

Joint Injections: Pros and Cons

By [Stacey Oke, DVM, MSc](#) | Sep 1, 2008 | Topics: [Pain Management](#), [Veterinary Practice](#)



Photo: Harry Werner, VMD

Joint injections can safely localize lameness or medicate a joint, but occasionally they can cause complications, too.

Equine veterinarians recommend and perform joint injections for a variety of reasons. The two most common are 1) to anesthetize or "block" a joint to assist in lameness localization, and 2) to administer medications directly into the joint. Joint injections to administer medications are safely performed in a variety of sectors of the equine industry, including Thoroughbred and Standardbred racing, show jumping, eventing, and Western performance.

"The perception of owners and trainers regarding the benefits and detriments of joint injections is remarkably varied," explains Dan French, DVM, MVSc, Dipl. ACVS, an equine surgeon and performance horse practitioner from Okotoks

Animal Clinic, which is located near Calgary, Alberta, Canada. "It ranges from some owners/trainers wanting to medicate virtually every joint possible to others not wanting to inject anything because they think it will ultimately ruin the horse."

In this article the pros and cons of blocking or injecting medications into one or more joints will be described. In addition, potential contraindications and complications associated with intra-articular (joint) injections will be discussed.

Joint Injection Methodology

"Regardless of what drug(s) are ultimately instilled into the joint, the process of performing any intra-articular injection is relatively consistent," explains French.

First, the joint is prepared by cleaning the area with an antiseptic soap to reduce the number of bacteria at the injection site. The hair does not necessarily need to be clipped unless the horse is particularly dirty, hairy, or if anatomic landmarks are difficult to identify. Next, immediately prior to inserting the needle into the joint (arthrocentesis), the area is generously cleansed with 70% isopropyl (rubbing) alcohol until the area is free of soap. At that point, the needle (without the syringe attached) can quickly and easily be inserted intra-articularly. Due to anatomical differences among individual horses' joints, it is not uncommon for the veterinarian to redirect the needle until it is fully inside the joint and synovial fluid is (typically) visible in the hub of the needle. The syringe is subsequently attached to the needle and the drug of choice is delivered directly into the joint space.

According to French, it is imperative that the horse be restrained, with or without chemical sedation, by an experienced assistant for safety reasons and to ensure the horse remains still to avoid bending or breaking needles.

"The expertise of the handler is key to the success of the injection," explains French.

"Pros" of Joint Injections

Blocking joints is a useful technique to assist equine practitioners in localizing lameness. In some horses, particularly those with multiple sources of pain, identifying the exact locations where the horse is sore can be challenging. Regional nerve blocks, such as a "palmar digital nerve (PDN) block" or a "low- or high-four-point" might not be adequate, or the anesthetic drug can diffuse over a large area (e.g., to the joint, tendons, tendon sheaths, and ligaments).

Blocking a specific joint can be more efficient and effective in some cases. For example, if there is radiographic evidence of an abnormality associated with a joint, intra-articular administration of an anesthetic will provide more value than a regional nerve block.

The goal of medicating joints is to decrease inflammation, restore the horse to its owner's desired performance level, and improve the joint environment and protect the cartilage for long-term benefit.

"Horses that derive the most benefit from intra-articular medication are those with evidence of active inflammation in one or more joints," explains Michael Ross, DVM, Dipl. ACVS, professor

of surgery at the University of Pennsylvania's New Bolton Center and co-editor of the book *Diagnosis and Management of Lameness in the Horse*, (Saunders, 2003).

This includes horses with signs of joint capsule distension (i.e., "filled joints") and a positive response to flexion tests indicative of synovitis (inflammation of the synovial membrane lining the inside of a joint). In contrast, according to Ross, lame horses that have no evidence of active inflammation will not necessarily improve following a joint injection. In those cases, the source of the pain is likely outside the joint, so medicating the joint surface will not help.

"The postoperative administration of intra-articular medications such as hyaluronic acid and a small amount of steroid may be beneficial in protecting the cartilage and improving the cosmetic appearance of the joint," suggests Ross.

"Just like any therapeutic, joint medications are not used in a performance-enhancing capacity," explains James C. Hunt Jr., DVM, a private equine practitioner who has been practicing at Belmont Park racetrack in New York since the 1980s. "Instead, the goal is to help the horses perform the job they were bred for and to prolong their careers and lives."

"Cons" of Joint Injections

Regardless of the nature of the exact procedure, there are several potential complications and contraindications associated with arthrocentesis that should be considered.

