EAST COAST EQUINE VETERINARY SERVICE

EQUINE HEALTH NEWSLETTER

PUBLISHED BY EAST COAST EQUINE VETERINARY SERVICE, LLC

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SPRING/SUMMER 2009

NEWS & EVENTS

Services now include the following new regenerative therapies:

✦ *IRAP Therapy* ✦ *PRP Therapy* ✦

✦ *Stem-Cell Therapy* ✦

Please see "Lameness: Starting off on the right foot " for further information.

Late summer of 2008, ECEVS upgraded to Digital Ultrasonography. The new equipment offers higher quality imagery and the ability to create a CD or e-mail the study in the field at the time visit.

Dr. Zimprich received StemCell Therapy certification in early fall of 2008.

"Try Me Free" program is up for a 2nd round. Don't forget to participate, IT'S FREE!

Free Equine Gastroscopy Clinic sponsored by Merial held May 11, 2009.

REMINDER:

If you have not scheduled an appointment for spring vaccinations please do so soon...Summer is almost here!

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Lameness

UNDERSTANDING DEGENERATIVE JOINT DISEASE (ARTHRITIS)

What it is: Arthritis, known as degenerative joint disease (DJD), is progressive joint inflammation due to trauma or wear and tear, leading to erosion of articular joint cartilage, which becomes frayed and thinned, causing pain and loss of function. Arthritis mainly affects your horse's weight-bearing joints and cervical region.

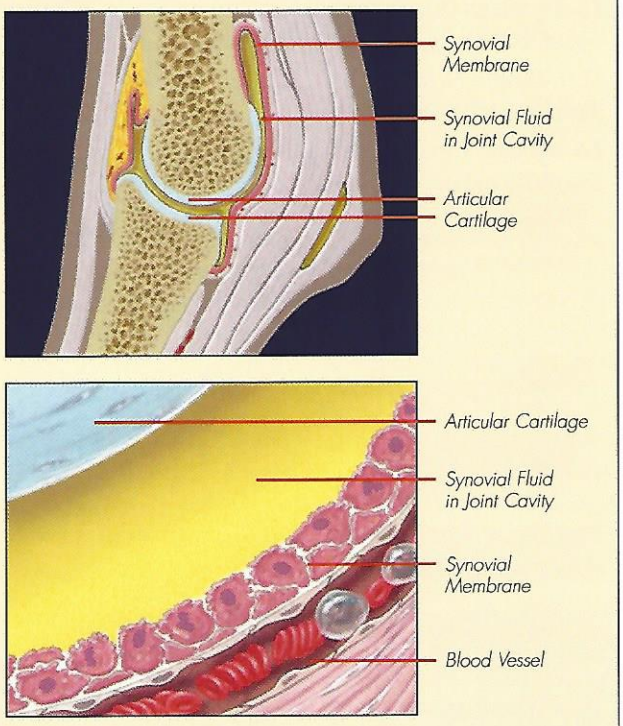
Why your horse is at risk: Regardless of how good your horse's conformation is, his risk of arthritis increases with every passing year. That's because the longer he lives, the bigger a target he becomes for injuries and wear and tear that lead to joint degeneration. His joints almost never get a break. Even standing at rest they're bearing his weight on tiny patches of cartilage.

Plus, there's a metabolic shift that occurs around age 15, leading to an escalation of cell death within bone, cartilage, and fibrous tissue. Tendons and ligaments become less elastic, more easily torn. Cartilage thins, absorbing less shock. Its shape changes, too, due to a lifetime of pressure and torque, causing joint bones to be less aligned and the cartilage, ligaments, and tendons more susceptible to strain.

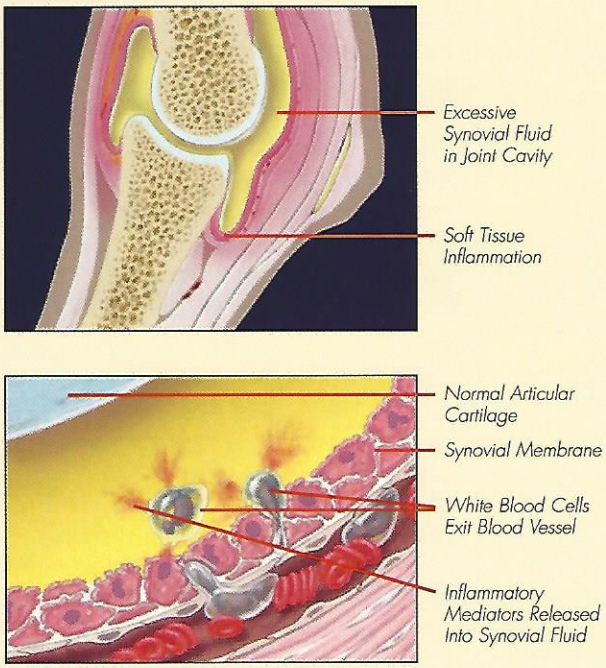
The faster you identify arthritis in your horse, the quicker you can attack it. There are two kinds of equine arthritis: the sneaky kind and the obvious kind. In the obvious kind, the joint's been traumatized or infected, so is sore enough to cause lameness. Your horse is lame – you call the vet. In the sneaky kind, the joint isn't sore at first, so there's little or no lameness. But that doesn't mean that arthritis isn't marching forward. The first signpost will be a little joint puffiness. If you don't look for it, you'll likely miss it-and miss out on your chance to help minimize future joint damage. Watch for these subtle but telltale signposts:

- Slight puffiness in lower-leg joints.
- Stiff, choppy gait when you first begin work, which improves when he warms up.

