Horse&Rider MONTHLY

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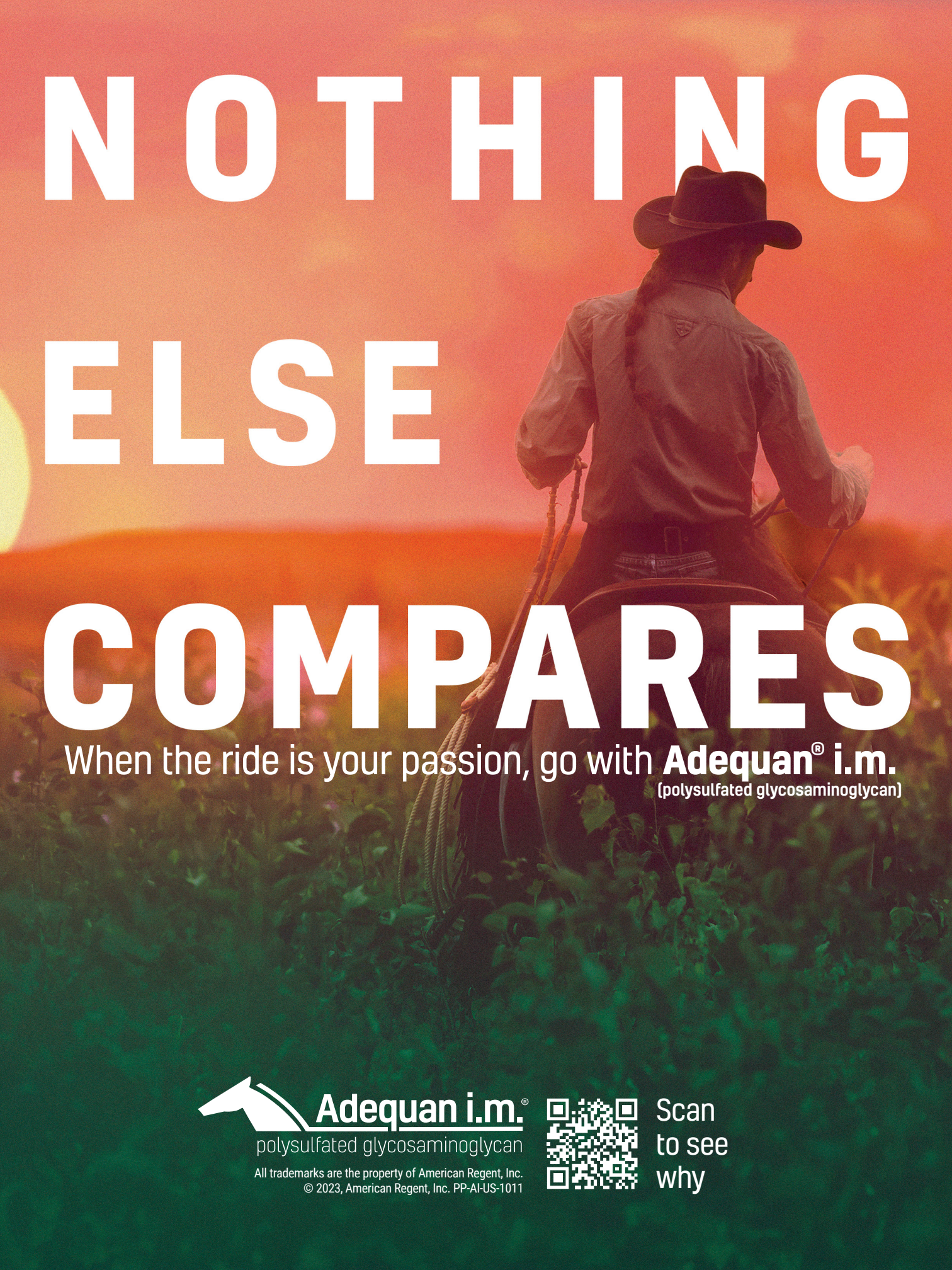

Horse Life

TRAIN / HEALTH

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BY DEVIN CONLEY

Exploring the Causes of Equine Stiffness

★ There Could Be Many Reasons Your Horse Is Experiencing Stiffness. From Inactivity To Injury, Let's Look At Some Of The Most Common Causes.

Walking for 10-15 minutes at the beginning of your warm-up can set your horse up for success.

