

Joint Injections

*The what, when and why
of preventive joint health.*

By Andrea Caudill



Proper joint care is essential for a horse's long-term soundness.

JIM BRET CAMPBELL

MICHELE GRAVES' WESTERN PLEASURE HORSE BOUNCE BACK Zippo, or "Bo," was acting cranky while being ridden.

The then-11-year-old gelding by Zippos Kidnapper was reluctant to lope off to the left, curling his lip, pinning his ears and looking unhappy. His resistance had been growing over several months, and Graves knew the sorrel wasn't just reluctant to train – he was hurting. So she picked up the phone and called veterinarian Ed Murray, D.V.M., of Coosa Valley Equine Center in Pell City, Alabama.

Murray began a thorough checkup on the horse. The exam included lameness checks, X-rays and a joint block.

"He had a little decreased muscle mass across his hips, as if perhaps he had been guarded in his gait and hadn't been free up under himself," Murray said. "When we trotted him, he was short in his left hind, and when we blocked his left hock, his lameness essentially disappeared."

The X-rays showed the teenaged horse had some wear-and-tear and osteoporosis (loss of bone density in response to inflammation), but did not suffer from significant degenerative arthritis. Based upon those findings, Murray recommended hock injections. He injected a mixture of sodium hyaluronate acid and corticosteroids in all joints of both hocks.

"Right away I could see some improvement – no more grumpy face," reported his owner, a resident of Trussville, Alabama. "As the weeks went by, Bo was more relaxed and willing to pick up the lope on cue."

Bo regained muscle tone in his back, and more than a year later he has shown no further signs of problems.

"He's doing great," Graves said. "He really seems to enjoy the exercise and looks forward to going out every day."

James Casey, D.V.M., of Equine Sports Medicine and Dentistry at Laurel, Maryland, said being alert to the horse's needs will help keep joints healthy, which goes a long way to keeping a horse at its peak potential.

"Most people wait until the horse is broke down to fix it," Casey said. "But there are no spare parts for horses. You don't wait until your car no longer runs before you take it in and fix it. You need to do the same thing with your horse."

Many veterinarians prescribe joint injections as a treatment and a preventive. The sometimes costly procedures can add a long and confusing list of services to the vet bill, so what are they all about, and are they really necessary?

A Downhill Spiral

DAMAGE TO JOINTS IS CAUSED BY MANY FACTORS.

A horse's conformation dictates predispositions toward damage. Crooked legs and previous injuries, like bowed tendons, increase the chances of further damage.

Management issues, such as imbalanced feeding regimens and allowing the horse to have long toe/low heel problems with its hooves, can also exacerbate the stress placed on a joint.

Finally, training past the horse's ability, rushing and doing too much too soon will cause problems.

"(It) starts with synovitis, just a little inflammation of the synovial membrane," Casey said. "The next thing is a little abnormal joint fluid, then you get some stretching and scar-

ring of the capsule because of some pressure inside the joint. Then you get a little limb dysfunction, then it goes in a circle, and it gets worse and worse and worse.”

With inflammation, the synovial membrane becomes more permeable, allowing more things into the joint capsule. White blood cells begin leaking into the synovial fluid and release damaging enzymes. They begin attacking the cartilage, wearing away the matrix structure that gives cartilage its strength. Sufficient damage prevents the joint from repairing itself fast enough, and “eventually, you get overwhelming damage,” he said.

Once the cartilage wears away, the joint is afflicted with osteoarthritis, or bone rubbing on bone.

“Once you lose all the cartilage,” Casey said, “there’s not much you can do for it.”

The key, he says, is halting the cycle before that point, allowing for repair before the horse is inflicted with permanent damage. By the time you see problems – like bone chips – on a radiograph, you’re already far down the road of permanent damage to the joint.

Symptoms include heat, pain and swelling, soon followed by loss of function. A horse might become slightly less willing in its training, flinch at a command or become reluctant to lope off or change leads.

Warning Signs: When to Inject

A HORSE THAT HAS SHOWN A SIGNIFICANT DECREASE IN PERFORMANCE or is showing signs of lameness is likely to need an evaluation by a veterinarian.

“(If he has a sore back,) when you get on your horse, instead of him picking up a strong back to you, he’s going to hollow out underneath you,” Murray said. “Then the next thing he does is lift his head and neck up. Oftentimes that’s one of the complaints we hear, ‘I can’t get his head and neck down where they should be.’ We know that it’s probably been going on for a long time and, unfortunately, some of these horses get worked on in the front – their face, head carriage, different bits, trying to get their head down. But the fact is, they can’t get their head and neck down, because their pelvis is tilted forward and their back is sore.”

However, Murray doesn’t recommend using joint injections without signs of discomfort. If the horse does not show any signs of reluctance or pain, there are other choices, such as intravenous Bayer’s Legend, that may help maintain a joint, cost less and be less invasive.