The healthy joint structure.

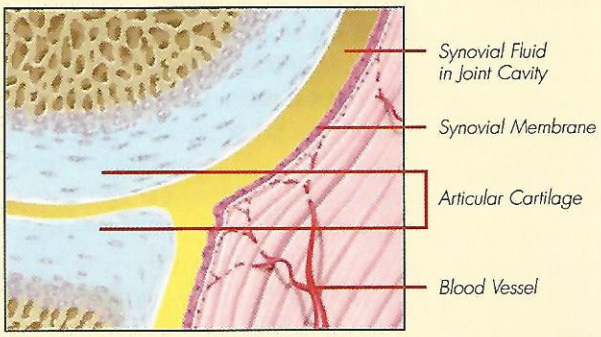


Inflamed joint.

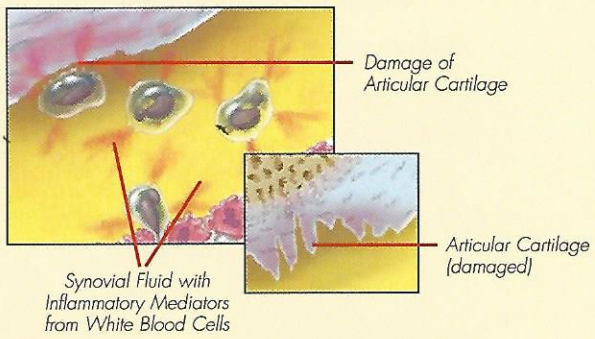


Joint disease is a progressive process.

Healthy joint.



Articular cartilage damage.



Articular cartilage damage can develop into Degenerative Joint Disease (DJD) or osteoarthritis. DJD cannot be corrected, only managed. The objective of early joint therapy is to limit inflammation and block the release of inflammatory mediators. The goal is to normalize the inflamed joint as quickly as possible—before permanent damage occurs.

- Reluctance and/or resistance to perform maneuvers that previously came easily for him, such as stops and collection. He may raise his head and hollow his back.

There are two kinds of equine arthritis: the sneaky kind and the obvious kind

It's important to achieve an accurate diagnosis as early as possible, since arthritis does irreparable damage if left to its own devices too long. Again, the signs of the disease are unfortunately subtle, ranging from performance problems (resisting lead changes, refusing jumps, etc.) to minor heat or swelling of the joint. If you suspect trouble, call your veterinarian. He or she will perform a lameness exam that may include diagnostic nerve blocks to pinpoint the affected joint, followed by X rays to assess severity and rule out other problems. ■

Lameness: Soft Tissue Injuries

Tendons and Ligaments

There are many reasons why a horse may become lame, such as arthritis, wounds, disease, foot problems, sprained/strained tendons and ligaments, and even broken bones. This article looks at the especially frustrating tendon and ligament injuries.

Tendons and ligaments occur throughout the body, but the ones that are injured most commonly in the horse are the flexor tendons and the suspensory ligament on the caudal (posterior—back) aspect of the canon bone, the fetlock joint, and the pastern region on all four legs.

To help with terminology: tendons attach muscle to bone and ligaments attach bone to bone. An injury can mean anything from a minor single area of strain/sprain to a generalized inflammation involving the entire structure or a core lesion or bow (meaning a true tear of the tendon or ligament fibers).

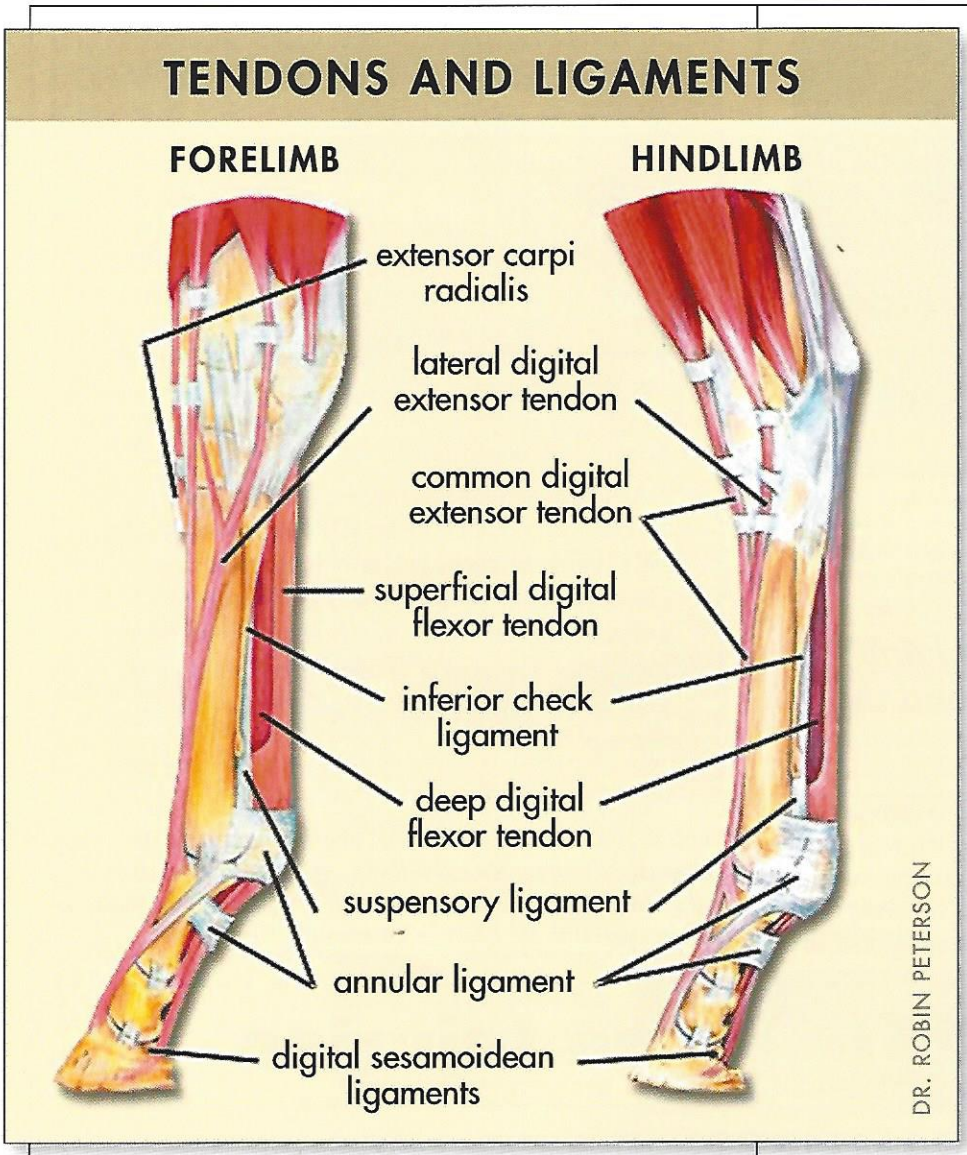
These injuries can occur from a single event such as a simple misstep, stepping into a hole, slipping in the mud, or getting cast in a fence. Or these injuries can be the result of mildly excessive strain due to training too hard, too fast, or too young, or on improper footing, over a period of time.

