

Prescription Anti-inflammatories vs. Natural Therapies

When we think of inflammation, we almost inevitably think of pain. One of the most common sources of pain in horses, humans and dogs is joint pain, whether if that is related to a malformation or poorly formed joint, an injury to the joint or degradation of the joint associated with conditions such as arthritis. In most cases of human joint pain, the average person will reach for traditional medications called non-steroidal anti-inflammatories or NSAIDs. There are many NSAIDs available over the counter for human use and include acetaminophen, aspirin, ibuprofen and naproxen sodium. In the veterinary world, we will occasionally use acetaminophen in dogs but on a very restricted level due to side effects. Acetaminophen should never be administered to cats due to life threatening side effects. We have veterinary approved NSAIDs for use in dogs which include Etogesic®, Rimadyl®, Deramaxx®, Previcoxx®, Zubrin® and Metacam®. In horses we commonly will use phenylbutazone (bute), Banamine® or Equioxx®.

NSAID medications are designed to reduce pain and inflammation by reducing cyclooxygenase enzymes (COX 1-2) which inhibit the formation of various inflammatory proteins called prostaglandins, specifically PGE-2. The prostaglandins are responsible for most of the swelling, fluid accumulation and pain that is associated with inflammatory conditions. The problem with many of these medications is that various prostaglandins are needed by other organs in the body to maintain a normal state, such as the stomach requiring various prostaglandins to maintain a healthy lining to protect against acid erosion and the kidney to maintain blood circulation and filtration. Prescription anti-inflammatories can be regarded as having too much COX inhibition, which can then result in stomach issues such as predisposing to ulcers as well as compromising the kidney function with long term usage. These potential side effects apply to not only humans but to dogs and horses alike.

Other potential routes of therapy to help alleviate arthritis pain and inflammation in the veterinary realm include injectable medications such as Legend® and Adequan®, which have been used for years in the horse world with good results. These medications are designed to help improve the cartilage health in the joint and improve the viscosity of the joint fluid with secondary anti-inflammatory properties. There have been minimal to no side effects noted with either of these two products when used properly. There are also many joint supplements available for use in dogs, horses and humans which are generally targeted at replacing what is being lost in the joint such as the components of the joint fluid as well as the cartilage. Many of these products contain glucosamine and chondroitin, which are targeted at improving the cartilage health in the joint. One such product is Cosequin® for dogs and Cosequin® for horses.

Inflammation is a very deep and involved topic, but one thing that is becoming apparent is that inflammation is linked with many disease conditions not only in human medicine but also in the veterinary field. Inflammation is a triggered sequence of events that leads to the release of several different inflammatory mediators or proteins into the circulation, each with its own job or action. The inflammatory mediators include the before mentioned COX enzymes as well as PGE-2 but also include others such as interleukins and matrix metalloproteinases. There is also the issue of oxidative stress that accompanies inflammation and the impact it has on over health and disease progression. If we are to control inflammation in the body, we need to attack it on multiple levels. Typical NSAID medications only appear to address the “tip of the iceberg” and really only one facet of the inflammatory process.

Herbs are essentially unique plants with medicinal activities with most of them being heavily researched for decades and used in many cultures for years for various disease conditions. Turmeric is one such herb and originates from the plant species *Curcuma Longa*. Curcumin is the active component of Turmeric and generally is present at percentages of 2-4% in most roots. Curcumin is one of the most heavily researched anti-inflammatory herbs for the past couple of decades and has also been shown to have anti-cancer properties. Curcumin is one of many herbs that are being found to inhibit a transcription factor called NF-κB. Green Tea Extracts are another example with similar properties. Many inflammatory proteins are produced as a result of NF-κB activation, so thus, if we inhibit the transcription factor, then it is concluded that we can control the inflammatory process a little better. The wonderful thing about many herbs such as Curcumin is that they appear to inhibit the transcription factor NF-κB, but there is not 100% blockade, so thus the potential side effects are limited as opposed to prescription medications. *Boswellia Serrata* is another herb that appears to reduce inflammation from yet another “arm” of the inflammatory cascade.

There are many other natural compounds such as vitamin C, vitamin E and Co-Enzyme Q10 which help to modify the oxidative stress component of inflammation. Many herbs such as Curcumin or Turmeric are also antioxidants and therefore decrease oxidative stress as well. Other natural compounds such as Flax seed, alfalfa, various medicinal mushrooms and spirulina blue-green algae help to provide natural sources of various antioxidants, essential fatty acids as well as protein or amino acids, vitamins such as vitamin B6 and Vitamin B12 and various minerals to help support an overall healthy immune response and cellular function.

So, as you can see, inflammation is a complicated process and

prescription medications often only tackle one component or arm of the cascade of events. Inflammation is present, whether if we are talking about a traumatic injury such as a cruciate ligament tear, arthritis, joint pain, hip dysplasia in dogs, rheumatoid arthritis in humans, laminitis in horses or navicular disease in horses, diabetes, insulin resistance and even respiratory conditions such as COPD. The sequence of events is very similar in all of these conditions and gaining control of the problem must be approached from several aspects. The benefits of herbal or natural therapies are: a) the side effects are minimal; b) herbs are proven effective in many clinical trials not to mention decades or centuries of use as medicines in various cultures and c) herbs tend to have a more “broad” approach to clinical problems and disease.