

## **An Integrated, Holistic Approach To Managing Chronic Lyme Disease in Horses** **Sue Lyman**

According to CDC statistics, Lyme disease is still exponentially on the rise in several states. Equine practitioners are finally recognizing that Lyme is a common ailment in horses and that some horses suffer from chronic infection. Currently, many of the horses that I have cared for, ridden, and trained have contracted this disease, some of them repeatedly. Lyme disease affects each horse in a different way and requires an individualized treatment protocol.

I am not a veterinarian. As a trainer, my quest for how to heal Lyme started with a horse recovering from a collateral ligament injury. He had the proper treatment and rest, but when he returned to work he exhibited symptoms of soreness throughout his body. After months of diagnostics and several different examinations from excellent veterinarians, I had a Lyme test done, which came back as equivocal for infection. Because nothing had helped, we started the horse on doxycycline and, incredibly, he responded. This was the beginning of an extensive and involved program of treatment that was eventually successful. Because I wanted to do everything I could to help this horse, I started to study Lyme disease. While I found plenty of information on protocols for humans, there was very little on treatments for horses. This is still true today. I hope that my research and experience will help other equine professionals provide the best possible support for horses in their care.

The protocol below is based on recommendations from well-respected veterinarians and practitioners, my own personal experience with Lyme, and conclusions based on what has worked best for my horses. Each horse with Lyme requires an individual and integrated treatment plan using a team of vets and therapists, both conventional and alternative. Early diagnosis is not only essential in successful treatment, but can also prevent permanent damage and reduce the length and cost of treatment.

Lyme disease is caused by transmission of *Borrelia burgdorferi*, a spirochete (spiral – shaped bacteria) communicated by the bite of an Ixodes tick (blacklegged or deer) or a lone star tick. This bacteria infiltrates the musculoskeletal system, the central nervous system, or any place in the body where collagen can be found. Clinical signs of the disease can include fever, loss of appetite, stiffness, lameness in multiple limbs, swelling of legs and joints, inflammation of the feet, uveitis, hypersensitivity to touch, changes in behavior, stiff necks and sore backs. Some horses have no fever and exhibit more subtle signs of the disease. These include heaviness on the front end, tripping, inability to pick up, change, or swapping off leads, the inability to travel straight, and general weakness. Infected horses sometimes exhibit neurological disorders and colic. I have found it helpful to have a list of symptoms for each individual horse to tailor treatment.

### **Protecting the Immune System**

A strong immune system is the best defense against disease, and Lyme often compromises immune systems. We need to look at how we manage our horses on a daily

basis to minimize stress, promote healthy practices, and enhance the immune system. A good daily feeding, turn out, and exercise program provide a fundamental start. Horses are grazing animals that require high quality roughage and adequate turn out. Confinement and large grain meals add to acid build-up in the stomach, which can cause gastric ulcers.

A healthy gut is the key to a healthy immune system, so it is plain common sense to use a feeding program that suits the horse's natural state. Antibiotics, NSAIDs, shipping stress and confinement disrupt the balance in the hindgut. While medications are sometimes necessary, overuse and "stacking" NSAIDs are dangerous to the horse's health. Supplementing daily with a good prebiotics and probiotic helps replace and balance the microorganisms needed to keep the horse's digestive track healthy.

Corticosteroids, which suppress the immune system, should be avoided. Horses given corticosteroids on a regular basis are prone to chronic infections. These drugs also compromise cartilage health, interfere with the healing of tendon and ligament injuries, and can mask the severity of an injury, leading to further damage. If it is absolutely necessary to use corticosteroids, use as low a dose as possible for the shortest duration of time.