Once a horse has injured himself, the owner may note that the horse is lame, and/or has swelling behind the cannon bone (and downward), heat may be present, and the horse may be painful to palpation (manipulating the tendon/ligament).

Sometimes the horse may have minor inflammation, be injured, and not yet show any lameness. This is why it is important to always check your horse's legs before and after a ride for heat, swelling, and tenderness.

During the acute (initial) phase of the injury there are some

continued ⇨



basic first aid treatments that a horse owner can implement: stop the exercise, cold hose the leg for 20 minutes (hydrotherapy), confine to a stall, and place a standing stall bandage (after the leg is dry). Next, a veterinarian should be called to assess the damage and to give a recommended treatment protocol.

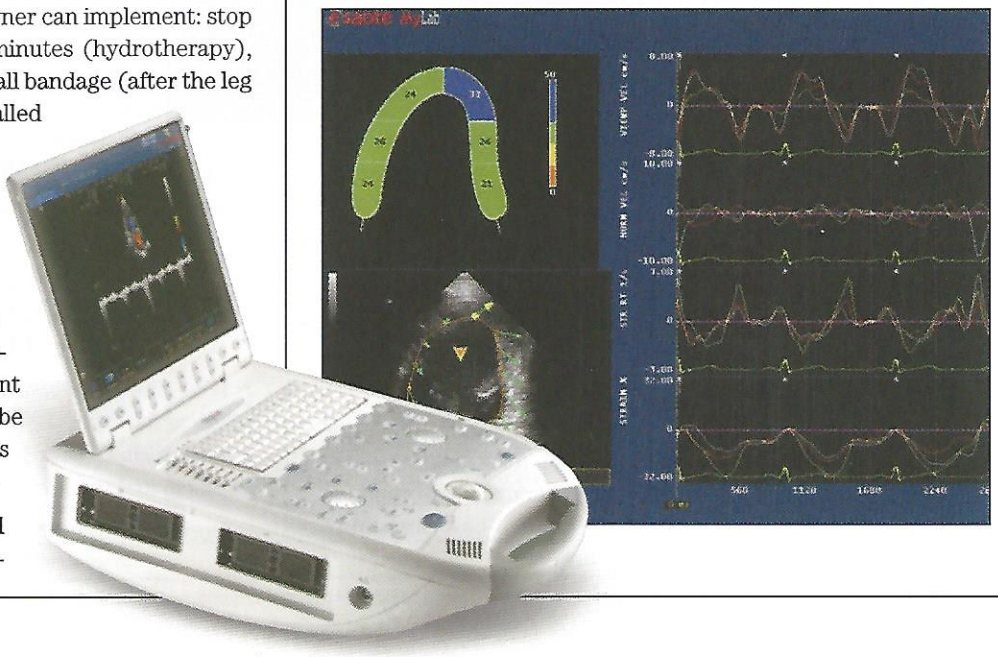
A veterinarian will listen to the horse's history, perform a modified lameness exam depending on the injury, and palpate the legs. Next, an ultrasound may be performed to precisely locate the lesion, and determine the extent of the damage. This ultrasound may be used in comparison to future ultrasounds in order to monitor the healing process.

