

Pain Management in Horses

Horses experience acute and chronic pain, and managing pain is critical to minimizing secondary problems

Overview

The term “pain” stems from the Latin word *peona*—a penalty. For those of us who have actually experienced real pain or witnessed a person or animal in pain, this is obviously a gross understatement. Even the “textbook” definition of pain as unpleasant sensation or awareness of a noxious stimulus due to actual or perceived tissue damage, fails to truly communicate how intense and unbearable pain can be.¹

How exactly does one become aware of pain? According to experts in pain management, “pain” is transmitted by specific nerves (e.g., peripheral nerves in the limbs) from the site of injury to the central nervous system (the spinal cord and brain) where it is consciously appreciated.¹

Recent research has shown that the sensation of pain is actually more complex than described here because pain signals are modified at various sites along the “pain pathway”; however, the elements described here are the key players involved in nociception (the sensation of pain).² Stimuli that can activate the pain pathway include extreme heat or cold, tearing, crushing, penetrating injuries, or chemicals/toxins.

Albeit unpleasant (to say the least), pain is important for bodily defense as it triggers a reflexive action to retract from the painful stimulus and modifies the animal’s behavior to avoid that particular painful situation again (think of burning your finger after touching something hot).

Types of Pain

Pain can be classified in a number of ways (e.g., acute, chronic, adaptive, maladaptive) or based on the “type” of pain. Nociceptive pain, caused by a painful stimulus, is probably the most common “type” of pain in horses and results from tissue damage due to chemical, thermal, or mechanical events. Nociceptive pain is often divided into three different subclasses:

1. Superficial (somatic, cutaneous) pain



A horse in pain can present as listless, depressed, and just not himself.

is due to injury to the skin or superficial tissues and is typically caused by minor cuts or first-degree burns;

2. Deep somatic pain from ligaments, tendons, bones, muscles, connective tissues, or blood vessels (e.g., sprains and fractures); and

3. Visceral pain (e.g., colic pain) is caused by damage to internal organs.

Causes of Pain

Horses can suffer from a range of painful stimuli. Some examples are (listed from mild to severe):³

- Minor cuts/scrapes, fly bites, osteochondrosis dissecans (OCD) lesions, minor medical procedures (e.g., endoscopic-guided biopsy, castration, arthroscopy), and minor musculoskeletal injuries such as a soft-tissue strain or bowed tendon.
- Corneal (eye) ulcer, joint infection, abdominal surgery, and fractures.
- Peritonitis (inflammation of the abdominal lining), exertional rhabdomyolysis (tying-up), and laminitis/founder with rotation and sinking of the coffin bone.

It is important to note that the level of pain a horse experiences (e.g., on a scale

from 1–10) can vary over time. Horses with osteoarthritis often suffer only mild bouts of musculoskeletal pain but can intermittently experience moderate to severe episodes. Therefore, it’s important to monitor pain in horses with ongoing diseases.

Signs of Pain in Horses

When in pain, the exact signs a horse displays will vary depending on the cause, the horse’s normal demeanor, the degree of pain, and the horse’s overall health.³

For example, horses with musculoskeletal pain can show a reluctance to move, hold one or more limbs in an abnormal/unusual position, and spend an increased amount of time lying down. Horses experiencing abdominal pain often kick, bite, or stare at their abdomens; frequently lie down then stand up; and sweat profusely, roll, groan, and grind their teeth.

Finally, horses experiencing chronic pain (e.g., long-standing laminitis or severe osteoarthritis) often experience weight loss, changes in eating and drinking patterns, and a decreased responsiveness to external stimuli. These signs are much different than those described for horses experiencing acute pain, characterized by restlessness, an anxious appearance, dilated pupils and glassy eyes, flared nostrils, muscle tremors, profuse sweating, and increased respiratory and heart rates.^{3,4}

Pain Scales

For most of us, recognizing a horse with acute pain (e.g., colic) or with an obvious injury is fairly straight forward; however, chronic pain can go unnoticed. A number of pain scales exist for horses, usually designed for specific conditions (e.g., the colic pain scale, lameness grading scale ranging from 0 to 5, the Obel grading system for laminitic horses). In lieu of using these scales, owners are encouraged to assess their horses’ behavior daily to watch for the subtle signs of pain/discomfort.⁴

Managing Pain with Drugs

Multiple drug classes that impact the transmission of pain at various points along the pain pathways can be selected and used either solely or in various combinations.

These include non-steroidal anti-inflammatory drugs (e.g., phenylbutazone or flunixin); steroids (e.g., dexamethasone); local anesthetics (e.g., lidocaine); opiates or narcotics (e.g., morphine, butorphanol); and alpha-2 agonists (e.g., xylazine); dissociative anesthetics (e.g., ketamine).

Drugs can be administered via various routes including systemic routes such as intravenously (IV), intramuscularly (IM), subcutaneously (SC/SQ), orally (per os, PO); via epidural injection into the spinal canal but outside the spinal cord); and topically/transdermally (through the skin).

Pain medications are often combined “balanced” or “multimodal” approaches, which help control pain using lower doses of drugs that work via multiple methods of action.

This approach may also decrease the occurrence of side effects, such as ulcers, diarrhea, protein loss, and kidney dam-

age that are associated with NSAIDs, for example.⁵

Other Pain-Management Methods

Alternate pain-management strategies include providing appropriate nursing/supportive care by creating a quiet, comfortable environment (e.g., deep bedding), applying heat or ice to the affected area, hydrotherapy, bandaging or splinting, physical therapy, extracorporeal shock wave therapy (ESWT), surgery (e.g., to repair an injury), surgically desensitizing an anatomic region via neurectomy (e.g., partial or total excision or resection of a nerve), and the use of complementary and alternative therapies (CAM) such as chiropractic and nutritional supplements.

Acupuncture, also considered a CAM, is increasingly used to help control pain. At the 2011 American Association of Equine Practitioner's Convention, the topic of acupuncture and equine pain was thoroughly reviewed and the author, James Kenney, DVM, relayed that studies support using acupuncture for horses with back pain and hoof sole pain, as well as visceral pain.⁶

Experts attest that avoiding wind-up—

the progressive increase in pain sensation resulting in hyperalgesia (increased pain sense)—is one of the most important reasons to institute adequate pain management strategies in horses early in the course of treatment. Controlling pain also can decrease the risk for problems such as gastric ulceration, colitis, and depression.⁴ 🐾

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