PHOTO BY DEVIN CONLEY

Your trusty, go-to horse is saddled and ready to ride. Maybe it's been a little while since you two have been able to hit the road together. Perhaps he's an older horse that has been out to pasture, or he's just been on the backburner for a while. You swing a leg over, and begin warming him up, and you notice some stiffness. Maybe a little bit of reluctance to do common tasks. A horse can experience stiffness during exercise for various reasons, ranging from temporary factors to underlying health issues. Let's take a look at some common reasons your horse might be exhibiting stiffness or discomfort. And when it's time to take it more seriously.

Improper Warm-Up

If you're climbing aboard and jumping straight into the difficult maneuvers without giving your horse a proper warm-up, that could very well be the problem. Think about stepping out of bed and running a marathon without a chance to stretch, limber up, and warm-up your muscles. You'd be miserable!

A proper warm-up serves your horse in a variety of ways. It increases blood flow to his muscles and organs. A warm-up allows him the chance to stretch his ligaments. It gently take his joints through a full range of movement. It even helps focus his mind so he can concentrate on what you're asking.

If he is showing signs of stiffness, do not underestimate how beneficial a period of long walking can be. Walk him around for at least 10-15 minutes before asking for faster gaits or difficult maneuvers. Encourage him to use his body correctly and ask for him to stride out in an extended walk as well, to use his joints in a full range of movement. Continue to warm him up thoroughly at a trot and lope if he is comfortable and balanced. Be aware of his level of stiffness. If he appears to warm-up out of it, that is common in horses that have been inactive and just need to get back in the swing of things. If his stiffness increases the more he moves, this could be the sign of a deeper problem.

Poor Body Condition, Unbalanced, or Out Of Shape

First things first, if he is severely underweight or in poor body condition, hard exercise is a hard no. If he is just simply out of shape, he might be stiff coming back into work. This is where your patience is going to come into play. It's up to you to implement an exercise program appropriate for his level of condition and fitness. Don't pull him out of his pasture after a 3-month hiatus and expect him to be performing sliding stops the same day. Bringing your horse back into condition is a lengthy process and requires your attention to ensure he comes back to work safely.

If you're unsure of where to start, consult your veterinarian for an exercise regime to help him build up his strength. Walking or trotting over poles, walking uphill, and long trotting in straight lines are great ways to build up the hind end. Groundwork that involves flexing and extending, back lifts, and pelvic tucks are beneficial for building his core strength.

If he is unbalanced in his movement, or lacking confidence, this can also contribute to stiffness. This can be seen in horses that are missing fundamental training elements and are rushed through the process. If he is unbalanced or uncomfortable at the lope, picking up leads, or not using his body correctly, it can present as discomfort or stiffness. →

Arthritis

When arthritis sets in, it can take a toll on a horse's mobility. Stiffness is often the initial sign, appearing as resistance to movement or a reluctance to fully extend his limbs. The stiffness can be especially pronounced after a period of rest, like in the morning or following a period of inactivity. This occurs because the synovial fluid, which normally lubricates and nourishes his joints, becomes less effective due to inflammation.

Now sometimes, as a horse with arthritis begins to move and engage in exercise, the stiffness might ease to some extent. The gentle movement helps to stimulate blood flow. This encourages the synovial fluid to provide a better lubricating effect for the joints. This is why you might notice an improvement in his mobility after a proper warm-up. The increase in circulation helps to reduce the discomfort temporarily and allows him to move more freely.

However, this relief is often short-lived. Once your horse rests or remains inactive for a while, the inflammation and degradation within the joints can resurface, bringing back the stiffness. This post-exercise setback can be challenging for both the horse and rider. The intermittent nature of the stiffness can make it challenging to pinpoint the cause initially. But with time and consistent observation, patterns become clearer. Be aware of his baseline health. If you notice consistent stiffness that returns after time off, or inactivity, it might be time to work with your vet. There are many great options to manage comfortable movement for your horse, including those that use natural and safe ingredients.

Injury

Although we don't want to jump straight to worst case scenario, he might be moving differently because he is injured. Sometimes injury doesn't present as head bobbing lameness and can be more nuanced. If he doesn't warm-up out of his stiffness, or this has come on overnight, put in a call to your vet. You know your horse, so be on the lookout for new behavior. If he begins to refuse tasks that he was doing a week ago, this could be cause for concern. If your Steady Eddy humps up his back and throws a buck at you suddenly, look into this deeper.

Weather, Tack, and Your Riding Position

Cold weather can exacerbate existing problems such as arthritis. If it's the first cold day of the year and you notice some slight stiffness—in an older horse especially—the temperature might be to blame. The cold can cause his muscles to be tight and contracted, leading to stiff movement until he is warmed up.