The result of the initial ultrasound will allow the veterinarian to tailor a rehabilitation protocol for the horse. Don't be alarmed, but it may take six months to a year (or more) before the horse is up to full speed. The horse should not be turned out and left to his own devices until he is back to full work. This requires a lot of patience from the owner. A common mistake is bringing the horse back to full work too fast and re-injuring the same area. Unfortunately, tendons and ligaments do not heal well. There is a poor blood supply, and

...always check your horse's legs before and after a ride for heat, swelling, and tenderness

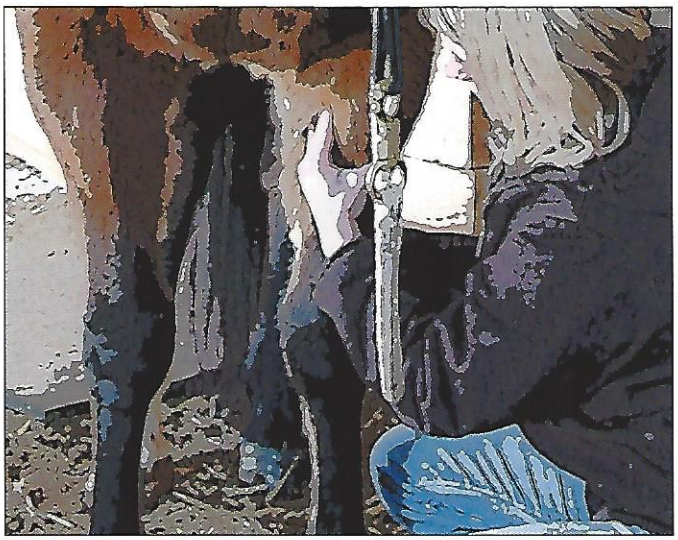
the healing process does not produce the same high-quality (elastic and strong) fibers as the originals. However, today treatment of tendon/ligament injuries have expanded beyond rest and controlled rehabilitation to modalities that can help restore the quality and elasticity of the tendon and ligament fibers. Among them are shock wave therapy, steroid injection(s), stem cell injection(s), and platlet-rich plasma (PRP). Each of these therapies may be beneficial for certain types and locations of injury. Ask your veterinarian if any of these modalities will be right for your horse.

Finally, tendon and ligament injuries can be devastating. It is critical to get your veterinarian involved during the acute stage and strictly adhering to a rehabilitation program. ■



Lameness Treatments

Starting off on the right foot



Prescription Treatment Options

Treatment options will depend on the type of lesion and the severity. Following is a list with a brief description of different options your veterinarian may offer you from topical and oral remedies to aggressive regenerative therapies.

SURPASS

Why treat the whole horse when you can target the specific joint? Surpass® topical cream is a unique formulation that lets you put the power where the pain is. Target pain precisely with Surpass® (1% diclofenac sodium) Topical Anti-Inflammatory Cream. Unique liposomal formulation is a novel approach to relieving osteoarthritis pain. Surpass®: Simply apply Surpass®

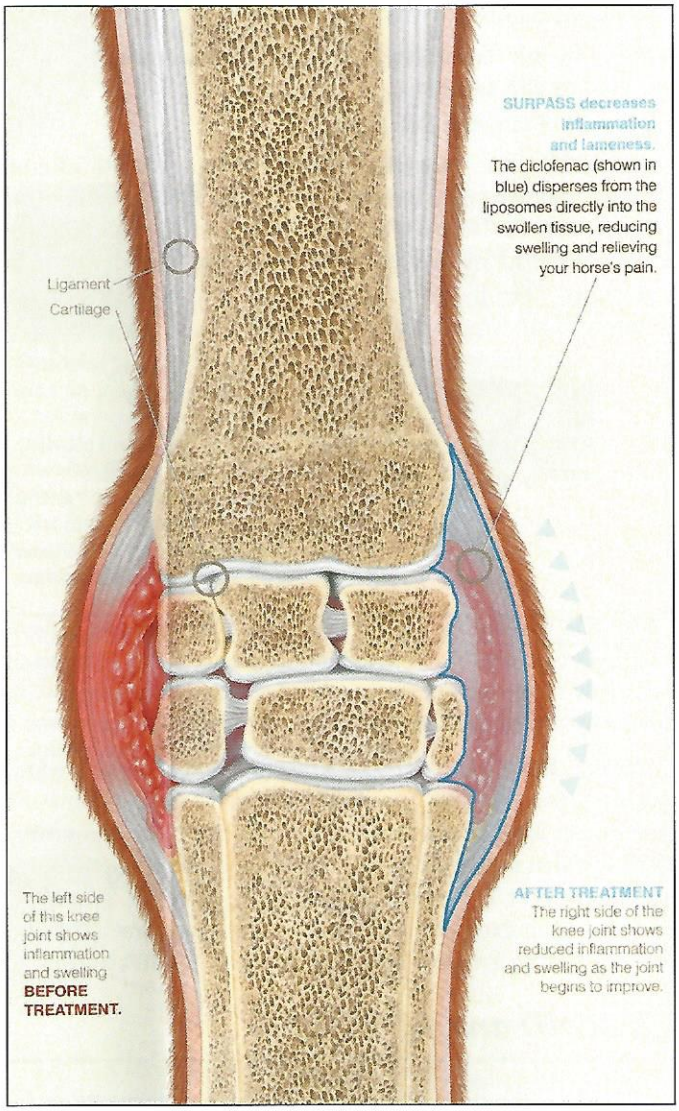


Diagram from the* SURPASS® *brochure

Topical Cream twice a day over the affected joint for up to ten days. Protective gloves should be worn. 124g tube.

(Surpass is permitted by the USEF)

- Proven to be effective
- Safe: localized application reduces toxicity risk associated with systemic NSAIDs
- Trusted for quality: manufactured to exacting standards
- Convenient: cream formulation is easily applied in minutes

treatments continued ⇨

EQUIOXX

EQUIOXX is a non-steroidal anti-inflammatory drug (NSAID), that is:

- Proven to relieve the pain and inflammation of equine OA.
- Prove in both field and laboratory trials to be safe at the recommended dose.
- Easily administered, once-a-day oral paste that is well-accepted by 98% of horses.
- 24 hours of targeted pain relief.

