, foals and breeding stock or consult the AAEP Guideline for Vaccination of Horses.

Performance horses

Pleasure horses

Tetanus toxoid – annually

Tetanus toxoid – annually

**if a horse has a penetrating injury, both types of horses require a booster within six months if the horse has not received a vaccination within the last 6 months prior to the injury

Encephalomyelitis (Eastern and Western, Venezuelan only if likely to be exposed)
Annual, spring

Annual, spring

Influenza – every 3-4 months

Influenza – annual with added boosters prior to likely exposure

Strangles

Strangles

**for both types, semiannual if risk is high; vaccines with M protein extract may be more effective than whole cell vaccines

Rabies – annual

Rabies – annual

** do not use modified live vaccine

Potomac Horse Fever – semiannual

Potomac Horse Fever – semiannual

** booster in May to June in endemic areas (CT is one)

West Nile Virus – USDA recently granted full license to Fort Dodge

**for both types of horses the recommended dose is two 1-mL doses, three weeks apart, initially, plus annual revaccination.

Also remember to keep a record of your horse's vaccinations. These records may be needed when showing, purchasing or selling a horse. Vaccination records demonstrate that a horse's health has been protected. Vaccinations are an important part of horse management that should not be overlooked; the benefit definitely outweighs the cost!

Sources:

1. AAEP Guideline for Vaccination of Horses. www.myhorsematters.com
2. King, M. March 2003. Kick-starting the immune system. *The Horse* 63-66.
3. www.petplace.com - Wellness and Prevention - Horses

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