Groundwork can be a valuable part of bringing your horse back to exercise.

PHOTO BY ANNABELL GSODL/ADOBE.STOCK.COM

An ill-fitted saddle can not only lead to hindered or stiff movement, but serious health issues. If your saddle is pinching, rubbing, or rocking, it can throw him off balance, or even damage his back. If you just bought a new saddle and notice your horse moving differently, check the saddle fit with an experienced saddle fitter.

Another reason your horse might be moving with stiffness or discomfort could fall squarely on your shoulders. Our body position affects his movement, and we can get in his way when we're not riding correctly. Even the way you position your feet can have an impact on his movement. If you're unsure if you're riding correctly, seek out a professional trainer in your area to take a few lessons. Have a friend video your ride to see if you look out of balanced. Even if you've been riding for ages, we should always seek to continue to be the best we can be for our horse.

Take It Seriously

Even slight stiffness should grab your attention, especially if it's new. Although it might just be a case of sore muscles from a hard workout the day before, or inactivity, it's important to be tuned in. Discomfort and stiffness attributed to arthritis, age, and other life factors are things that can be managed with the proper care. Work with your veterinarian to decide on a course of action. This might involve a special exercise regime, a supplement formulated for daily use to support comfortable movement, or further intervention. Either way, don't disregard stiffness without diving in deeper to determine the cause—and keep your beloved horse comfortable for years to come. ★

What The Hock Is And What It Does

★ This Hock and Joint article is part of our Joint and Hoof Health Awareness Month. Brought to you by Cosequin Joint Health Supplements.

A horse that can use his hocks well, and therefore hindquarters, can run faster, jump higher, pull harder, and stop quicker.

PHOTO BY 42BEATS/STOCK.ADOBE.COM

Your horse's hock is at once his most powerful and vulnerable joint. A horse that can use his hocks well can run faster, jump higher, pull harder, and stop quicker. But if your horse's hock is hurting, his performance potential plummets. And, unfortunately, because the it's such a complex joint, there's a lot that can go wrong. First, it's important to understand what it is and how it works.

What Is The Hock?

The hock, or tarsus, is the complex joint that allows quick locomotion and durability for your horse. This is the joint that allows the hind legs to quickly flex forward in the stride to prepare the quadriceps to powerfully propel him as the hocks extend. The anatomy of the hock is complex.

Tibio Tarsal Joint

To begin, the tibio tarsal joint is the highest joint and responsible for most of the movement. It's lubricated by synovial fluid that's produced and maintained by the articular cells that line the joint and protect the underlying bone. The synovial fluid is also responsible for absorbing concussion forces as the weight is distributed over the joints.

Proximal and Distal Intertarsal Joints

Next, there's the proximal and distal intertarsal joints. It may share some of the synovial fluid in the higher joints. The lowest joint in the hock is the tarso metatarsal joint. This joint usually possesses its own joint fluid, which may not communicate with the others.

Durable Joint Capsule

The durable joint capsule suspends the joint fluid in each respective joint space. It's important to have a good quality fluid in order for protection and efficiency. Although the lower three joints combined only account for 5% of the total motion, they're responsible for a substantial amount of problems.

This complex joint is surrounded by a host of important blood vessels, ligaments, nerves, and tendons. There are no muscles around or below the hock in order for the tendonous structures to maneuver the distal limb. The digital flexor tendons pass through and over the inside and back part of the hock, and are critical in supporting your horse's weight. The Achilles (gastrocnemius) tendon runs down the back of the limb above the hock and attaches on the point of the hock. If this tendon is cut, the whole function of the hock is lost, the hock folds, and a horse cannot support any weight.

Your horse is built so his stifle, hock, fetlock, and foot move in unison. This allows him to rest while one leg is locked. It's also instrumental in his ability to create powerful, concentrated propulsion. ★

BY **KEN MCNABB**, WITH **ALEXIS BENNETT** PHOTOS BY **MALLORY BEINBORN**

TRAIL-SOUND

Be sure your next trail horse is sound enough for his job with these tips

To become the trustworthy, reliable, and dependable trail horse you count on in the backcountry, your horse has to be used. In the process, he'll rack up some scrapes, bumps, and cosmetic issues. A few cosmetic issues are OK, but when you're in the market to buy a trail horse, you need him to be more than reliable. You need him to be sound.

Here I'll explain common health-history, appearance, and movement issues that can indicate future soundness issues that could influence your horse's usability on the trail. With each soundness consideration, I'll give you the green light to go ahead, yellow to proceed with caution, and red light—which you know means don't go further with the horse purchase. These clues will help you buy with confidence, ensuring that your horse isn't just reliable, but trail-sound.