EQUIOXX is the only NSAID approved for use up to 14 consecutive days by the American Quarter Horse Association (AQHA) and the United States Equestrian Federation (USEF), when used at its recommended dose at least 12 hours prior to competing. This gives you the freedom to treat during longer events without skipping days.

EQUIOXX is the first coxib class Non-Steroidal Anti-Inflammatory Drug (NSAID) approved for horses in the US, formulated especially to alleviate the pain and inflammation associated with equine osteoarthritis.

EQUIOXX is the first COX-1 sparing drug to FDA approved for use in horses. The drug specifically targets COX-2, and enzyme responsible for inflammation and pain in the body, and spares COX-1, which is associated with many beneficial functions, including the protective mucous lining of the stomach. Therefore, this drug is an excellent alternative to Bute for horse's that are prone to gastric irritation and ulcers or need NSAID's long term.

LEGEND and ADEQUAN

The following two products can be used individually or together. They have been shown to improve the quality of lubricating fluid in the joints, (synovial fluid), as well as decreasing inflammatory byproducts within the joints. Adequan has an additional effect of "protecting" cartilage by reducing inflammation within the matrix of the cartilage.

The unique characteristics of these products are: (1) They have virtually no negative side effects - except price. (2) Legend and Adequan are administered systemically and therefore, all of the joints within the body stand to benefit by their use - including the back and neck (in addition, to all the joints of the legs). (3) because of their safety, they can be used frequently.

LEGEND

IV Legend is the only intra-venous joint therapy that is FDA approved. It is comprised of HA (hyaluronic acid). HA decreases further inflammation and damage to the joint and stimulates production of health joint fluid production.

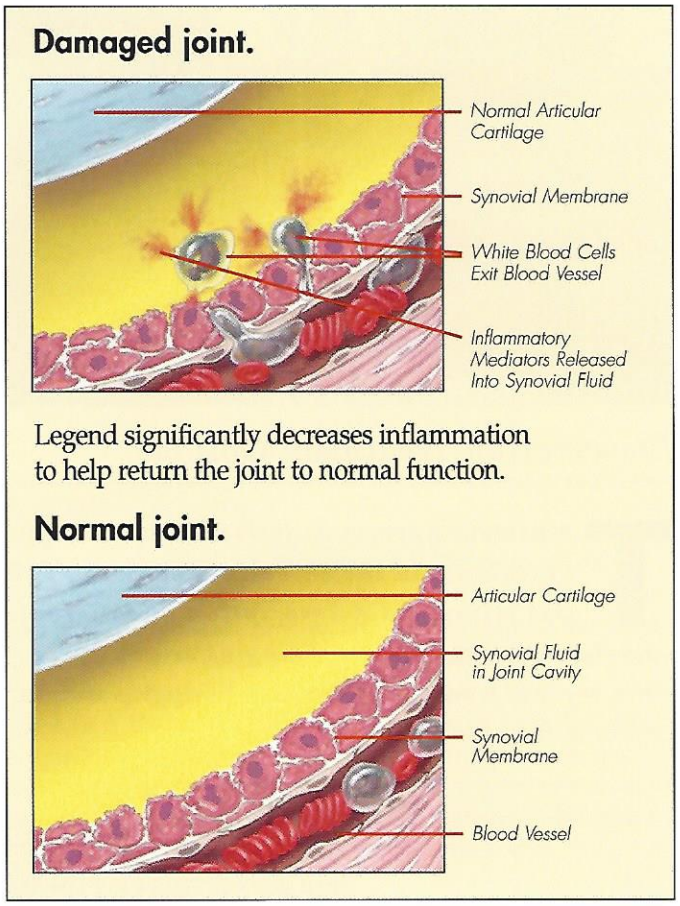
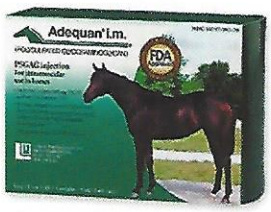


Diagram from the* LEGEND® *brochure

ADEQUAN

IM Adequan is an FDA approved intramuscular injection used to relieve symptoms of osteoarthritis and treat the underlying causes. In comparison to IV Legends, Adequan has the added benefit of stimulating cartilage repair and inhibiting the degenerative process of the joint.

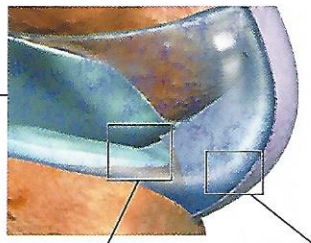


Diagrams on page 7 and page 8 (top) are taken from the* ADEQUAN® *brochure

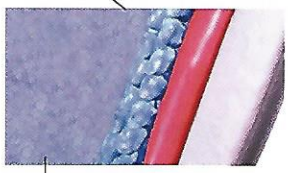
treatments continued on p.8 ⇨

Balanced joint

Sound horses have a natural "wear and repair" cycle for balanced joint function.

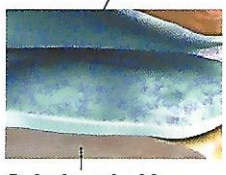


Joint capsule encloses the entire joint with an outer layer of blood vessels and sensory nerves.



Synovial membrane is the inner layer that acts as a permeable barrier and is very important to the balanced "wear and repair" cycle of the joint. This membrane filters blood, excludes the protein, and adds hyaluronic acid to form synovial (or joint) fluid.

