

Equine Arthritis

Osteoarthritis, also known as degenerative joint disease, is a painful, progressive condition with no known cure

Overview

“Arthritis” is a general term that refers to inflammation in a joint. The joints can be hot, painful, and swollen, although horses can still have arthritis without these signs. In horses the most common and important type of arthritis is osteoarthritis (OA).

Osteoarthritis is a specific form of arthritis that involves a progressive destruction of articular cartilage—the specialized tissue that lines the ends of the bones inside the joint. Equine OA is the most common cause of lameness in horses.¹ Recent estimates show that approximately 60% of lameness problems in horses are related to OA.² In addition, OA is an economic burden that can potentially cost horse owners thousands of dollars per year.³

What is Osteoarthritis?

Articular cartilage permits smooth, frictionless movement and is shock-absorbing, cushioning the underlying bones slightly against body weight loads during movement. Articular cartilage is made up of cells (chondrocytes) embedded within an extensive “extracellular matrix.” The matrix contains type II collagen, proteoglycans, and a large amount of water. In healthy joints the articular cartilage’s matrix is continuously “turned over,” or replenished, to stay healthy and capable of withstanding high forces during locomotion.

In arthritic joints, however, the balance between the breakdown of the old cartilage and the production of new, healthy cartilage tips toward the destructive phase, so the cartilage physically degenerates over time. There are also changes in the underlying (subchondral) bone and other joint tissues such as the synovial membrane and joint capsule.

Causes of Osteoarthritis

Top researcher C. Wayne McIlwraith, BVSc, PhD, FRCVS, DSc, DrMedVet (hc),



CHARLES MANN

One of the causes of osteoarthritis is abnormal forces on normal cartilage.

Dipl. ACVS, Barbara Cox Anthony Chair and director of Orthopaedic Research at Colorado State University, stated that OA is basically caused by abnormal forces on normal cartilage, normal forces on damaged cartilage, or a combination of the two.⁴

Osteoarthritis can also develop in healthy joints without any apparent cause; this form is referred to as primary OA. Alternatively, OA can develop secondary to trauma (e.g., a chip fracture within the joint) or in horses with poor conformation, inappropriate shoeing, or other musculoskeletal abnormalities such as an untreated osteochondritis dissecans (OCD) lesion.

Diagnosis

Classic signs suggestive of OA on a radiograph (often called an X-ray) include joint swelling, the presence of osteophytes or enthesophytes (bony growths at the margins of the joint that form during remodeling of an arthritic joint), sclerosis (increased density of bone), or lysis (decomposition) of the subchondral bone lying directly under the articular cartilage, and in some cases, joint space narrowing.

Considering how common equine OA is, it is surprisingly difficult to diagnose. This is

primarily because there is often a disparity between the horse’s lameness and evidence of OA on radiographs. That is, the radiograph might not find very many changes indicative of OA, yet the horse is very lame and unable to perform athletically. Or the opposite may occur—the horse could only have subtle lameness, but the radiographs show a severely damaged joint. A lameness exam and diagnostic joint blocks should be the primary method veterinarians use to diagnose OA and rule out fractures or other major abnormalities.

Treatment

Unfortunately, there is no cure for osteoarthritis. Instead, the goal for managing horses diagnosed with OA is to slow the disease’s progress. Experts are currently recommending a multi-modal approach to manage horses with OA. This involves using a combination of therapies instead of relying on only one or two techniques. This multi-modal approach is thought to maximize pain relief and enhance an arthritic horse’s quality of life, and involves the use of two or more of the following:⁴

- Non-steroidal anti-inflammatory drugs (NSAIDs), both intravenous and topical;
- Intra-articular (injected within the joint) corticosteroids;
- Intra-articular hyaluronic acid;
- Intra-articular (but not intramuscular) polysulfated glycosaminoglycans;
- Avocado-soybean unsaponifiables (ASU);
- Interleukin receptor antagonist protein (IRAP); and
- Extracorporeal shockwave therapy.

IRAP is used to produce “autologous conditioned serum.” This means a sample of the horse’s blood is collected and incubated with special beads that make white blood cells in the sample produce high amounts of the anti-inflammatory protein IRAP (and other anti-inflammatory compounds such

as cytokines). The white and red blood cells are then removed from the blood, leaving behind “conditioned” serum. The serum is cultured for 24 hours, then injected back into the horse’s joint(s).⁵ The principal use for IRAP is post-surgically (e.g., after removing a chip) or for arthritic horses that are no longer responding to intra-articular therapy with hyaluronic acid and corticosteroids.

In addition to the above-mentioned treatments, there is also some evidence to support the use of oral joint health supplements containing glucosamine and chondroitin sulfate, and potentially also hyaluronic acid, cetyl myristoleate, and methylsulfonylmethane or MSM.⁶ Dietary modification including addition of omega-3 fatty acids, physical therapy (e.g., aquatic treadmills), joint manipulation, and weight management may also be beneficial. Finally, surgical fusion of a joint by removing the articular cartilage and essentially creating one long bone can also be considered. This might be possible in some of the lower-motion joints (e.g., interphalangeal joints), but not for higher-motion joints such as the knee.

All of these treatment options should be fully discussed with your veterinarian to determine the best options for your horse.

Prognosis

The prognosis for horses diagnosed with OA is highly variable and depends on the number and location of arthritic joints, underlying cause(s), rate of disease progression, horse’s age, and response to therapy. Most cases of OA can be managed very well, but it also can be career-limiting in performance horses even if the horse is young and otherwise healthy. In horses that are severely affected and continue to show profound discomfort even with the multi-modal treatment program, OA can become a life-threatening condition.

Prevention

Since there is no cure for OA, the main goal is to prevent or slow its progression. Limiting repetitive trauma to the joints, addressing underlying joint abnormalities (e.g., removing OCD lesions or articular chip fractures, improving conformation in juvenile horses, and trimming feet appropriately are important steps in minimizing

the development of osteoarthritis.

Some owners and trainers routinely administer oral joint health supplements or use polysulfated glycosaminoglycans or hyaluronic acid in young, healthy horses as a preventive measure (to decrease the chances of developing OA); however, there is only a limited amount of evidence supporting this practice. 🐾

KEY REFERENCES

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Further reading and free lameness e-newsletter: www.TheHorse.com/arthritits.

Authored by: Stacey Oke, DVM, MSc; reviewed by: David Frisbie, DVM, PhD, Dipl. ACVS

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