### **The Controversy Over Vaccines**

The OspA vaccine, used in dogs to prevent Lyme, has been effective in preventing Lyme disease in ponies challenged with infected ticks. However, the vaccine is likely to be of limited value once a horse is infected. In my personal experience, three horses that had Lyme in the past tested negative for Lyme before being inoculated with a series of two vaccines. Within a week, all of the Lyme symptoms in all three horses had returned. All three tested for vaccination antibodies, one tested with in the positive range in Elisa titers, positive for infection on western blot. All three horses responded to antibiotic treatment (one of them needing IV antibiotic treatment) with supportive immune therapies. After this incident, I had noticed that some of the horses had their Lyme symptoms return after a fall or spring vaccination series. All of them responded to antibiotic therapy. I have also used EqStim in the first horse that I had who suffered from Lyme hoping to help boost the immune system. After each injection of EqStim, his symptoms got worse and worse. The EqStim seemed to over activate the immune system. This experience with vaccines made me consider the effect of Lyme on the immune system and question the current use of vaccines in our animals. If we could reduce vaccines given, perhaps we could also reduce the need for additional antibiotic therapy.

Incidentally, the human Lyme vaccine, which was removed from the market in 2002, appears to have similar effects. One tenth to one third of the people vaccinated had problems ranging from a return of the disease or its symptoms to neurological, cognitive and arthritic conditions. In *Healing the New Childhood Epidemics*, Dr. Bock argues that "immunizations (are) directly responsible for helping to create new epidemics of allergies, autism ADHD and asthma," all conditions connected to immune system malfunctions. Dr. Bock recognizes the importance of vaccination, but he also recommends vaccinating only healthy children, taking care not to overwhelm the immune

system, being very cautious in administering vaccines to children who have had adverse reactions, and avoiding boosters if a titer check shows evidence of immunity.

Small animal veterinarians are starting to vaccinate less frequently and using titers to check immunity. It is time that we explore this option for our horses. I now check titers and vaccinate my horses for only diseases for which they have no protection. I believe that this has helped my horses stay much healthier; even though Lyme is on the rise, the horses in my care, while still needing treatment, have not gotten as sick as they had in the past.

### **Diagnosis**

In an endemic area, the diagnosis should be a clinical one, supported by blood tests. A proactive diagnosis of Lyme diagnosis can save the horse from further infection and injury. The most commonly used tests are the ELISA and Western Blot tests and tick panels that can target acute and chronic disease. These can be unreliable for several reasons. Treating a horse living in an endemic area with clinical signs of Lyme and a high titer confirmed with a Western Blot is an obvious course of treatment. Unfortunately with Lyme, especially in new cases or cases that have gone undiagnosed, this is not always the case. A low titer or equivocal result can mean the horse is infected but is in the early stages of the disease and that the immune system has not had time to generate a significant response, or that the horse's immune system is compromised and unable to respond effectively to fight a bacterial invasion.

Lyme spirochetes have the ability to change their outer surface proteins rapidly and have the ability to change into an encysted form. Not only does this enable them to evade immune responses and further infect their host, it may also be one of the reasons a host with the disease may not produce a positive test. Of course, a negative test could mean that the horse is not infected and a positive test with out clinical symptoms could mean either that the horse's immune response is effectively fighting off the infection or that the horse had been infected in the past and had successfully created antibodies against the bacteria. This is why it is very important to pay attention to the clinical signs and symptoms of the disease.

### **Antibiotic Treatment**

For a horse with clinical signs and a positive titer, or one with a titer in the equivocal range, confirmed with a positive blood test, the standard course of treatment is 6 to 12 weeks of antibiotic therapy, usually doxycycline or a week to a month of IV oxytetracycline followed by two months of oral doxycycline. Horses that have gone undiagnosed or that have more severe symptoms may have to be treated much longer for several reasons. Tetracyclines (oxytetracycline and doxycycline) are a bacteriostatic class of antibiotic. This means that they don't kill the bacteria directly; they interfere with the bacteria's ability to reproduce, giving the immune system time to do the killing. The Lyme spirochete has a very slow reproductive cycle -- as much as 14 times longer than a strep bacteria. Treating Lyme disease for reproductive cycles obviously takes much longer, especially if the horse did not get an early diagnosis. Also, doxycycline is poorly absorbed from the gastrointestinal tract, and it can cause ulcers in some horses, so they

may need to stay on omeprazole and/or other supplements while being treated to prevent or negate the ulcers and to help with the absorption of the antibiotics. Early diagnosis and supportive treatment can significantly reduce the time the horse requires antibiotic therapy. My horses diagnosed late needed antibiotic therapy for six months to two years. By paying attention to small signs and keeping my horses' immune systems strong, others were treated successfully in four to six weeks.