Cartilage is a resilient white substance covering the ends of bones. The cartilage cells repair and replace components under normal wear and tear. The tough fibers and water-rich matrix give it "coil spring" resistance to shock and shear forces, and the capability to distribute loads evenly into the subchondral bone.

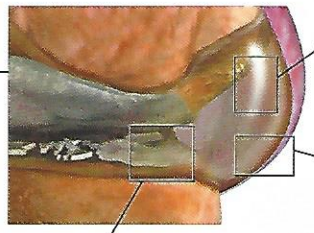


Subchondral bone absorbs the forces of movement and carries away waste from the joint.

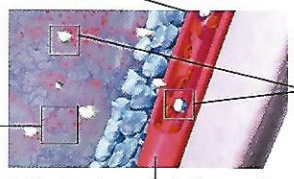
Synovial (Joint) fluid acts as the boundary lubricant of the joint capsule and synovial membrane, to keep unwanted cells out of the joint cavity. It also removes waste and nourishes the cartilage.

Dysfunctional joint

Inflamed joint is the early stage of degenerative joint disease causing mild pain, swelling and disruption to the balanced "wear and repair" cycle.



Destructive enzymes (red) released into the joint fluid break down the lubricant and barrier function.



Destructive enzymes (red)

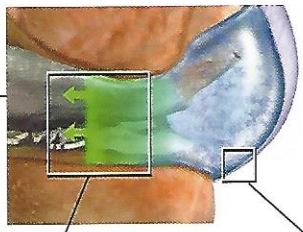
Inflamed synovial membrane allows unwanted cells to pass into the synovial (joint) fluid. These cells release destructive enzymes that attack the synovial fluid and cartilage.

Eroded cartilage allows damage to the subchondral bone causing more pain from bone spurs or chips and less ability to absorb shock. The health of the cartilage is critical to the performance of the joint.

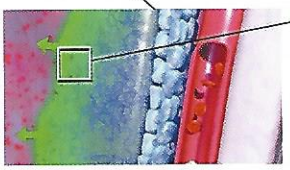
Damaged cartilage has less ability to repair itself and to distribute the forces of movement evenly into the subchondral bone.

Ideal treatment

Adequan® i.m. helps restore the natural balanced "wear and repair" cycle within the joint.

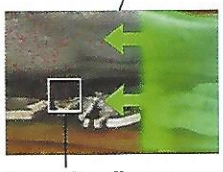


Stimulate cartilage repair. Adequan® i.m. rapidly aids in the production of new cartilage. The health of the cartilage is critical to the performance of the joint.



Restore synovial lubrication with Adequan® i.m. to facilitate joint movement. Clinical studies show that one intramuscular injection of 500 mg Adequan® i.m. induces a rapid, significant increase of synovial hyaluronic acid within 24 hours.

Decrease inflammation of the synovial membrane with Adequan® i.m.



Relieve pain caused by the swelling and inflammation associated with joint disease.

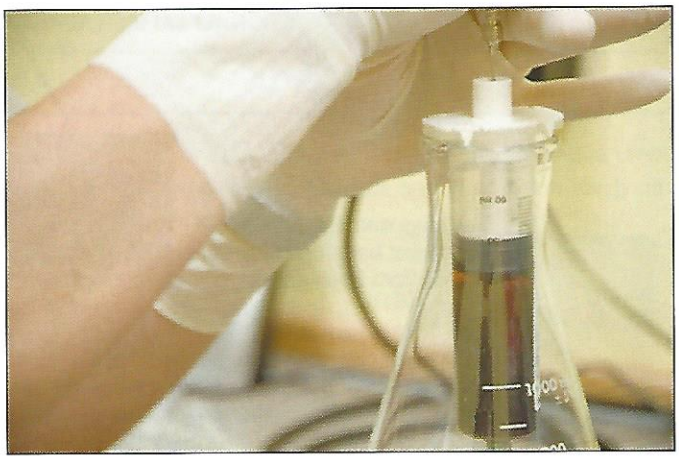
Stop the disease cycle. Adequan® i.m. inhibits harmful enzymes that attack the synovial fluid and cartilage.

IRAP

The use of Interleukin-1 receptor antagonist (IL-Ra) protein is one of the newest developments in the treatment of osteoarthritis. It is produced by withdrawing a sample of the patient's blood into a syringe containing specially treated Chromium glass beads. During a 24 hour incubation period, the red blood cells interact with the bead's surface stimulating the production of large quantities of IRAP and other anti-inflammatory proteins and

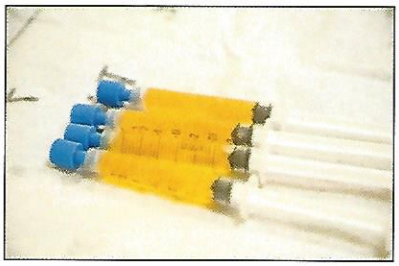
growth factors. The blood is then placed in a high-speed centrifuge to separate out the resulting serum which can be injected into a problem joint or frozen for future use.

Osteoarthritis can become a vicious cycle because damaged cartilage cells produce interleukins that incite further inflammation thereby breaking down cartilage even more. IRAP therapy can inhibit this disease process. IRAP competes with the degrading force of interleukin-1 (IL-1) for the same receptor sites in the horse's affected joint; therefore, by adding IRAP into a damaged joint, the less IL-1 will be able to harm your horse. IRAP is routinely used in young horses with relatively benign synovitis and capsulitis, horses in training with developing osteoarthritis and post-surgically if cartilage loss would otherwise decrease the prognosis for the athlete to return to competition. Used early



enough, IRAP treatment may be as close to a "cure" as veterinarian's have for some horses, halting the degenerative cycle before it spirals out of control.

