The 'Cure' in Curcumin: This Spice May Be The Solution to Your Dog's Lameness

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Soft tissue (muscle, tendon, ligament) injuries are common in active dogs. In one study of agility dogs, 87% of all injuries involved soft tissues (references in blog). Muscles heal quickly and generally return to full function, but tendons and ligaments are notoriously difficult to heal and frequently resolve by deposition of scar tissue, which impairs function.

Another common painful condition in active dogs is osteoarthritis, which is thought to affect 1 in 5 adult dogs in North America, and almost certainly affects an even higher proportion of active dogs (2).

Anything that claims to improve the lives of dogs with tendinopathy or arthritis is definitely worth checking out, so two studies of the effects of the spice curcumin on tendon healing and arthritis caught my attention. Earlier studies had suggested that curcumin might be used to treat chronic inflammatory illnesses such as neurodegenerative, cardiovascular, neoplastic, pulmonary, metabolic and autoimmune diseases (3). So let's check out the results of those two studies.

1. **Effects of Curcumin on Tendon Healing**
   In this study, investigators compared effects of curcumin on the healing of tendons in rats (4). They found that, in comparison to placebo-treated rat tendons, curcumin-treated rat tendons had:
   - **More organized, parallel tendon collagen fibers**. The placebo-treated rat tendons randomly oriented fibers, which resembled scar tissue (see Figure),
   - More type I collagen, the main protein that **gives tendons their strength**,
   - Lower levels of MDA, a marker of **tissue damage**, and higher levels of MnSOD, a key anti-oxidant that **prevents tissue damag**e, and
   - **Higher tensile strength**.

Ok, so it looks like curcumin can improve the speed and quality of tendon healing in rats. But what about dogs?

2. Effects of Curcumin on Osteoarthritis in Dogs

Before we look at this paper, we need to take a brief fantasy trip back to basic high school biology. Remember how you learned that genes are responsible for manufacturing all of the molecules in the body? Well, for these molecules to be made, genes have to be first activated or "expressed." So **one way to study the body's reaction to a therapeutic is to measure the expression of various genes.**

OK, back to curcumin. The second study **compared genes that were up- or down-regulated in the white blood cells (WBC)** of dogs with osteoarthritis treated either with curcumin or a nonsteroidal anti-inflammatory drug (5). WBCs are important because they play an active role in inflammation and healing throughout the body.

Twelve arthritic dogs were randomly assigned to two groups. Six dogs were treated with Previcox®, a nonsteroidal anti-inflammatory drug (NSAID) commonly used to reduce the pain and inflammation of arthritis. The other six were t**reated with curcumin at a dose of 4 mg per kilogram twice a day**. WBCs from dogs before and 20 days after treatment were examined for the level of expression of genes that are associated with inflammation.

The results showed that c**urcumin essentially mimicked the anti-inflammatory and immune response activity of Previcox®.** Remarkably, **almost every gene that was up or down regulated by Previcox® was similarly up or down regulated by curcumin.**

These two studies suggest that any time one of our dogs is diagnosed with a soft tissue injury such as a sprain or strain, or with arthritis, **we should consider curcumin as an adjunctive therapy.** One way to administer curcumin to a dog is by making Golden Paste. The recipe is below.

And finally, I don't know about you, but with the arthritis that's developing in my knees, I'm off to the grocery store!

For blog references and photos, please go to www.AvidogZink.com/blog.