ISSUES IN **HEALTH HISTORY**

A horse's history demonstrates how much he's been used and how sound he's likely to be in the future. Though many great horses have issues as the result of being used and becoming a great horse in the process, some are too much to manage and become non-negotiable for a trail rider in the market to buy.

● **Arthritis:** Yellow light.
Proceed with caution and know how you'll primarily ride before you buy. Though arthritis can be managed with joint supplements, NSAIDs, and cold and heat therapy, it'll never go away. Heavier riders, such as large men; those interested in difficult backcountry riding; or a rider who'll use the horse more than five times per week will struggle to manage worsening arthritis. Even with the best management, a flare-up can stop a ride prematurely if your horse is in too much pain to go on. If, however, you're a physically light rider, such as a youth, smaller adult, or someone who only plans to ride lightly in easier terrain, you can look past mild arthritis.

● **Bowed and/or Strained Tendons and Ligaments:** Yellow light.
Proceed with caution unless you have the experience and patience to help your horse fully recover from this type of injury. Once a horse strains his tendon past what it's accustomed to, it doesn't just affect his ability to pack into the mountains; it also impacts his soundness in the arena. Proper recovery is key, and it's not unusual for injuries like this to take six to eight months to fully heal. Though the same exact location is unlikely to reinjure after it's correctly rehabbed, heavy, long backcountry travel is demanding on your horse's structure, especially if he's

A horse doesn't have to have perfect conformation or be fully conditioned in order to be a great trail prospect. He does need to be generally structurally correct and sturdy enough for the demands of your riding.

predisposed to this type of issue. Get a thorough veterinary exam before you purchase.

● **Navicular:** Red light.
In the past, navicular was a career-ending diagnosis for a horse. While it's more manageable now, it's not curable and will eventually cause unsoundness in your horse. A youth rider or someone who's interested in light riding may be able to manage pre-existing navicular with corrective shoeing and other therapies. If the case is severe or you're a serious trail rider, steer clear all together.

● **Stifle Injury:** Red light.
Injuries to the stifle joint are temperamental. If a prospect has a pre-existing issue that you know about, pass on him unless you're positive that he's been safely and slowly rehabilitated without subsequent flare-ups and issues. Know that he'll need to be more carefully conditioned for the rest of his life to avoid problems. If you don't know the sellers well and aren't sure about his rehabilitation success, it's best to pass. With this type of joint injury, it can worsen to the point that he's no longer sound to ride at all—not even for light riding.

● **Stringhalt:** Red light.
Any irregularity in a horse's gait in the hind end is a deal-breaker for me. It could be due to a neurological issue or caused by an injury. Often this occurs in a trail horse if he gets his leg stuck in deep mud and pulls it. This stretches the tendon farther than its natural range, causing this issue. Like a stifle issue, it can be rehabbed to some extent, but it's difficult to manage, even after it's healed and he's properly conditioned.

● **Stone Bruising and Sore Feet:** Green light.
A horse with sore feet or stone bruising likely lives in an area with few rocks, so he has sore feet. Ride on soft ground and give him time to heal, and he'll be ready to go. If you plan to ride in difficult terrain where he's likely to re-bruise, his feet will need to become conditioned. Hard, rocky ground toughens feet, which results in fewer stone bruises on the trail. Let him get conditioned in his natural environment by not trying to protect him from hard ground, and then have him shod before your next rocky ride. To give him his best chance to avoid issues, always watch where you ride and choose the least harsh option.

● **Quarter Cracks:** Yellow light.
Cracks are fixable, and like poor feet, he needs feed, conditioning, farrier care, and patience to get his feet back into shape. This comes at a cost though, so consider your budget and timeframe before purchasing a foot project.

A horse's feet are his base. Small chips, cracks, and other issues aren't deal-breakers. But, you have to know how much care is required to get his feet back to trail riding shape, and if you have the patience for it.

ISSUES IN **APPEARANCE**

A non-show horse doesn't need to be a showstopper if he has the experience and temperament for trail riding. But he does need to have attractive structure. Unappealing structure typically means abnormalities that cause inefficient movement. Over time, poor movement strains his body, and especially his joints, causing soundness issues.

● **Poor Body Condition:** Green light.
Don't shy away from a skinny, poorly conditioned horse just because he doesn't look attractive. He won't have a nice, sleek coat or appear muscled and ready to ride, but so long as he's structurally correct, doesn't have major soundness issues, and has the experi-

ence you need, he'll still be a great trail horse. With feed, exercise, and time, even a poorly conditioned horse is a great fit. *Caveat:* Be sure his condition isn't due to a chronic illness or disease.

