



# EQUINE REPRODUCTION SVC

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## Joint Injection Refresher

Osteoarthritis and joint injury and disease. If you own a performance horse or have ever dealt with lameness, you've likely heard these words tossed around. This is because the strain of a performance horse's repeated effort performing movements or clearing fences takes its toll on joints' synovial fluid and cartilage.

With osteoarthritis, for instance, cartilage degrades faster than it can rebuild, which in turn causes inflammation in the joint. In addition, the synovial fluid that serves to lubricate and cushion the joint becomes less viscous (it thins). In these cases the pain can come on slowly and subtly until the horse becomes obviously lame or exhibits decreased performance. When this happens veterinarians often prescribe intra-articular joint injections, which they administer directly into joints. By medicating a horse's joints they aim to decrease inflammation; restore performance level; and protect the existing joint cartilage. This technique will not, however, "cure" joint disease or create new cartilage.

David Frisbie, DVM, PhD, associate professor of equine surgery at Colorado State University, believes that joint injections are the most beneficial joint therapy and provide the most good for horses with active inflammation in one or more joints.

In contrast, he says, lame horses without active joint inflammation might not improve with injections because the pain source is likely elsewhere in the horse's body. Veterinarians are quick to point out that owners should not use injections as performance enhancers or to mask pain, but rather to help horses perform their jobs comfortably and prolong their athletic careers. This can be a difficult tightrope to walk. Duncan Peters, DVM, MS, Dipl. ACVSMR, director of the Clinical Equine Sports Medicine Program and associate professor of Large Animal Clinical Sciences at Michigan State University's College of Veterinary Medicine, says this is an ongoing dilemma in the sport horse world. It is also an important reason for obtaining a definitive diagnosis.

Veterinarians stress the importance of approaching each case individually and conservatively. Joint injections are only part of a much bigger joint management picture that includes rest, proper diet and optimal weight, and non-steroidal anti-inflammatory drug administration.

### Proceed with Caution

As with most good things, joint injections have their downsides. First and foremost they are costly, averaging upwards of \$100-250 per joint. The age of the horse and the owner's performance expectations also come into play (Is it worth the expense if he's nearing retirement or not aiming for a competition goal?). The horse also might not respond to treatment because the pain is located around, and not in, the joint, or because the time lapsed from injection to performance is not quite right.

Further, there are some uncommon but potential complications. Anytime you stick a needle in a joint there's a potential for infection, so Peters says the veterinarian's injection method must be sterile. There's also the chance the horse might develop a joint flare, also called reactive synovitis, a less-damaging joint inflammation that occurs following an injection.

As a preventive method, veterinarians sometimes inject a small amount of antibiotics along with the joint medication. However, only 0.1-0.5% of injected horses suffer from either a joint infection or joint flare. If the veterinarian injects the horse with corticosteroids—potent anti-inflammatories used as joint medications—there is a very small chance this could induce laminitis, but this likely only occurs with extremely high, prolonged doses. Finally, articular cartilage degeneration or thickening of the fibrous joint capsule lining can occur in horses that have received multiple injections in the same area over time and make injections more difficult.

### Currently on the Market

The particular substance injected depends on the joint involved, the veterinarian's preference, the horse's function, and the timing before competition (if applicable). Two common injectables are hyaluronic acid (HA, marketed as Legend) and polysulfated glycosaminoglycan, or PSGAG, (Adequan) that veterinarians can administer intravenously or intramuscularly, respectively, or directly into the joint. They both aim to decrease inflammation in the joint.

Hyaluronic acid is a normal component of synovial fluid and cartilage. When joints are damaged, inflammatory cells and enzymes degrade and deplete the natural HA. Exogenous HA injected directly into the horse's joint acts as a mechanical lubricant and anti-inflammatory.

Polysulfated glycosaminoglycans are considered more "disease-modifying" because they work on the collagen fibers and intercollagenous tissues that comprise the cartilage matrix. They have been shown to inhibit the effect of various enzymes associated with cartilage degeneration.

Because these two drugs act in different ways, veterinarians might administer one of them alone, in combination, or with other medications, depending on the severity or stage of disease.

### Injection Decisions

While Legend and Adequan are both FDA-approved for helping joints heal, they are not approved for disease prevention. However, 70-80% of veterinarian respondents to an American Association of Equine Practitioners (AAEP) survey said they use them as preventive measures, says Frisbie. "It is becoming very common to inject joints before there appears to be a clinical need," he says. "There is no data that this is effective at all, and further, if we believe that the injections decrease inflammation and if inflammation is not there one could argue there is nothing to have an effect on. I think waiting until clinical signs are present is more effective."

Peters agrees: "If the joint is healthy, why do you need to go in and treat it? Can you make a good joint better? Does it increase the performance career? There are no studies showing that." The AAEP recommends veterinarians inject joints only if they need it—meaning a veterinary examination using nerve blocks and diagnostic imaging has determined a lameness or performance problem is within the joint.

On the other hand, if multiple injections into the same joint are needed to keep the horse sound and competitive, "you should probably find a new occupation for that horse," says Peters.

There is also the question of time off from performance following an injection. Peters notes that there is a move in the racing industry (and veterinarians are giving some thought to it in the performance disciplines) to determine the appropriate length of time following injections before horses are able/allowed to return to competition. Of course, what makes finding these answers so very difficult is that no two joints or horses are exactly the same and can respond differently to treatment.

### Take-Home Message

Inflammation is the initial problem that occurs in joints. Left unattended, it might eventually lead to degenerative joint disease, which horse owners must take very seriously. There should be good, solid discussion between owner, trainer, and veterinarian considering issues such as costs and what is expected of the horse. Once these are established, the veterinarian can prescribe the best choice of treatment, which might include intra-articular injections of established medications or newer therapies such as IRAP, stem cell, or platelet-rich plasma injections (see sidebar). Combine that with plenty of down time and good management to help the horse remain as pain-free as possible.