PRP



The use of PRP for the treatment of a variety of soft tissue tendon and ligament injuries is rapidly expanding. After taking a sample of the patient's blood, in minutes a high-speed centrifuge separates blood plasma rich in platelets from the red blood cells. This PRP with its associated growth factors is then immediately injected into the soft tissue lesions creating what some call a "super-clot" that serves to help create a biologic scaffold upon which the body's own cells migrate and produce new collagen fibrils along lines of tension in the structure being treated. Sometimes even used in conjunction with stem cell treatment, PRP is a fast, stall-side treatment that uses the horse's own cells and molecules to stimulate more rapid and stronger healing in a variety of structures.

STEM CELL THERAPY

The recent advent of commercially available stem cell therapy opens the door to wonderful possibilities for treating injuries to tendons, degenerative joint disease, and some bone disorders. What once were career- or life-ending injuries now have the potential to heal using stem cells.

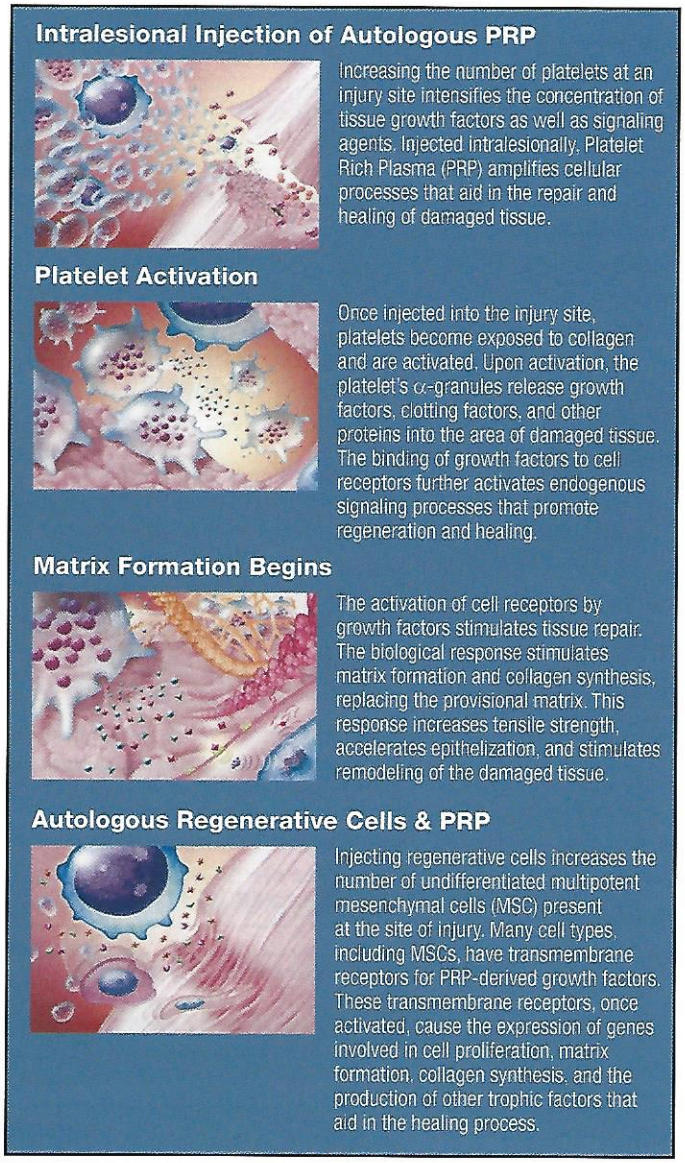


Chart taken from* Vet-Stem Regenerative Veterinary Medicine® *promotional materials

Early studies show great potential for this therapy such as stronger, faster tendon healing, repair of some osteochondrosis lesions, and possible uses even in severe degenerative joint disease.

By using a horse's own cells, some of the concerning side effects, such as tissue rejection, are eliminated. The procedure involves harvesting a small piece of the injured horse's fat (from the hindquarters), sending it to the VetStem lab for processing, and injecting it into the lesion 2-3 days later.

The fluid injected into a tendon core lesion, for example, contains that horse's own stem cells which will become the fibrous cells that make up the tendon and inflammatory mediating substances produced by the body. While this treatment is expensive, the benefits in healing and return to performance far out weigh the cost in the long run.

treatments continued ⇨

ORAL SUPPLEMENTS – BUYER BEWARE!

Oral Supplement Issues

The number of oral supplements available seems to be growing by the day. They come in many forms, including powder, pellet, liquid, and gel. These supplements are called "nutraceuticals," a term borrowed from the human industry. It refers to products that are neither feed nor drugs, but considered somewhere in between the two. It is important to note that only a drug can make a medical claim (treat or cure a problem). In contrast, these products are marketed as nutritional supplements with implied medical benefits.

Nutraceuticals are comprised of non-toxic food components that are sprinkled or poured on feed or given as pills or paste. Because they are not designated as drugs, they can be purchased without a veterinary prescription. The North American Veterinary Nutraceutical Council describes nutraceuticals as substances "produced in a purified or extracted form and administered orally to patients to provide agents required for normal body

structure and function, administered with the intent of improving the health and well-being of animals."

