

Daniel P. Keenan, DVM
Ron McAlister, DVM
Lynsey D. Makkreel, DVM



TETANUS

Tetanus is caused by a toxin produced by certain bacteria. Horses are particularly susceptible to this toxin, to such a degree that tetanus is almost always fatal. Couple this with the horse's environment and the frequency at which they suffer small injuries, and the risk from tetanus becomes great.

What causes tetanus?

Tetanus is caused by the bacterium *Clostridium tetanii* which can be found in soil just about worldwide. It enters the body through wounds, particularly puncture wounds that close over. The bacteria then produce an extremely potent toxin. It takes only the tiniest contaminated wound to paralyze and kill an adult horse. In foals, infection can occur via the navel. The tetanus bacteria grow in the absence of oxygen, and multiply rapidly in the damaged tissues at the site of the injury.



What are the symptoms?

Tetanus toxin is a neurotoxin, which attacks the nerves controlling the muscles of the body. This causes progressively worsening muscular stiffness and spasm. The affected horse will become stiff and have difficulty moving and eating. The third eyelid starts to protrude across the eye, particularly when the horse is startled. The tail is often held out straight and the horse develops an anxious expression because of facial muscle spasm. Any stimulus such as loud sound, bright light or touch can exacerbate the signs. The horse may sweat when standing still. In advanced cases the horse will collapse with spasms, convulsions and death from respiratory failure. In the early stages, tetanus can mimic other, milder diseases such as tying up and hypocalcemia. Certain viral diseases, especially those that infect the brain and spinal cord, also mimic tetanus.



**Blind folded foal in tetanic spasm
(legs and tail extended)**

Can tetanus be treated?

Most cases of tetanus result in death. If diagnosed early, treatment is aimed at destroying the bacteria so that no more toxin is produced and reducing the effects of the toxin that has already been produced. Large doses of antibiotics are used in conjunction with tetanus antitoxin injections. Good nursing is essential and the horse needs to be in a darkened, quiet stable to reduce muscular spasm and anxiety. In severe cases, it may be necessary to place the horse

in a sling to prevent muscle damage. Adult horses have a much poorer prognosis than foals. In any case, the chances of recovery are extremely poor.

How can tetanus be prevented?

Tetanus is an easily preventable disease. Vaccination with tetanus toxoid should begin in foals at about 4 months of age, and horses should receive annual boosters for life. Any horse with an unknown vaccination history must be vaccinated at once, especially if that horse becomes injured. Overvaccinating is absolutely not a problem and, when in doubt, vaccinate! The vaccine is so effective and the disease is so terrible that it is best to err on the side of caution.

Foals can be protected during their first few weeks of life by booster vaccinating their pregnant dams approximately one month prior to foaling. This produces useful levels of specifically protective antibody in their colostrum for the foal to suck and absorb. Foals cannot respond to vaccine given before approximately four months of age but should start a course of vaccine soon after this.

Good first aid can help prevent tetanus too. Wounds should be cleaned and bandaged as soon as they occur. Any serious wound should be examined by a veterinarian and may require antibiotics. Tetanus antitoxin should also be given to any injured horse without an excellent history of vaccination.