● **Weak Muscular Structure:** Red light. Unlike poor body score, which indicates that he hasn't been well cared for, weak muscular structure is an issue with the base. A horse without a solid base won't be ready for difficult riding, even with the most expensive feeding program and rigorous riding schedule. This is because he either has a muscle disorder or simply is too slight in build to support the type of riding you plan to do.

● **Angular Irregularities:** Yellow light. While slight irregularities in pastern and hoof angle are manageable with shoeing, a horse with noticeable abnormalities, such as severe toe-out or toe-in, will inevitably experience issues. He'll develop bony processes and arthritis, which is manageable for a light, inactive rider, but non-negotiable for a serious trail rider.

If you don't plan to use him for high-level performance, slight structural angular issues aren't deal-breakers. A horse that's slightly toed-in or out, has too steep shoulders and hips, a long back, or sickle hocks will work for recreational and less strenuous trail riding. Seek out the help of a good farrier who'll shoe and trim to your horse's structure to manage the abnormalities, keeping him sound and staving off long-term issues, such as arthritis.

● **Poor Feet:** Green light. Shelly, soft feet intimidate riders because good feet are such a necessity for all riding, but especially if you ride outside of the arena. Don't let poor feet scare you away from a prospect though. A good feeding program, supplements, conditioning, and regular trimming and farrier care will improve a horse's feet in time. Even if he never has great feet, they'll be strong enough and conditioned for trail terrain. You can also consider using hoof boots to help compensate for lack of hoof strength.

ISSUES IN **MOVEMENT**

If a horse doesn't move well and he doesn't have any apparent structural issues, it's either an undisclosed pre-existing issue or a sign that there's one on the way. Don't just look at a prospect and ask about his history; watch him go and look for indications of unsoundness.

● **Rough Gait:** Green light. If he stabs the ground with his toes or trips in his front end often, it's usually not a sign of injury. He either needs a trim or is lazy, which are both solvable issues. Tripping in an exposed area can mean serious injury, so you'll want to be sure to solve these problems at home before you head out on the trail. Have him trimmed or shod and encourage him to pick up his feet with drills and exercises. Work him over obstacles, such as trail poles in your arena. If he continues to walk lazily, know that he can be a safety hazard in the backcountry.

● **Head Bobbing:** Red light. Head bobbing is always a sign of lameness. If you see that he has a hitch in his gait and the seller hasn't shared any lameness, move on. He or she isn't being honest with you. If the lameness is new, work with the seller to enlist a veterinarian for a soundness check to discover the root cause before you invest in more vet care. If the owners balk at the suggestion, keep shopping. It's possible there are other undisclosed issues.

● **Stiff Flexion:** Yellow light. Before you invest in a vet check, do some pre-screening of your own with a flexion test. Hold him flexed at each joint, flexing his fetlocks, hocks, and shoulders, and then trot him off after each flexion test. If he comes off of the static hold stiff, he'll need a vet check to determine the root cause. The stiffness can be from an injury or the beginning of a long-term condition, such as arthritis. If he's an older horse that's been off for a while, it's possible that he's stiff from inactivity. Joint supplements and progressive conditioning should get him back in shape.

● **General Stiffness:** Yellow light. If as you ride, or as you watch the horse go, you notice stiffness in his movement that's not related to training, beware. If he carries his head funny, is unable to stride out, or can't bend and flex his neck, it could be due to an injury that hasn't been well managed in his shoulders, back, or elsewhere. He'll need additional vet screening or body work before he's ready for you.

● **Hind-End Irregularity:** Red light. Funny, irregular, or weak movement in the back end often indicates a back issue. If he's out of shape, it might be that he lacks the strength to properly carry himself. While the appearance of his topline will improve with conditioning, back issues themselves aren't solvable with exercise. Saddle fit and pad selection will also be more difficult for a horse like this. It's best to pass and keep looking.

● **Winging Out or Paddling:** Red light. A horse that flares his legs out when he moves has a joint deviation at his knees or fetlocks. This movement causes strain to the joint every time he moves and is exacerbated with difficult riding. If you're the type of trail rider who enjoys difficult trails, multi-day trips, or who rides frequently, know that even if a horse doesn't have visible issues now, he will later, and most likely it'll be arthritis. To check for the source of the winging or paddling, start with his knee. Fully bend his knee and look at his leg. If it flares out or in from his knee, rather than aligning straight, the knee is the abnormality. To check the fetlock, bend his fetlock and watch whether it arches straight or off to either side. If it doesn't align straight, his fetlock is the issue. ★

BY BARB CRABBE, DVM

OH, MY ACHING JOINTS!

