

COMBATING JOINT DISEASE

Degenerative joint disease, or osteoarthritis, is an irreversible condition, but careful management of symptoms will keep your horse moving freely.

By Leslie Threlkeld

Did your horse take a funny step or are you just imagining it? He seems to be working happily and you checked his feet for stones before mounting. Yet he does seem to take a little longer to warm up for work recently. Could something be wrong?

When your horse comes up lame or even a bit stiff or lackadaisical under saddle, countless different ailments could be the cause. One likely reason for lameness or a reluctance to work has to do with soreness in the joints. Many joints work together to allow a horse to accomplish daily activities like walking and grazing in the field as well as athletic feats like jumping a cross-country fence or performing a half-pass in the dressage arena.

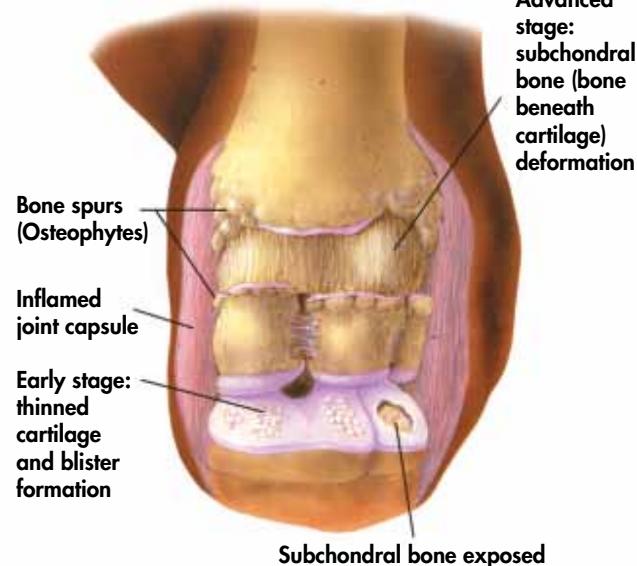
When a joint becomes painful, a horse's ability to move comfortably is compromised.

Similar to humans, horses may develop arthritis in their joints that can lead to decreased mobility. Osteoarthritis, also known as degenerative joint disease, is one of the most common causes of lameness. While it cannot be cured, the symptoms can be controlled so your horse can continue to do his job.

How Joints Work

To understand osteoarthritis, you must first understand a

Degenerative Joint Disease



COURTESY, ILLUSTRATED ATLAS OF CLINIC EQUINE ANATOMY AND COMMON DISORDERS OF THE HORSE



Osteoarthritis often develops in a horse's hard-working, weight-bearing joints, such as the fetlocks, knees, hocks and stifles. Horses participating in high-level competition are often more prone to this disease due to overuse.



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Certain conformation flaws, such as knock knees, upright pasterns, sickle and cow hocks (shown) or very straight hind-leg angles, may put undue stress on joints and could contribute to osteoarthritis development.

joint's structure and function. In a joint, two or more bones connect and allow movement through the harmonious force of muscles, tendons and ligaments.

The ends of the bones are contained in what is called a joint capsule, the health of which is extremely important to a horse's ability to move. In the joint capsule, a layer of cartilage on the surface of each bone prevents the bones from painfully grinding against one another. Synovial fluid, produced by the synovial membrane in the joint lining, fills the joint capsule to provide additional protection and lubrication.

The joint maintains healthy function in an efficient wear-and-repair process that produces synovial fluid and repairs damaged or aged cartilage cells. However, if the joint is compromised through injury or

overuse, the cartilage will wear away, putting more pressure on the bones and causing pain and discomfort. It is the combined breakdown of cartilage and the resulting secondary changes in the bony structures of the joint capsule, such as bone spurs (osteophytes) or subchondral (bone beneath cartilage) deformations, that is known as osteoarthritis. Because lost cartilage cannot be regrown, the damage caused by osteoarthritis is irreversible.

Cause and Effect

Joints will naturally experience wear and tear over time, but there are several factors that may lead to the development of osteoarthritis.