“I don’t think injecting a joint actually prevents anything,” he said.

If the horse begins to show a minor decrease in performance, that may be an early indication that a horse should be evaluated.

“The earliest stages of this before he gets to the point of having a sore back, is he’s just not as good as he used to be,” Murray said. “He’s not as deep when he canters one direction, or he gets late on cattle, or is tough coming out of the box or has problems at the second barrel. He’s not lame, he’s just not as good as he used to be.”

That minor decrease in performance, Murray cautions, does not mean you should immediately resort to joint injections. Such subclinical indications might be better served by other options, such as rest or other treatments.

“There is no set regime for treating a problem,” Casey said. “It depends on the severity of the disease, the joint or joints involved, the use of the horse and intensity of its training competition. A horse might need nothing more than basic

keeping – keeping him at a correct weight, good exercise and trimmed and shod well. The next level might be a little anti-inflammatory bute once in awhile. Then the higher end of it might be to go through periodically and inject all the joints to maintain him.”

The Process of Injection

THE FIRST STEP IN THE PROCESS IS DIAGNOSING THE HEALTH OF the joint.

Lameness exams include watching the horse move on both straight lines and curves.

“You need to look at the whole horse, because usually they get a little problem one place, compensating for developing a problem someplace else,” Casey said. “Like, he is sore in his back when it’s really his hocks that are bothering him and he’s compensating for it.”

Then nerve blocks can be administered to examine the differences and narrow a problem down to specific joints. Radiographs, MRI and infrared thermoimaging can also help peer into the joint.

Casey also draws synovial fluid for examination.

“It should be a little bit thinner than honey but a lot thicker than water,” he said. “If I bend a horse’s knee and stick a needle into it, it should string almost to the ground before it breaks. I check its color and send it off to the lab to look for various contents. Qualitatively looking at it on a regular basis will tell you a lot.”

Bad joints can be extremely watery or be so worn they don’t produce any fluid at all.

The injections themselves require sterile techniques.

“It’s an invasive procedure, but if you’re careful, you do the preparatory things for the skin like scrubs, antiseptic and iodine and you use a good, sterile technique, then the chances of doing anything bad are pretty minimal,” Murray said.

Casey said that typically when he injects a joint, he uses

Amarillo Large Animal Clinic 8888 Route 66 Amarillo, TX 79104		Date of Professional Services: June 2, 2007
		Horse: Good Bar Pine
Left Front Fetlock (Ankle)		
<ul style="list-style-type: none"> • Joint Aspiration and Injection Procedure 		
<ul style="list-style-type: none"> • Cleaning and preparation with Chlorhexidine Surgical Scrub and Ethyl Alcohol. 		
<ul style="list-style-type: none"> • Injection/Infusion with Depro Medrol (methylprednisolone acetate) Steroid • Injection/Infusion with Vetalog/Kenalog (Triamcinolone Acetonide) Steroid • Injection/Infusion with Amikacin antibiotic • Injection/Infusion with Hylartin V (Premium Top Grade Hyaluronic Acid) • Injection/Infusion with Adequan Intra-articular (PSGAG) • Anti-microbial Dressing, Sterile Gauze Dressing, and Sof-Kling Bandage Applied 		
Notes: Good Bar Pine received a therapeutic injection to his left front fetlock (ankle). Due to the severity of the osteoarthritis in this ankle, he may need to be kept on periodic maintenance. We will re-evaluate Good Bar Pine on a regular basis.	SUB TOTAL	
	TAX	
	TOTAL	

TONYA RATLIFF-GARRISON



A horse that is injected once will not necessarily require more injections.

multiple syringes of medication. After three complete scrubs and a prep, he aspirates any excess fluid and then injects the medications. He then bandages the leg, or, if it's difficult to bandage, applies a spray protectant.

And once you take the plunge, do you have to constantly reinject?

"Many people will say, 'Oh, if I ever inject my horse's joint, then I'm going to have to continue to inject him,'" Murray said. "Injecting him does not make him have to be injected again. The fact is, the arthritic situation is irreversible, and you don't make it go away. The continued presence of the arthritic situation is what mandates that you inject this horse later on."

What's Going In

Veterinarians have their own favored cocktail of chemicals to help maintain or repair joints, and it's often a matter of dis-

HOW JOINTS WORK

Joints are areas where two or more bones come together. There are several different types, including immobile fibrous connections, such as the joints in the skull, cartilaginous joints, such as the juncture of ribs to sternum and synovial joints, or ones that move and flex.

Articular joints have articular cartilage covering the ends of the bone. It protects the bone and helps cushion and dissipate impact into it.

"It's a limiting factor to how much the joint can do," said James Casey, D.V.M.