Expense To block or medicate a joint costs approximately \$65 to \$250 *per joint*, depending on the drug used. To inject a "set" of knees (i.e., two separate joints in the same knee, and inject both knees) will, therefore, cost approximately \$1,000.

Lack of effect Despite comprehensive physical and lameness examinations, blocking or medicating a specific joint might not result in the desired effect, or the horse might require additional medication. Two common reasons for lack of response are medicating or blocking a horse that has periarticular (surrounding the joint) pain rather than pain in the joint itself, or, in medicated joints, the joint was not injected at an appropriate time point prior to performance.

"There is no magic injection that will make a lame horse sound," states Hunt. "Medicating joints simply assists horses in racing closer to their natural ability level. To achieve this, the injections need to be performed well in advance of the event--approximately 30 days out."

Joint flare Also called "reactive synovitis," this term refers to inflammation of a joint that can occur following any intra-articular injection. While this condition is rarely career-limiting, it must be treated and distinguished from the more serious joint infection.

"Horses with a joint flare are acutely lame beginning only a few hours post-injection, and the lameness can persist for up to four to six weeks," says Hunt.

Joint infections Horses that develop heat, pain, swelling, and are nonweight-bearing within approximately three to five days post-injection should be referred for evaluation of a joint infection. Most commonly, post-injection infections are due to the introduction and proliferation of bacteria (primarily *Staphylococcus aureus*) into the joint, which can be a career-limiting event.

Corticosteroid-induced laminitis Laminitis--a painful, life-threatening inflammation of the sensitive laminae in a horse's hoof--can be induced following the intra-articular administration of corticosteroids. Ross and French agree this is a potential threat in horses having multiple joints worked on, but neither surgeon has ever seen a case firsthand. In their opinions, the total amount of steroid administered per horse should always be considered, particularly when using triamcinolone, of which no more than 18 mg should be administered *per horse* at any given time.

"We are not as worried as we used to be, but (we're) certainly cognizant that there is a theoretical risk," says French.

Articular cartilage degeneration/steroid chondropathy High doses of some corticosteroids are associated with detrimental effects on articular cartilage structure and/or metabolism (alterations in the balance between the natural production and breakdown of articular cartilage components).

"Most experts now agree that the judicious use of intra-articular steroids can be beneficial," emphasizes French. However, "in horses that have multiple joints injected multiple times with moderate to high doses of corticosteroids, articular cartilage damage is a real concern."

Descriptions of intra-articular drugs and recommended doses are in Chapter 85 of Ross' book, *Principles and Practices of Joint Disease and Treatment*, co-authored with John. P. Caron, DVM, MVSc, Dipl. ACVS, and Ronald L. Genovese, VMD.

While the cost of injection and the development of joint flares are relatively fixed and unchangeable, joint infections can be minimized by properly preparing the joint and not

injecting joints that are scurfy, dirty, have signs of a skin infection (dermatitis), or those that have recently been sweated.

Risk for further injury Injecting joints of horses with injuries that could be considered career-ending is contraindicated. Treating a horse with serious articular damage--fractures or ligamentous and/or cartilage damage--could make him artificially sound and, thus, more likely to sustain further injury.

Overall Recommendations

Ross: "I believe there are many more advantages than disadvantages for performing joint injections in the average horse, in terms of improving the cosmetic appearance of a joint post-surgically, for treating inflammation, a synovitis, or chronic osteoarthritis. Injections can be frustrating, however, because there are some conditions in which horses will not benefit."

Hunt: "I recommend approaching each case conservatively. We need to remember that in Thoroughbreds the horse is running 35 to 40 miles per hour. We need to use joint injections to keep the horse as comfortable as possible, rather than medicating the joints in a 'performance enhancing' capacity. I also suggest avoiding 'steroid abuse.' Using a combination of hyaluronic acid and low-dose steroid, and adopting a multimodal treatment approach to soundness is warranted in athletic horses."

French: "The judicious and appropriate use of intra-articular medications will help maintain the desired level of performance *and* prolong the athlete's career. Injections should not be performed to enhance performance, particularly in sport horses that typically have longer careers than racehorses. Therefore, joint injections need to be used in conjunction with proper training and proper convalescence (when necessary)--we need to look at the big picture."

Take-Home Message

In summary, one or more joints can be safely injected at any given time in select horses to either localize lameness or medicate a joint to help minimize swelling, pain, and inflammation and allow the horse to perform more comfortably. Additional information regarding specific drugs for intra-articular use has been published previously by *The Horse* and is available online at TheHorse.com in article [#5160](#).

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