Conformation flaws, such as knock knees,

upright pasterns, sickle and cow hocks or extremely straight hind-leg angles, may put abnormal pressure on joints. The chances of developing osteoarthritis also increase with

Horses participating in a high-intensity athletic career will be more susceptible due to repetitive use during training and competition.

age simply due to many years of hard use and the natural degeneration of the body. Another possible cause of osteoarthritis is a soft-tissue injury or infection that causes inflammation in a joint. However, the simplest explanation for the development of osteoarthritis is use. Horses participating in a high-intensity athletic career will be

more susceptible due to repetitive use during training and competition.

"It could be chronic cyclical forces over an athletic career that cause stress and injury to the cartilage, joint capsule and synovium," explains Dane Tatarniuk, DVM, MS, DACVS-LA, a clinical assistant professor at Iowa State University's College of Veterinary Medicine. Osteoarthritis is more likely to develop in hard-working, weight-bearing joints, such as the fetlocks, knees, hocks and stifles. How quickly osteoarthritis progresses can vary, however. Major injuries like a fracture or an infection can cause the disease to worsen quickly. Transient or short-lived inflammation in a joint will not necessarily cause osteoarthritis, but it could eventually be a problem if the reason of the inflammation is not addressed.

At the cellular level, degradative enzymes most commonly belonging to the family called matrix metalloproteinases (or MMPs) increase with inflammation. "These MMPs, in higher concentration compared to normal joints, lead to erosion of the cartilage," Dr. Tatarniuk says. "As the inflammation persists, the body responds by trying to stabilize the inflamed joint. This is why the joint capsule thickens, and increased mineralization and bony changes start to progress. The changes to the bone are a slow physiological response to the chronic inflammation present."

Symptoms of osteoarthritis range from mild to severe joint pain and lameness. You may also notice heat caused by inflammation. In the early stages of the dis-

ease, your horse may seem only to have some stiffness in his joints after he's come out of the stall or begun a work session. On the other hand, he may experience varying degrees of lameness or decreased performance and a reluctance to work. Call your vet if your horse is suddenly or increasingly sore or lame.



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In order to provide an accurate diagnosis, a vet will typically conduct a lameness exam, which includes flexion tests of the horse's joints.

Diagnosing the Disease

As with any lameness in horses, the first step is to find the source of the pain. The vet will begin with a physical exam and try to narrow down the exact location of an injury. Some signs he or she will look for are excess fluid, heat, decreased range of motion and pain associated with flexion tests.

"The hallmark of diagnosis that every vet should start with is thorough palpation and watching the horse move," Dr. Tatarniuk says. "We try to identify which legs are lame by watching them trot on a straight line or longe line. Flexion tests are common to look for an increase in soreness and give an idea of which area is hurting. From there, we palpate the legs thoroughly from top to bottom."

In some cases, joint effusion—increased synovial fluid in the joint capsule—secondary to inflammation may indicate disease. "Sometimes the fluid is normal in a joint, and it's the veterinarian's job to determine if the joint is truly sore. But if there is fluid and the joint flexes positive, there will be strong suspicion that that is an area of concern."

Once the vet has identified the limb causing a horse's lameness and further

How Does Joint Disease Affect My Horse's Career?

Because osteoarthritis widely varies in how quickly it progresses and the level of pain it produces, a positive diagnosis may mark a different future, depending on the horse. In the case of early-onset osteoarthritis that is progressing slowly, a horse may easily continue his career supported by appropriate joint management. In more acute cases, a horse may need to reduce his workload or compete at a lower level. For older horses, transitioning into retirement may be the best solution. Much of it depends on what the horse's job is and his level of use.

"Let them tell you what they can do. If they are happy working and are comfortable and sound with some maintenance, keep them working. If you can't keep them comfortable and sound, it may be time to think about a different career or lesser workload," says Patrick Loftin, DVM, MS, a surgeon at Tryon Equine Hospital.