Damage to the cartilage means it is unable to properly distribute the forces of movement. The bone underneath then becomes directly impacted, and bone chips or fractures appear. Cartilage has little blood supply and doesn't heal well.

A joint capsule surrounds the joint. It is lined with synovial membrane, a filter for blood and the generator for synovial fluid, a yellowing lubricating liquid, filling the capsule, which protects it like oil in a car engine, and hyaluronic acid. Hyaluronic acid is a lubricant and shock absorber, and is an important part of cartilage health.



ROBIN PETERSON

cussion when professionals meet. Often more than one is injected at a time to take advantage of different properties of the drugs, tailored to the needs of a patient.

TONYA RATLIFF-GARRISON



Evaluating a horse's joint health early, before pain and resistance becomes obvious, will save frustration and training time as well as permanent damage to joint structures.

Some of the most common are:

- **Corticosteroids:** anti-inflammatories. Sometimes given a bad rap, they are a powerful tool when used correctly. “They work by stabilizing the membrane and keeping white blood cells out,” Casey explained. There are a number of different types of corticosteroids, including some that have an immediate, short-term effect, and others that are long-lasting. Corticosteroids can slow healing in some cases.
- **Hyaluronic acid (HA):** an anti-inflammatory. It works by inhibiting a prostaglandin that affects the joint, Casey said. It also prevents toxic oxygen radicals, cell migration, helps lubricate the joint and restores HA found naturally in the joint. It is usually used in mild cases of joint damage. There are a number of brand names for HA, including Bayer’s Legend, an intravenous injection.
- **Polysulfated glycosaminoglycan (PSGAG):** A small molecule that acts to repair cartilage. It infuses into the cartilage, and inhibits enzymes from breaking cartilage and synovial fluid down. It also stimulates collagen synthesis and production of HA. Its most common brand name is Adequan, which is sold both as an intra-articular and intra-muscular injection.
- **Interleukin-1 receptor antagonist protein (IRAP):** A new treatment still undergoing study, IRAP is created from the horse’s own blood. Interleukin-1 is a type of chemical secreted by the immune system to attack infectious or bad cells. When a joint becomes inflamed, it can accelerate a problem, and IRAP blocks the Interleukin-1. Blood is drawn from the horse into a syringe filled with glass beads, which simulate production of the antagonist protein. The blood is then treated and the plasma containing the IRAP is separated out. It is then injected back into the horse.
- **Tildren/Tiludronic acid:** This drug is not currently approved for use in the United States, however it is commonly used in Europe. An intravenous injection, it is not injected into the joint. It helps inhibit bone reabsorption or bone loss (osteoporosis), and is used to treat navicular syndrome, osteoarthritis and other osteoporosis problems in horses. similar to the drugs people take to treat osteoporosis, and a veterinarian can contact the FDA and file paperwork to get the drug imported. There are clinical trials on the drug being instituted, Murray said, and it may become available in the U.S. 📌

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ORAL SUPPLEMENTS

If you’ve ever wandered down the aisles of your local tack shop, you know there are supplements to cure every evil – most especially joint problems. From treats sporting glucosamine to top-dressing hyaluronic acid powder, do any of them actually work?

“Nobody has shown how it works in their studies,” James Casey, D.V.M., said, “There is a lot of empirical or nonscientific evidence. People claim it works, but there are no hard studies to back it up.”

Ed Murray, D.V.M., agrees, saying, “There has never been a true scientific study that proves oral supplements work. They don’t hurt anything; I’ve never known a horse that had any bad affect from oral supplements. It may help some horses some of the time, but I have no conviction that oral supplements will help correct a problem. Now whether they’ll prevent a problem or not, well that would take a huge double-blind scientific study, a long-term project. Right now, I don’t see that around the corner.”

CASE STUDY

Karrie Mae Osburn had purchased Miss Worth It All, a daughter of Superhorse and Hall of Fame member Rugged Lark, in utero, and drove from her home in Gaston, Oregon, to Ocala, Florida, to pick up “Annie” as a newborn, orphan foal. When the mare turned 3, Osburn sent Annie to a trainer for hunter under saddle training. The promising filly took a bad step during training and came up lame.

“I was there, watching,” Osburn said. “It wasn’t anything the trainer did. She just stepped wrong.”

Annie underwent aggressive treatment, including injections in her hocks. The mare recovered briefly before again succumbing to lameness.

“(The injections) cost more than \$400,” Osburn noted, “and there was no change in the way the mare moved. I have had other horses that (joint injections) have worked on, but looking back, I probably would have just turned her out in the pasture and let her rest.”

The 12-year-old mare has been retired to the broodmare band, but her owner reported that the mare was named correctly – “despite everything that’s happened, she is worth it all!”



TONYA RATLIFF-GARRISON

A horse that carries its head high might be suffering from sore hocks.