



INTEGRATIVE OPTIONS

FOR MANAGING YOUR PET'S PAIN

THERAPIES, SUPPLEMENTS, & MORE...

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NON-STEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDs)

KNOWING THE RISKS & SIDE EFFECTS

There are many drugs veterinarians use to manage pain in animals. The effective management of pain is very important; in fact, pets heal and recover faster when pain in their bodies is addressed, so managing pain promptly and effectively is key. True “pain killers” (medications that inhibit or block pain pathways in the body) are a class of drugs called opioids and include morphine, fentanyl, buprenorphine, and hydromorphone. These drugs are usually very effective at managing pain in the body, but they have side effects: opioids can cause constipation and do not address inflammation, which is another common reason pets experience discomfort.

Inflammation is a common reason pets have pain. Both steroidal and non-steroidal anti-inflammatory medications are used to manage inflammation (and the pain inflammation causes) in pets, but both of these categories of drugs also carry side effects. Steroids, such as prednisone, can suppress the immune system in high doses and can cause endocrine issues over time. Non-steroidal anti-inflammatory drugs (NSAIDs) are the most commonly prescribed medications to control pain in pets but also carry side effects, especially if the medication is used long-term.

Human NSAIDs (ibuprofen, aspirin, naproxen, etc.) can be especially high risk for side effects in animals, which is why vets don’t recommend using them with pets. Veterinary NSAIDs are by prescription only, and for good reason: the potential for unwanted side effects must be monitored.

For the most part (unless an allergic reaction occurs), NSAIDs can be safely used short term, for a week or less, to manage acute inflammation and pain, including keeping animals comfortable after surgery, accidents, or injuries. However, research has shown that 73% of dogs in one study developed GI erosions after 7 days of NSAID therapy (1).

Where the most notable long-term risks of NSAIDs come about is the ongoing use of these drugs when animals have chronic pain or discomfort. If your pet requires more than two weeks of daily NSAID administration, we recommend you talk with your vet about creating a hybrid support protocol. The most common unwanted side effects of NSAIDs include destroying the gut lining (ulcers), negatively affecting the microbiome, creating leaky gut, and stressing the liver and kidneys.

HYBRID SUPPORT PROTOCOLS

REDUCING COMPLICATIONS

It's important to minimize your pet's risk of NSAID side effects by using the lowest effective dose and only when necessary to maintain your pet's quality of life. Anti-inflammatories are prescribed to manage pain from a variety of sources. Scenarios such as a torn dew claw, a tooth extraction, or a laceration requiring sutures may only require a few doses, but if your animal must remain on these medications for more than a few weeks, your vet can create a hybrid pain management regimen, rotating different NSAIDs with other types of drugs (including gabapentin, maropitant, and tramadol) that can help reduce pain and reduce potential side effects.

Most importantly, the goal should be to use supportive non-toxic and restorative modalities to reduce your animal's dependency on these medications long term. If your animal has been prescribed NSAIDs for a chronic condition such as osteoarthritis or degenerative joint disease, it's imperative these drugs are used as a part of a well-rounded protocol to slow the progression of degeneration, maintain and support remaining cartilage, and nourish your pet's synovial (joint) fluid.

Far too often we find people relying solely on NSAIDs without instituting a concurrent supportive protocol. This is not a wise strategy for several reasons: just addressing pain without addressing the underlying reason the pain is occurring means your animal may be at risk of further damage, making the injury or condition worse.

Likewise, waiting until your pet doesn't appear to be doing well on pain meds, or begins to have an adverse reaction, means we've lost valuable time by not taking advantage of the opportunity to help the body restore or recover when we had the chance. We see this most commonly with musculoskeletal issues.

"Just addressing pain without addressing the underlying reason...means your animal may be at risk of further damage"

For instance, osteoarthritis is a degenerative joint disease that typically affects weight-bearing joints, including hips, shoulders, elbows and knees. This disease is caused by the progressive loss of protective cartilage in these joints. There is no cure for osteoarthritis and NSAIDs cannot help with rebuilding damaged joint cartilage or slowing down the rate of or progression; they are purely palliative. Without doubt, addressing pain is important, but we believe NSAIDs should never be prescribed for musculoskeletal problems without adjunctive therapies also being concurrently instituted.

In many of these cases, the only way NSAID use can diminish over time is to simultaneously begin a physical therapy protocol to counter progressive compensations, institute nutraceuticals to assist in managing inflammation, nourish cartilage and joint fluid, and utilize supplements that reduce side effects of NSAIDs. The goal is to wean your animal off of NSAIDs as soon as possible, and continue rehabilitation (animal physical therapy) and nutraceuticals for as long as necessary to keep your animal's quality of life stable.