### **Immune Enhancement**

Tetracyclines require a well-working immune system to be successful. The immune system needs enhancement as well as protection to kill the spirochetes while the antibiotics keep them from reproducing, so immune system supplements are a necessary adjunct in treating Lyme. The immune system is an extremely complex and sensitive system, and the wrong supplement can provoke an auto immune response and deterioration. Proper veterinary guidance as well as observation of how the horse responds is crucial in determining what supplements are right for each individual horse at its stage of disease.

Probiotics are an essential part of treatment protocol. Antibiotics kill necessary gut flora in the intestines and weaken the immune system. It is vital that horses be supplemented with probiotics while on antibiotic therapy and for months following treatment.

Other forms of immune enhancement are also helpful. such as herbal supplements that are immune modulators -- not an immune stimulants -- that balances the immune system. These have been clinically shown to increase and improve the activity of T-cells and NK (natural killer) cells. Also, products containing a combination of colostrum, thymic proteins and immunoglobulins can be helpful in balancing both passive and cell mediating immunity. Vitamin E (preferably from natural sources) protects against muscle damage, improves immune response, aids vitamin C and selenium in collagen repair, stimulates NK cells, and aids in the healing of nerve tissue. Other helpful supplements include Glutathione, essential fatty acids, Vitamin C, B complex vitamins, magnesium, Resveratrol, Noni, Chinese herbs and Garlic. Not only does garlic have antibiotic, antiviral, antifungal and detoxifying qualities, it also has the added bonus of reducing tick bites.

The use of homeopathic medicine is a helpful adjunct as well. While I have not had luck using homeopathy as a sole treatment for Lyme, remedies can facilitate reduction of symptoms, promote healing, and alleviate adverse reactions to vaccines and medications.

### **Liver Support**

Long term antibiotics are very hard on the liver, which breaks down medications and purifies the blood by removing endotoxins. The endotoxins produced in a bacterial die-off can make symptoms worse and inhibit healing. Many horses need liver support during and after treatment. Milk thistle seeds contain silymarin, a group of plant compounds that protect the liver by neutralizing harmful substances and actually help regenerate the liver by stimulating the growth of new liver cells.

### **Exercise and supportive therapies**

Lyme spirochetes hide in the connective tissues of the horse and can weaken those structures, leading to strain and injury of ligaments, tendons and joints. These injuries may require separate diagnoses, treatment and supplemental therapies. A proper exercise program is essential for conditioning, boosting the immune system and providing a barometer of a horse's health.

Joint supplements such as glucosamine, both oral and injectable are very helpful. Steroids such as dexamethazone or corticosteroids are contraindicated for a horse that has a history of Lyme because of the immunosuppressive effects. Joint injections of hyaluronic acid, IRAP, shock wave therapy, or plain rest and patience may be more beneficial.

Acupuncture and chiropractic care are effective treatment modalities for muscle/skeletal and neurological problems, relieving back and neck stiffness and restoring proper function. Acupuncture also helps balance the immune system, helping prevent or recover from infection. Some veterinary acupuncturists also use Chinese herbs to help the immune system and to provide liver support.

Massage Therapy restores range of motion and relieves tightness that inhibits the horse from moving in a balanced manner. The easier the horse can move, the less chance of injury. Massage by a professional human massage therapist trained in equine massage is integral to a proper conditioning program.

Reiki and energy techniques are helpful in rehabilitating horses with neurological deficits. Touch circle massage stimulates sensory neurons, ground exercises help horses regain proprioception and the body wraps give continual sensory input that encourages the rebuilding of neural pathways.

### **Conclusion**

Lyme disease is an increasing and potentially devastating disorder, but it can be managed effectively. Early diagnosis, swift and effective treatment, and proper supportive care can fight this disease and keep our horses strong and healthy. It is becoming increasingly clear that many treatments require a combination of conventional and alternative modalities which, although sometimes more complex, bring additional health benefits as well as curing or mitigating the effects of Lyme. As professionals entrusted with the care of horses, we have an obligation to stay current with new developments in the fight against Lyme disease. The better we manage our horses, the longer and more fruitful their careers will be.