



What Is a Modified Live Vaccine?

I have had some interesting conversations with horse owners regarding vaccinations," says Veterinarian and Ontario Association of Equine Practitioner President, Dr. Amy Bennet. "There does seem to be some misconceptions regarding specific vaccines, especially the modified live vaccines. By far, the biggest concern I hear from horse owners is that their horse could potentially become sick from the modified live vaccine and they are concerned that their horse could then pass this disease onto other horses. I also hear concerns of unvaccinated horses becoming inadvertently vaccinated from a recently vaccinated horse within the herd."

These fears are understandable, and to address them, we need to understand the difference between a killed vaccine and a modified live vaccine. The American Association of Equine Practitioners (AAEP) website has information on these [differing types of vaccines](#);

1. Inactivated/Killed Vaccines: lack pathogenicity and can neither replicate nor spread between hosts. They stimulate the immune system by presenting a killed microbe or part of an inactivated microbe. These vaccines typically require multiple doses in the initial vaccine series and regular boosters. Efficacy of inactivated/killed vaccines is often reliant on the use of potent adjuvants. Most of the intramuscular vaccines that are given to your horse are inactivated.
2. Modified Live Vaccines (MLV): stimulate the immune system by presenting a modified disease-causing microbe (bacteria or virus). They are derived from the naturally occurring pathogen and are produced by a) attenuation in a cell culture b) use of variants from other species and c) development of temperature-sensitive mutants.

Bennett explains, a modified live vaccine is derived from the naturally occurring pathogen but is modified in a way that it doesn't produce clinical disease, while still mounting a strong immune response. Modified live vaccines for influenza are given intra-nasally. When the vaccine replicates in the horse's nasal mucosa, a rapid local immune response occurs. The horse develops an immune response that combats disease similar to when the horse is exposed to the wild strain equine influenza virus, making sure that the tissues that would be first exposed to the disease have the strongest immunity to it.

By giving a modified live vaccine, your veterinarian is administering a live pathogen, that has been modified so it will not cause the clinical disease but will mount an immune response to help provide protection against the disease, should the animal ever be exposed.

Studies have shown that there is a low transmission rate between the vaccine strain of disease, demonstrating that it is unlikely for a horse to shed enough of the modified live vaccine to be able to vaccinate another herd mate. Chambers et al.

Vaccination is one of the most beneficial and cost-effective ways to prevent many infectious diseases in horses. Your veterinarian is the best one to discuss your horse's individual needs and risk factors to find out what vaccines are right for your horse.

References:

<https://aaep.org/guidelines/vaccination-guidelines/vaccine-technology>

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