Learn Why Joint Disease Is A Leading Cause Of Lameness—And How Advances In Diagnosis And Treatment Can Increase The Odds Your Horse Will Stay Sound.

PHOTO BY PROMA/STOCK.ADOBE.COM

Joints equal movement, and movement equals athletic performance. In fact, when it comes right down to it, muscles, tendons, and ligaments—all of the critical structures in your horse's musculoskeletal system—are simply there to help joints move. When joints move freely and smoothly, your horse does, too. And when they don't, troubles begin.

What's The Scoop?

Estimates say that 60 percent of all lameness is due to osteoarthritis. It's defined by joint disease expert Dr. Wayne McIlwraith of Colorado State University as a "progressive deterioration of the articular cartilage accompanied by changes in the bone and soft tissues of the joint." That's why there's so much attention paid to discovering new techniques for accurately diagnosing and effectively treating joint disease.

In this article, we're going to take an up-close look at your horse's joints, including how they function and how things go wrong. Then, we'll see how new technologies continue to improve our ability to diagnose and treat joint problems in your horse. Finally, you can refer to our comprehensive overview of treatment options.

Joint Structure

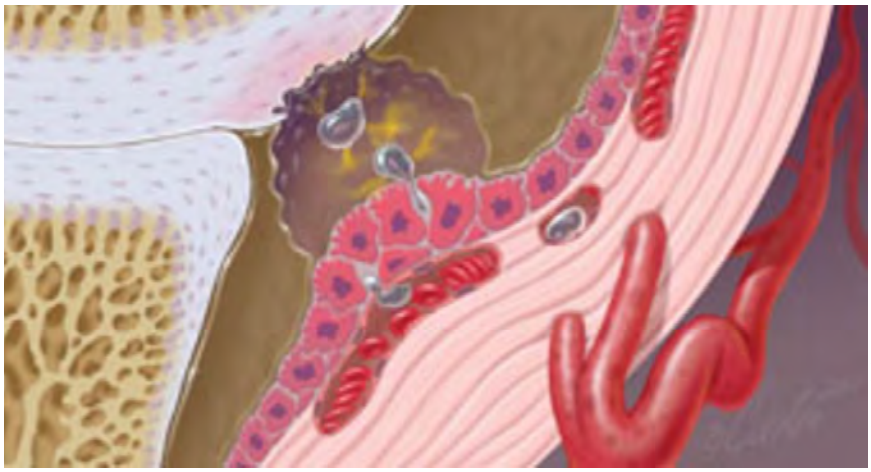
Simply put, joints are the connections between bones that allow for movement. Every joint has the same basic design made up of the following structures.

Joint capsule. A fibrous layer that encloses the entire joint, it contains blood vessels and nerves that help supply nutrients and maintain joint function. Synovial (joint) membrane. A thin layer of tissue that filters blood and produces synovial fluid.

Synovial fluid. Fluid released by cells of the synovial membrane that helps cushion the joint. It also provides nutrients to the cartilage and lubrication that facilitates joint movement.

Cartilage. A fibrous, white covering over the ends of the bones that makes up the actual gliding surface of the joint. The cartilage also has shock-absorbing properties that help distribute stresses placed on the joints during movement.

Subchondral bone. The layer of bone directly below the cartilage that helps absorb shock, and carries nutrients and waste to and from the joint.



H&R FILE PHOTO

As joint disease progresses, the synovial lining becomes inflamed. Enzymes and other large molecules are released into the synovial fluid, wreaking havoc on the surface of the cartilage.

Gone Wrong

Periarticular support structures. Tendons and ligaments surrounding the joint that help maintain stability. Most joints have a pair of collateral ligaments on the medial (inside) and lateral (outside) that provide support, in addition to various other small ligaments that contribute to the joint's function.

Why does joint disease happen? According to Dr. McIlwraith, injuries occur either due to abnormal forces on normal cartilage, or normal forces on abnormal cartilage. In other words, a normal, healthy joint can become damaged with a sudden traumatic event such as a fall or twist in the pasture, or due to heavy repetitive use that's commonly a part of everyday life for a hard-working performance horse. And if the cartilage in a joint is abnormal to begin with (for example, due to developmental orthopedic disease), simply strolling around the pasture can result in enough trauma to cause the joint to begin deteriorating.

