One of the primary reasons veterinarians reach for NSAIDs is to treat musculoskeletal disorders. Cribb discussed the general effects of NSAIDs during his presentation. Among other topics, he covered how NSAIDs work through blocking cyclooxygenase (COX) enzymes, which are responsible for producing prostaglandins.

He reviewed with veterinarians how NSAIDs work primarily through blocking cyclooxygenase (COX) enzymes, which are responsible for producing prostaglandins. The COX enzymes include COX-1 and COX-2. COX-1 remains active in the body, and is involved in maintaining the structure and function of cells, inhibiting the movement of white blood cells, and protecting the gastrointestinal mucosa. COX-2 is a response gene that is induced when a tissue is injured and is responsible for producing large quantities of prostaglandins. NSAIDs are synthetic nonsteroidal anti-inflammatory drugs (NSAIDs) that are used to treat pain and inflammation. These include aspirin, phenylbutazone (Bute), ketoprofen, flunixin meglumine (Banamine), meloxicam, and firocoxib. Some of these drugs are nonselective, such as aspirin and phenylbutazone, and they inhibit both COX-1 and COX-2. Others are selective, such as meloxicam or firocoxib, which only inhibit COX-2.

Cribb listed the NSAIDs currently approved for use in horses: flunixin meglumine (Banamine), phenylbutazone (PBZ, Bute), ketoprofen, firocoxib, aspirin, and topical diclofenac cream. He added meloxicam to his discussion because while it is currently not labeled for use in horses in North America, it is allowed for use in Canada, the United Kingdom, and Australia. The newest NSAID, meloxicam, is COX-2 selective.

The newer selective inhibitors, including firocoxib and meloxicam, which only inhibit COX-2, are known as nonselective. When an NSAID affects both COX-1 and COX-2 pathways, it can lead to nonspecific health problems. Those that are nonselective and inhibit production of all prostaglandins (hormone-like products the body produces), including COX-1 and COX-2 prostaglandins, are not recommended for use in horses because they can cause COX-1-mediated problems.

PGE2 (a type of prostaglandin) concentrations in experimental synovitis (inflammation of the synovial membrane) cases. Meloxicam and Bute were similarly effective in reducing joint temperature, but firocoxib and Bute had comparable effects. Flunixin, Bute, and a relatively high dose of firocoxib decreased heart rate (an indicator of blood flow through the kidneys), including COX-1, which is important for maintaining health of the intestinal lining. Flunixin, Bute, and a relatively high dose of firocoxib decreased heart rate (an indicator of blood flow through the kidneys). Flunixin and meloxicam improved both objective and subjective lameness scores better than Bute. Meloxicam improved both objective and subjective lameness scores better than Bute. In a study of naturally occurring osteoarthritis, researchers found that a loading dose of three times the label dose was necessary, as firocoxib takes four to five days to reach steady state and maximum efficacy. And, in a study of naturally occurring osteoarthritis, researchers found that a loading dose of three times the label dose was necessary, as firocoxib takes four to five days to reach steady state and maximum efficacy.

Colic is a painful abdominal condition that generally necessitates NSAID use. With this and other conditions, minimizing gastrointestinal side effects, says Cribb. For laminitis, because neuropathic pain (which arises when damaged, dysfunctional, or injured nerve membrane) cases. Meloxicam and Bute were similarly effective in reducing joint temperature, but firocoxib and Bute had comparable effects. Flunixin, Bute, and a relatively high dose of firocoxib decreased heart rate (an indicator of blood flow through the kidneys); and PGE2 (a type of prostaglandin) concentrations in experimental synovitis (inflammation of the synovial membrane) cases. Meloxicam and Bute were similarly effective in reducing joint temperature, but firocoxib and Bute had comparable effects. Flunixin, Bute, and a relatively high dose of firocoxib decreased heart rate (an indicator of blood flow through the kidneys); and PGE2 (a type of prostaglandin) concentrations in experimental synovitis (inflammation of the synovial membrane) cases. Meloxicam and Bute were similarly effective in reducing joint temperature, but firocoxib and Bute had comparable effects. Flunixin, Bute, and a relatively high dose of firocoxib decreased heart rate (an indicator of blood flow through the kidneys); and PGE2 (a type of prostaglandin) concentrations in experimental synovitis (inflammation of the synovial membrane) cases.