"Don't despair. It's not necessarily the end of your horse's career. There are many horses out there doing high-level jumping, dressage and even racing with ugly X-rays. Work with your veterinarian to come up with a plan for your horse to moderate symptoms and keep him comfortable as well as an exercise program. Try to reduce inflammation and slow the progress of the symptoms and progression of clinical signs and lameness."

If you plan on competing in rated shows while your horse is on medication for joint pain, be sure to check the United States Equestrian Federation rules to ensure the drugs your horse is taking are allowed. You can email the USEF Drug Hotline medequestrian@aol.com or call 800-633-2472.

narrowed the location of pain down to a specific area of the leg, it may be necessary to block nerves with an analgesic like lidocaine to isolate the pain. If an area is numbed and the horse's comfort improves and he moves more soundly, then the vet knows there is inflammation or pain in the numbed area. From there, the vet will use radiographs to examine the bones of the joint. Cartilage damage will not show up on a radiograph, but as the disease progresses, bone spurs (bony growths on the edges of bones that indicate an area of increased force on a joint) may be visible. The narrowing of a joint space due to cartilage loss may also be visible on an



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An osteoarthritis diagnosis doesn't necessarily mean your horse's show career is over—proper management can help keep him ready for competition.

ultrasound. Cartilage acts as a supportive cushion and shock absorber between bones. If the cartilage wears away, there is nothing separating the bones and allowing smooth movement of the joint. Severe cases of cartilage loss may result in painful bone-on-bone situations.

"That's where we might see osteophytes, or spurs, which are bony proliferations or irregularities associated with the joint. That gives us an idea of how far the bony changes have progressed. If we see no abnormalities on the radiographs, but there are clinical signs of osteoarthritis, it could just be the early stages of the disease," Dr. Tatarniuk says.



Radiographs of joints are common during the prepurchase exam process.

horse who has been jumping for some years if you're hoping to continue competing him. Radiographs can reveal any number of things, but you shouldn't get bogged down in one single inconsistency on an X-ray. You have to look at the whole horse.

"I try to take the X-rays as one piece of the entire exam," Dr. Loftin says. "If he's out showing and winning and is sound on my exam, negative on flexions and I look at the X-ray and see arthritic changes, I'm going to be less concerned about that. Or the X-rays could not be as bad, but there is clinical evidence that there is arthritis active and causing a problem."

Ultimately, you as the buyer have to decide how the results of the prepurchase exam fit into what you want to do with the horse and what you're willing to manage as he ages. "You can still get a long, useful career out of a horse with arthritis. But are you OK with having to do joint injections in the future? It all comes down to the buyer's risk tolerance," Dr. Loftin says.

Ultrasounds are typically used to diagnose soft-tissue injuries, but they can also be used to evaluate the margins of the joint. Patrick Loftin, DVM, MS, a surgeon at Tryon Equine Hospital in Columbus, North Carolina explains that when using ultrasounds, "You can't see through the bone, but you can start to see if a spur is building and is not fully calcified. You can also see if there is excess fluid or if the synovium is thickened." An inflamed synovial membrane is known as synovitis and may cause pain and swelling of the joint.

It is possible to perform an MRI (magnetic resonance imaging) for further examination, but this is a very specialized and expensive procedure. Few veterinary facilities have MRI machines, and they are rarely used, especially to diagnose arthritis, which can usually be accomplished through a physical exam and series of X-rays.

Osteoarthritis is not always the cause of

Radiographs For Prepurchase Exams

Radiographs are a normal part of a prepurchase exam, and the parts of a horse's anatomy you decide to X-ray may depend on his history and intended future use. For instance, you're likely to look at the front feet and knees of an off-the-track Thoroughbred you hope to event. Alternatively, you may look at the hocks and stifles of a

joint pain. It is possible that the collateral ligaments or other structures of the joint have been injured. "It could be 100 different things and that's where your physical and lameness exams come into play," Dr. Loftin says. "When we talk about arthritis in the horse, it seems like the most common thoughts are of the cartilage and bone spurs, but the joint is a full-functioning structure. There's cartilage but also underlying bone, synovial lining and joint fluid that all have to work together to make the joint function normally. You have to think about it as an entire structure."