As joint disease progresses, the synovial lining becomes inflamed. Enzymes and other large molecules are released into the synovial fluid, wreaking havoc on the surface of the cartilage.

Any of the joint structures can be the first to be damaged—leading to a cascade of events that eventually involves most of the joint. Commonly, synovitis, or inflammation of the synovial lining, is the first thing that happens, often as a result of repetitive, cyclical trauma. When the synovium becomes inflamed, enzymes and other large molecules (called inflammatory mediators) are released into the synovial fluid. From the outside, you'll see fluid accumulation (effusion) in the joint capsule that can make the joints appear swollen or enlarged. From the inside, the enzymes and other substances released wreak havoc on the surface of the cartilage, and the process of joint degeneration begins.

It's also possible that an injury to one of the soft-tissue supporting structures of the joint can start the process of degeneration by causing instability of the joint. This results in inflammation, synovitis, and eventual cartilage breakdown. Finally, splitting and fragmentation of the cartilage or microfractures of the underlying bone can be the initial insults that begin the process. No matter how it starts, once the process of degeneration begins, it's usually progressive over time. →

Making a Diagnosis

Perhaps the most important part of diagnosing joint disease is doing it early, because early treatment can help break the cycle of degeneration and slow progression. What steps should you take.

Clinical exam. Even with more advanced diagnostic tests being made available every year, a hands-on exam of your horse may still be the most important step for making an early diagnosis. Lameness, pain with flexion, and effusion are three early signs that a joint is in danger, and mean you should take a closer look, because early treatment at this stage could help prevent long-term damage. Call your vet as soon you see any of these signs. As the disease progresses, you'll see swelling or thickening of the joint and a decreased range of motion.

Radiographs. Radiographs are the first thing most people think of when trying to diagnose arthritis in the joints, yet they're really most useful when damage is already severe. A radiograph won't detect any of the early stages of joint disease, such as inflammation of the synovial lining, abnormal joint fluid, soft-tissue injuries, or inflammation of the underlying bone. Unless it's so severe that the joint space is narrowed or cartilage defects extend to underlying bone, even cartilage damage won't show up on radiographs in a majority of cases. Does that mean you should skip radiographs altogether? Absolutely not. Radiographs will show signs of advanced disease, and are still useful for monitoring progression in a horse with osteoarthritis.

Ultrasound. Once thought of only for diagnosing soft-tissue injuries, ultrasound of joints can now be an important part of diagnosing osteoarthritis, particularly of the stifle joint. Debris can be seen floating in the joint fluid, and thickening of the synovial lining and ligament injuries in the supporting structures also can be seen. Damaged cartilage that can't be seen on radiographs will often be visible with an ultrasound exam. Many abnormalities can be seen with ultrasound in a joint that looks normal on a radiograph. More and more commonly, ultrasound is recommended for examination of a joint.

Nuclear scintigraphy. Scintigraphy or "bone scan" involves injection of a radioactive substance into your horse's bloodstream that then accumulates in areas of inflammation because of increased blood flow. This can be very sensitive for detecting inflammation of the subchondral bone, a potential early sign of osteoarthritis.

Magnetic resonance imaging (MRI). MRI produces a detailed picture of all of the structures of the joint, and can be the most specific diagnostic tool for identifying joint disease at any stage of the game. MRI exams may be performed either standing or under general anesthesia. In general, standing MRI is best for examining structures from the fetlock down, where movement is less likely to be a problem, while general anesthesia will be necessary for joints above the fetlock.

Looking Forward

If early diagnosis is the key, wouldn't it be great if a simple blood test could give evidence of early joint disease? It sure would, and recent research has identified specific substances called "biomarkers" that are detectable not only in the joint fluid, but also in the bloodstream of horses with compromised joints.

'Regular blood tests for biomarkers of at-risk horses could identify those with early, otherwise undetectable joint disease.'

Although these tests aren't currently available to most horse owners, they look promising in the research setting, and may someday be routinely offered by your veterinarian. Regular blood tests for biomarkers of at-risk horses could identify those with early, otherwise undetectable joint disease. Once identified, these horses could be carefully examined, and treated early—potentially halting osteoarthritis in its tracks.

Treatment Options

If 60 percent of lameness is due to joint disease, it's easy to see why there's so much emphasis on discovering new and more effective treatments. From the "tried and true" to the "new and cool," a wide variety of treatment options is available. Here, I'll name each treatment, explain how it helps, give you the benefits and downsides, and supply an estimated cost.

