



RECOGNIZING PAIN IN HORSES

What is pain? According to *Saunders Comprehensive Veterinary Dictionary*: **pain** a feeling of distress, suffering or agony, caused by stimulation of specialized nerve endings. Its purpose is chiefly protective; it acts as a warning that tissues are being damaged and induces the sufferer to remove or withdraw from the source.

Pain is a protective mechanism of the body, it is meant to be beneficial. If something hurts, you don't use it - you protect it from further damage. But, how do you judge when pain is beneficial and when it is causing too much discomfort? How do you know when animals are in pain?

Pain has three classifications: Acute pain has a sudden onset; such as colic, laminitis, or trauma. Chronic pain is constant. Some days are better than others, but it's never gone. This would include caudal heel syndrome (formally called navicular disease), ringbone, spavins and other arthritic conditions. Transient pain could be from an old injury, recurrent ulcers or other gastrointestinal problems. The dilemma in working with animals in pain has always been how to reduce the discomfort without causing overuse of an injury site. Assessing the amount of pain an animal feels is key in treatment. Horses are prey animals - meaning that they are food sources for hunting carnivores - and are genetically programmed not to display pain. The weaker animal will lose its place in the pecking order of the herd or may be subject to attack by predators.

Acute pain is the easiest to detect - the horse is limping, has a gaping wound, an altered stance or refuses to stand. The change is immediately recognizable. Chronic or transient pain is harder to assess. There may be only subtle changes in the animal. Has the horse become more temperamental or sullen recently? Have their eating or drinking habits changed? Has their athletic performance changed - such as refusing jumps or preferring to take one lead over the other? A horse that has started defecating in its water bucket may be sitting on the bucket in an attempt to take weight off its hind end. A horse that stops lying down may be having trouble getting up - indicating arthritic joint issues. Is the horse always resting or pointing one foot? Horses with caudal heel syndrome (navicular) mound shavings or dirt to stand on which they use to elevate their heels to take the pressure off the digital flexor tendons. Horses are very good at compensating for a leg injury by modifying their way of going to put more weight on the other three good legs.

Pain perception varies with the individual animal. Just as in people, some horses have a higher level of pain tolerance than others. What one horse shows on the surface another horse may take in stride. Blood tests can indicate an increase in cortisol which is a hormone produced during stress, but stress may not be a factor in chronic pain. The person that knows the horse's personality is in the best position to judge subtle changes in behavior. Once you decide that there is a problem, a veterinarian should be consulted to identify the underlying cause of the pain and devise a plan as to how to treat it.



Acute pain is most often controlled by the use of very potent drugs like opioids, available only through a veterinarian. These drugs are administered via injection or transdermally (through the skin) by using a patch. Opioids are controlled substances and require extra supervision by the veterinarian. More common non-steroidal anti-inflammatories (NSAIDs) such as phenylbutazone (Bute), ketoprofen and flunixin meglumine (Banamine) can be obtained by a horse owner with a prescription. These drugs help reduce inflammation as well as provide analgesia (pain relief). Nothing is without risk; all drugs can have side effects. With long term use, NSAIDs can cause damage to the gastrointestinal system and the kidneys. Prostaglandins are substances produced by the body. Some of these are responsible for initiating the inflammatory process; others are used to protect the linings of organs. NSAIDs indiscriminately block the production of these prostaglandins. Production of the substances that protect the lining of the stomach and intestines are reduced which can lead to GI upset and ulcers. Drug therapies need to be carefully monitored and discussed with a veterinarian.

Another class of drugs is corticosteroids. These drugs are very potent anti-inflammatories that are relatively inexpensive. They come in injectable form and can be injected directly into an arthritic joint. Again, nothing is without risk. The injections have to be done by a veterinarian in a sterile procedure. The joint has to be clipped and scrubbed with antimicrobial agents to prevent bacteria from being introduced to the joint. This is especially important because steroids suppress immune response and an infection could quickly get out of control. Steroids used in this manner need to be used in low doses. High doses of steroids injected into a joint can suppress the joints ability to produce new cells and actually do more harm than good.

One of the most common sources of chronic pain in horses is from degenerative joint disease, more commonly called arthritis. The ends of the bones that form joints are covered with a hard, glassy covering called hyaline cartilage. This cartilage acts like a Teflon coating to protect the underlying bone from wear and tear. Cartilage has no nerve endings, so as long as it is in tact, there should be no pain from cartilage on cartilage contact. Due to trauma, joint deformities (crooked legs) or just long term repeated activities, the cartilage can become damaged and torn or chipped away. Once the cartilage is no longer protecting the bone endings, there will be bone on bone contact. Bone, which does have nerve endings, becomes painful and inflammation sets in. Arthritis can be diagnosed through physical examination, radiographs (x-rays), and nerve blocking.