How to Cope With Joint Disease

Degenerative joint disease cannot be cured. "Once it starts you can't turn back the clock," Dr. Loftin says. However, you can manage the symptoms and potentially slow the progression of the disease. It is ideal to catch the signs of disease early



A common osteoarthritis treatment option is injecting the joint directly, which delivers the medicine straight to the affected area.

so that treatment can begin. The primary goals when treating osteoarthritis are to reduce inflammation in order to slow the degradative process and subsequently provide the horse with some pain relief.

Systemic anti-inflammatories or a non-steroidal anti-inflammatory medication, such as phenylbutazone, are typically the first step in treatment. Some horses are sensitive to taking bute for an extended period of time and may develop stomach ulcers or kidney problems. Therefore, bute is an effective treatment to soothe acute arthritis flare-ups, but firocoxib (Equioxx[®]) may be a better long-term solution because it is gentler on the stomach.

Dr. Loftin says that medications such as hyaluronate sodium delivered intravenously (LEGEND[®]) and polysulfated glycosaminoglycan delivered intramuscularly (Adequan[®]) have good results as far as full-body care, especially for horses who have multiple joint problems, and can help increase joint function before resorting to intra-articular joint injections.

Intra-articular joint injections, or injecting the joint, deliver the medicine straight to the affected area rather than treat the whole horse with systemic drugs. The most common type of injectable medication are corticosteroids, but Dr. Tatarniuk explains that while they are "very good at reducing inflammation in a joint, they are a little irritating to the cartilage" over time.



You can help prevent joint issues in your horse by monitoring his weight and making sure he has a regular exercise program that's appropriate for his level of fitness.

“Studies find that long-term use of steroids, although very good at reducing inflammation, will increase the amount of degradative enzymes in the joint,” Dr. Tatarniuk says. “The short-term gain of reducing the inflammation in the joint from the corticosteroid helps eliminate pain and lameness. But long-term or repetitive use certainly does not help the degradation of the joint already happening from osteoarthritis. However, with arthritic joints, the steroids are very effective at reducing inflammation and improving comfort, so they still act as a very important tool in managing arthritis. This rationale, though, is why preventive joint injections with a corticosteroid in a healthy, non-arthritic joint are not recommended.

“Newer biological therapies include platelet-rich plasma [PRP] and stem cells,” Dr. Tatarniuk says. “They are usually derived from a horse’s own blood system or bone marrow. Basically, we’re manipulating the cells in the body to secrete really good anti-inflammatory proteins that are natural and in high concentrations. We are learning a lot about how and why they work. They do seem to be anti-inflammatory in nature and may have a regenerative effect in the joint.”

Dr. Loftin agrees that treatments like stem cells and PRP are still being researched and are less common in clinical practice. “Once you have cartilage loss, you can’t get that back even with stem cells. Hopefully, down the road we will gain more information on the use of these therapies in diseased joints.”

Besides administering NSAIDs and joint injections, there are other treatment options that horse owners may find effective for managing joint pain and inflammation. Some compression therapies and specialized wraps are designed to increase blood flow and can help prevent swelling.

 **In general, making sure your horse is at a good weight and remains active with regular turnout and some level of exercise will promote joint health.**

Additionally, there are hundreds of oral supplements on the market that may support joint health. However, Dr. Tatarniuk cautions, “Joint supplements aren’t regulated by the FDA so there can be a lot of variability in consistency, ingredients and quality assurance. I usually tell clients

that some companies out there put a lot of time and effort into supporting research into the efficacy of their product. Work with your vet to determine the best joint supplement so you know you get what you’re paying for.”

In general, making sure your horse is at a good weight and remains active with regular turnout and some level of exercise will promote joint health. The last thing you want to do is keep an arthritic horse in the stall and limit his movement. Just as people do physical therapy after a major injury to keep the bone and joint structures functioning properly, horses also need to keep moving.

Dr. Loftin stresses, “We’re not talking about covering up pain and keeping them in work. We’re trying to keep the joint functional and normal.” 🐾