Unfortunately, there are many unanswered questions regarding nutraceuticals. One is whether or not they contain what the label states. The University of Maryland tested 27 glucosamine or chondroitin sulfate products in one study; a number of them didn't contain the amounts that were listed on the label. In addition, the amounts could even vary from month to month.

Medical products approved by FDA:	Relieve pain	Decrease inflamation	Restore synovial lubrication	Stimulate cartilage repair	Stop the cycle — inhibits cartilage damage and collapse
Polysulfated glycosaminoglycan Adequan® i.m. (POLYSULFATED GLYCOSAMINOGLYCAN)	X	X	X	X	X
Sodium Hyaluronate: Hylartin® V (sodium hyaluronate) Hyvisc® (hyaluronate sodium) Hyalovet® (hyaluronic acid sodium salt injection) Legend® (hyaluronate sodium)	X	X	X		
Non-steroidal anti-inflammatory drugs (NSAIDs): Equiphen® Paste (phenylbutazone) Banamine® (flunixin meglumine) Ketofen® (ketoprofen) Surpass® (1% diclofenac sodium)	X	X			
Anti-inflammatory Corticosteroids: Depo-Medrol® (methylprednisolone acetate) Vetalog® (triamcinolone acetonide)	X	X			

Comparison chart from the **Adequan®** *brochure*

Unfortunately for the consumer, the product names used in this study were not released. Keep in mind that manufacturers are not required by law to guarantee the amount of each ingredient or describe the product's action. Furthermore, "effective" dosage levels of these substances have not been determined in horses. In other words, there are no guarantees whatsoever of ingredient levels or efficacy in horses.

Wayne McIlwraith, BVSc, PhD, FRCVS, DSc, Dr. med vet (hc), Dipl. ACVS, Director of Orthopaedic Research at the College of Veterinary Medicine and Biomedical Sciences at Colorado State University, recently published a review that contained information about nutraceuticals. McIlwraith says, "Many nutraceuticals

or nutritional supplements marketed for the horse are illegal because the manufacturer has not complied with FDA ingredient-recognition processes, not completed ingredient-definition applications as described by the Association of American Feed Control Officials (AAFCO), not followed state licensing requirements, and/or made false claims on the product label."

Only a drug can make a medical claim... these products are marketed as nutritional supplements with implied medical benefits.

Medical products fall under the FDA and must undergo rigorous testing, be properly labeled, and show effectiveness. Nutritional products do not need to meet these same requirements.

Right now, U.S. laws make it exceedingly difficult for any regulatory agencies to get involved. Companies often use unsupported, vague claims that are outside the regulatory arena. Since the FDA pays little attention to the equine nutraceutical market, there is no incentive for a manufacturer to get a license.

treatments continued ⇨

Pop Quiz: Tendons

How knowledgeable are you on the critical connectors between muscle and bone? Take this quick test to find out.

QUESTION:

Tendons connect muscle to bone, transmitting muscular effort into skeletal motion. Normally, these dense bands of fibrous connective tissues are plenty strong enough to withstand the loading of each stride. But injured tendons do not heal well. Inflammation subsides slowly and scarring proliferates, leading to permanent lameness. A rider's choice of riding techniques and conditions can have critical effects on tendon health. Which of the following situations raise(s) the risk for tendon injury?

a. sudden increase in performance demand

b. uneven footing

c. deep or muddy footing

d. sudden, jolting stops

ANSWER:

All of the above. Tendons not sufficiently strengthened by progressive training are unable to withstand upward leaps in work demand. Uneven and slippery footing sets the stage for missteps, while deep going greatly increases the workload of the tendons. Finally, hard, jolting stops override the limbs' shock-absorbing system to the detriment of the tendons. Whatever the specific source of the strain may be, the breakdown of tendon fibers and resulting inflammation are the common causes of tendon failure.

***Quiz from* EQUUS**

EAST COAST EQUINE
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Lameness Treatments *(from page 11)*

The Bottom Line

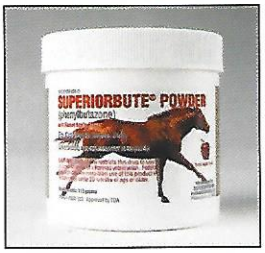
It is unfortunate that people spend a great deal of money on products that have:

- Variable purity;
- Little to no evidence of efficacy; and
- An implausible mechanism of action.

McIlwraith concluded, "It is to be emphasized that when equine veterinarians use licensed medications, the patient gets the best care in that an accurate diagnosis is made. It is an unfortunate reality that many instances of lameness and joint disease are presented after client-prescribed periods of oral nutraceuticals have failed to yield results."

Still, there are many people who believe these oral supplements are helping their horses, and maybe they are. However, until there are scientific, repeatable studies done utilizing large numbers of animals, horse owners really don't know to what extent these products are effective. The best course of action is to talk to your veterinarian about a complete treatment regime. ■

MORE PRODUCT NEWS



We now carry SUPERIORBUTE® POWDER. It is the first FDA approved apple flavored Bute powder and is highly palatable. Please visit **www.butepowder.com** for more information.

NEW FROM WEDGEWOOD PHARMACY:

Pergolide in a granule formula - a safer alternative to powder. The larger particle size helps reduce the risk of Pergolide exposure. Granule formula comes in alfalfa or apple flavors.

Pergolide Rx Bites (chewable tab or wafer) are now available in an assorted flavor package for those equines that are wise to one flavor. Gourmeds Chew Tabs are available in Apple, Peppermint, Alfalfa, Molasses, and Fenugreek flavors.

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