Horse owners should be aware of alternatives to traditional drug therapies. Dimethylsulfoxide (DMSO) is a by product of the wood and paper making industry. It has been used widely as an industrial solvent since 1953. In the early 1960s DMSO was investigated for use in organ transplants as an organ preservative. It was discovered that DMSO can penetrate the skin quickly and it has anti-inflammatory and analgesic properties. DMSO also has the ability to carry other drugs with it as it penetrates the skin. It can be applied topically to the skin, with or without added drugs, to provide pain relief and reduce swelling. If using DMSO be sure to obtain a medical grade product to reduce the chance that it contains impurities. You also want to clean the area where it will be applied to avoid carrying in bacteria that may be on the surface of the skin. Wear gloves when applying DMSO to the horse, especially if medications have been added, as this substance will penetrate your skin.



Methylsulfonmethane (MSM) is a dietary derivative of DMSO. It is a natural form of dietary sulfur. MSM, when taken orally, can provide the body with nutritional sulfur it may be lacking. Sulfur helps make the body's cell walls more permeable and allows more nutrients and oxygen to flow in. Dietary sulfur is needed to synthesize collagen. Collagen is a protein that is necessary for maintaining skin, connective tissue and bones. Having adequate amounts of dietary sulfur available in the diet can increase strength and flexibility of the tissues.

Polysulfated glycosaminoglycan, know by the trade name Adequan, has been available for horses since 1984. It was originally produced as a compound that had to be injected directly into the joint, but has since been formulated for intra-muscular injection. Adequan helps arthritis by blocking the production of enzymes that can damage cartilage inhibiting the degeneration before damage can occur. It also has anti-inflammatory properties and improves the lubrication of joints.

Hyaluronic acid is a natural component of joint fluid. Joint fluid is contained in a capsule that surrounds a joint to help provide lubrication and viscosity to the cartilage. It acts as a shock absorber and provides nutrients and oxygen to the joint tissues. During the arthritic process hyaluronic acid becomes degraded, much like the oil in your car's engine, and it needs to be replenished. Hyaluronic acid is available under the trade name Legend and can be administered as intra-articular or intra-venous injections.

Nutriceuticals are not considered drugs, but dietary supplements. These are things like chondroitin sulfates, glucosamines, vitamins, and herbal products. Some of the common trade names include Cosequin, Flex-Free, and Fluid-Flex. A recent search of an on-line equine supply company yielded 113 products under the category of joint supplements. With the exception of Cosequin, little research has been done to prove the effectiveness of these products. The horse owner is on their own to choose among the variety of products that exist. Most of these products have gained popularity by anecdotal evidence and word of mouth.

Homeopathy and herbal products have been used for more that 150 years to treat medical conditions in people. Recently these products have been used to treat similar conditions in animals. If you are buying products from an herbalist or homeopath, be sure that they have a background in treating animals. Some common herbs that can be readily used by humans can be toxic to animals; an herbalist not familiar with animal physiology could inadvertently poison your horse.

Acupuncture and acupressure (acupressure is applying fingertip pressure to Acupoints rather than inserting a needle) can be used to treat pain. Acupuncture/pressure is an ancient form of medicine developed in China. It involves inserting thin needles or applying pressure to specific points on the body. Each point lies on a meridian or pathway where energy flows through the body. Energy can become blocked along these pathways causing discomfort or disease. Acupuncture/pressure restores the flow of energy bringing the body back into a balanced state. Acupuncture/pressure causes the release of endorphins, the body's natural pain fighting chemicals; blocks the transmission of pain signals to the brain; and deactivates trigger points. Trigger points are painful areas that develop in muscles and connective tissue in the body.



Chiropractic and massage are two other modalities that can ease pain. These two forms of bodywork can work in conjunction to help ease pain. Chiropractors help to restore normal bone alignment and free joint motion. When bones are out of alignment, especially the bones of the spine, they can compress nerves which can lead to pain and disuse of an area. When pain becomes an issue, muscles in the area contract to protect the area from further harm. Massage involves acting on and manipulating the body with pressure (structured, unstructured, stationary, and/or moving), tension, motion, or vibration done manually or with mechanical aids. Massage can relax the tightness and release trigger points associated with pain. Once the muscles are relaxed, the joints can be restored to their normal range of motion - increasing flexibility.

As you can see, the horse owner has many avenues to choose from when it comes to pain relief. Once the problem has been recognized and diagnosed there are many avenues that can be explored to provide comfort to the animal.