Systemic (oral or injectable) NSAIDS. Non-steroidal anti-inflammatories include phenylbutazone, flunixin meglumine (Banamine), and firocoxib (Equioxx). NSAIDS inhibit specific enzymes to block pathways of inflammation. This not only helps control pain and lameness, but can also minimize damage caused by inflammatory mediators released in the early stages of joint disease. NSAIDS are generally inexpensive and effective. Because they're administered systemically, they impact multiple joints. NSAIDS can have toxic effects on the kidneys and the GI tract. Of the available choices, firocoxib is the least toxic, because it more specifically blocks one side of the inflammatory pathway, sparing substances (called prostaglandins) that can be protective. Cost is estimated between $0.50 and $15 a day, depending on the drug and form used.

Topical NSAID (diclofenamic acid, or Surpass). This anti-inflammatory cream is applied directly over the diseased joint and helps minimize damaging effects of inflammation. It's been shown to be "disease modifying," meaning it not only controls symptoms but also can improve the overall health of the treated joint. This treatment only affects the joint that's treated, limiting its usefulness for horses with multiple diseased joints or when a specific diagnosis is not available. Expect to pay between $60

and $80 for a tube of cream that can treat a specific joint for two to three weeks, depending on size of the area covered.

Intra-articular corticosteroids. A corticosteroid injected directly into the joint is one of the more efficient and effective ways of controlling inflammation. By controlling inflammation, subsequent damage and progression of disease is minimized. Significant improvement in signs of pain and lameness is usually observed following injection. Contrary to popular belief, injection of steroids into a diseased joint will have no negative effect on future joint health. That said, there is risk of joint infection if proper precautions aren't taken during the injection process, and frequent injection with high doses of some types of steroids can degrade the joint over time. A single joint injection will typically cost between $100 and $300, and will be most expensive if another substance, such as hyaluronic acid, is included in the injection.

PHOTO BY SARAH/STOCK.ADOBE.COM

Regular blood tests for biomarkers of at-risk horses could identify those with early, otherwise undetectable joint disease.

Intra-articular hyaluronic acid (HA). HA injected directly into the joint provides lubrication and nutrition. Most commonly, HA will be injected in conjunction with a corticosteroid. HA injection can help improve overall joint health. As with steroids, direct injection into joints carries the risk for infection if proper precautions aren't taken during the injection process. A single joint injection with HA will typically cost between $100 and $300. Similar to corticosteroids, cost will vary depending on what combination of medications is used.

Interleukin receptor antagonist protein (IRAP). For this treatment, your horse's blood is collected and processed in order to obtain a substance that, when injected into the joint, blocks the receptors for interleukin. Interleukin is one of the most significant inflammatory mediators that causes damage in the diseased joint. Joints treated with IRAP show reduced lameness, reduced synovial inflammation, and improved cartilage health. Most experts agree that this is one of the most promising and effective joint treatments available. IRAP therapy is expensive, though, and most effective when performed early in the progression of the disease. Unfortunately, it's often not used until later in the disease process, after other therapies have failed. There is some chance of an adverse reaction with increased heat, swelling, and pain following a second injection into a joint. Preparation of IRAP for injection can range as high as several thousand dollars, which produces enough to perform a series of two to three injections.

Intravenous hyaluronic acid (Legend). Three IV injections administered at weekly intervals are recommended to improve lubrication and nutrition to the joints. The treatment may have some anti-inflammatory effect. Because it's administered into the bloodstream rather than directly into the joint, IV hyaluronic acid can benefit multiple joints with a single treatment. Cost is $90 to $120 per injection.

Intramuscular polysulfated glycosaminoglycan (Adequan). Seven IM injections at four-day intervals are recommended to improve cartilage health. Like Legend, Adequan is administered systemically rather than into a single joint, meaning it can benefit multiple joints with a single treatment. Because it's administered into the muscle, it can easily be administered by most horse owners. Cost ranges from $40 to $50 per injection.

Intramuscular pentosan polysulfate. Four weekly IM injections are suggested to improve cartilage health and the quality of the synovial fluid in addition to having some anti-inflammatory effect. Like Adequan, it's administered in the muscle, making it easy for horse owners to administer and useful for treating horses with multiple-joint involvement. Pentosan is an Australian drug that's not FDA-approved for use in the United States, meaning it's generally available only through compounding pharmacies. Cost is $50 to $80 per injection.

Oral joint supplements. These feed additives contain a variety of different substances, most commonly including chondroitin sulfate, glucosamine, or hyaluronic acid, that are believed to provide nutrition and protection to the joints. It can cost $100 per month or more to maintain your horse on an oral joint supplement. ★