

Equine Arthritis

Learn how to prevent, treat, and manage this painful, progressive condition with no known cure

Overview

“Arthritis” is a general term that refers to inflammation in a joint. Osteoarthritis (OA) is a specific form of arthritis caused by the progressive, painful destruction of articular cartilage, which is the specialized tissue lining the ends of the bones inside the joint. Articular cartilage permits smooth, frictionless movement and cushions the underlying bones 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 the balance between the breakdown of the old cartilage and the production of new, healthy cartilage tips toward the destructive phase, so the cartilage degenerates over time. Changes also take place in the underlying (subchondral) bone and other joint tissues such as the synovial membrane and joint capsule.

The Importance of OA

Equine OA is the most common cause of lameness, and recent estimates indicate approximately 60% of lameness-related problems in horses are related to OA.^{1,2} In addition, OA is an economic burden that can potentially cost horse owners thousands of dollars per year.³

Causes of OA

OA is caused by either abnormal forces on normal cartilage, normal forces on damaged cartilage, or a combination of the two.^{4,5} When OA develops in healthy joints without any apparent cause, this is referred to as primary OA. Alternatively, OA can develop secondary to trauma (e.g.,



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a bone chip within the joint) or in horses with poor conformation, inappropriate shoeing, or other musculoskeletal abnormalities, such as untreated osteochondritis dissecans.

Diagnosis

Physical and lameness examination and radiographs (X rays) are the most frequently used tools to diagnose OA. Classic radiographic signs suggestive of OA 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.

Often, there is a disparity between the severity of the horse’s lameness and signs of OA on radiographs. This means that the radiographs might not find very many changes indicative of OA, yet the horse is very lame and unable to perform athletically. Alternatively, the horse could only have subtle lameness, but the radiographs show a severely damaged joint.

Veterinarians also use diagnostic blocks, which involve injecting a local anesthetic such as lidocaine into or around the joints, to diagnose OA and rule out other

musculoskeletal conditions that cause lameness, such as fractures.

Treatment

The goal for managing horses diagnosed with OA is to slow the disease’s progress. Experts are currently recommending a multimodal approach to manage horses with OA to both maximize pain relief and enhance an arthritic horse’s quality of life. This involves using a combination of therapies instead of relying on only one or two techniques.

A multimodal approach involves the use of two or more of the following:⁵

- Nonsteroidal anti-inflammatory drugs (NSAIDs), both intravenous and topical;
- Intra-articular (injected into the joint) corticosteroids;
- Intra-articular hyaluronic acid;
- Intra-articular (but not intramuscular) polysulfated glycosaminoglycans; and
- Extracorporeal shockwave therapy.

Regenerative therapies, which use the patient’s own body to heal, are becoming increasingly popular to treat a variety of musculoskeletal injuries, including OA. Some of these therapies include interleukin receptor antagonist protein (IRAP), platelet-rich plasma (PRP), and stem cells.^{6,7}

IRAP is used to produce “autologous conditioned serum.” This is achieved by collecting a blood sample from the horse then incubating the sample 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).

When this conditioned serum is injected into a horse’s joint(s), the IRAP binds to receptors for interleukin-1, which blocks those receptors from being stimulated by the naturally produced pro-inflammatory interleukin-1 in an arthritic joint to decrease lameness.

IRAP can be used 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.

PRP and stem cells also hold promise as effective treatment strategies for OA; however, more studies are needed.

Other means of potentially managing OA include using omega-3 fatty acids as a feed supplement, physical therapy, joint manipulation, corrective shoeing or barefoot trimming, and weight management.

According to a recent review, nutritional supplements such as glucosamine, chondroitin sulfate, and/or avocado-soybean unsaponifiables (ASU) appear to offer relief to horses with OA.⁸ Evidence also supports use of oral joint health supplements containing hyaluronic acid, cetyl myristoleate, and methylsulfonylmethane (MSM).⁹

Finally, veterinarians and owners can also consider surgical fusion of a joint, which involves removing the articular cartilage to essentially create one long bone.

OA of the lower hock joint for bone spavin can reportedly be managed safely and effectively via a procedure called alcohol-

facilitated ankylosis to reduce lameness and restore soundness.¹⁰

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. In severely affected horses that continue to show profound discomfort even with the multimodal treatment program, OA can become a life-threatening condition.

Prevention

Limiting repetitive trauma to the joints, addressing underlying joint abnormalities (e.g., removing articular chip fractures), improving conformation in juvenile horses, and trimming feet appropriately are important steps in minimizing the development of OA.

Some studies have shown that administering nutritional supplements (containing a combination of glucosamine, chondroitin sulfate, and ASU) in young, healthy athletic horses prior to joint injury or disease can help prevent OA development. 🐾

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*Authored by Stacey Oke, DVM, MSc;
reviewed by Duncan Peters, DVM, MS*