HYBRID PAIN MANAGEMENT

METHOD	PURPOSE
REHABILITATION PHYSICAL THERAPY & EXERCISE	<ul style="list-style-type: none">• COUNTER COMPENSATIONS• IMPROVE STRENGTH
DIET FOOD & OMEGA-3's	<ul style="list-style-type: none">• MANAGE INFLAMMATION
NUTRACEUTICALS SUPPLEMENTS, HERBS, EXTRACTS	<ul style="list-style-type: none">• SUPPORT CARTILAGE & JOINTS• NATURAL ANTI-INFLAMMATORIES• PROTECTANTS

"The goal is to wean your animal off of NSAIDs as soon as possible, and continue rehabilitation and nutraceuticals for as long as necessary to keep your animal's quality of life stable."

REHABILITATION

AN INVALUABLE SERVICE FOR PAINFUL PETS

PHYSICAL THERAPY, EXERCISE, & MORE

Partnering with a rehab professional is key when it comes to assessing and assisting your animal's physical wellbeing. These gifted practitioners offer a variety of beneficial therapies.



COLD LASER THERAPY

Cold Laser Therapy is beneficial for pain, arthritis, tendon, muscle and ligament injuries, intervertebral disc disease, and lick granulomas. Learn more at <https://ivcjournal.com/laser-therapy-veterinary-medicine/>

MASSAGE, STRETCHING, & THERAPEUTIC EXERCISE

Massage, stretching, and therapeutic exercises can all be beneficial, as can neuro-electrical stimulation, underwater treadmill (or water therapy), hot/cold therapy, and ultrasound therapy.

STEM CELL THERAPY

Therapists may also suggest stem cell-based therapies as they've gained attention for their potential ability to repair and regenerate the structure and function of damaged joint tissue. Stem cells are cells that have the potential to develop into many different types of cells in the body and mesenchymal stem cells have all been studied for their potential to treat osteoarthritis as well as help animals recover from recurrent soft tissue injuries. Learn more at www.vetstem.com, www.gallant.com and www.medrego.com

PULSED ELECTROMAGNETIC FIELD (PMF)

Pulsed Electromagnetic Field (PEMF) therapy involves a device you can use at home that utilizes electromagnetic waves to stimulate healing. Learn more at www.assisianimalhealth.com

ACUPUNCTURE

Acupuncture or aquapuncture (injecting vitamin B12 at acupuncture points) can be very beneficial for addressing pain. Find a practitioner at www.ivas.org, www.aava.org

GLUCOSAMINE INJECTIONS

Injectable glucosamine: your vet can administer joint support via injections of glycosaminoglycans (sterile liquid glucosamine). Learn more at www.adequan canine.com

FIND A REHAB THERAPIST

MANY WILL WORK WITH YOU VIA ZOOM DURING COVID

- Clinics in the US that have rehab specialists:
<http://caninerehabsystems.com/find-a-pro/>
- Graduates of the Canine Rehab Institute:
http://www.caninerehabinstitute.com/Find_A_Therapist.html
- Canadian Canine Rehab Therapists (licensed physiotherapists with a Diploma in Canine Rehabilitation):
<https://physiotherapy.ca/divisions/animal-rehabilitation>
- Online directory lists current American Association of Rehabilitation Veterinarians (AAR) members who are veterinarians, interns/residents, technicians, and allied health professionals:
<https://www.rehabvets.org/directory.lasso>
- Graduates of the Canine Rehabilitation Certificate Program (CCRP) from the University of Tennessee:
<https://www.utvetce.com/canine-rehab.../ccrp-practitioners/>

PHYSICAL ACTIVITY ISN'T OPTIONAL!

Physical activity offers many significant health benefits for animals with arthritis. A daily (yes, daily) physical activity program can help reduce stress, relieve pain, improve strength, improve mood, and support movement. Even more important, research suggests exercise provides benefits comparable to analgesics and NSAIDs, but with fewer side effects (2). It's very important you continue moving your animal's body while on NSAIDs; the type of exercise, amount and duration will depend on your animal, but we know animals that lay around all day degenerate much faster than those that keep moving.

FOOD & SUPPLEMENTS

DIET MATTERS

Dietary factors can modulate inflammatory tendency throughout your pet's body. For example, a high-carb diet rich in pro-inflammatory omega-6 fatty acids and deficient in anti-inflammatory omega-3 fatty acids creates an environment conducive to systemic inflammation and oxidative stress, and has been linked to numerous age-related diseases, including osteoarthritis (3). You'll see our recommendation for adding more omega 3's in the next section. If you're feeding dry food, calculate the amount of starch (or "bad carbs") in your pet's diet by using this equation:



Healthy, un-inflamed dogs and cats do best when consuming less than 20% starch in their diets. If your animal isn't 100% well, or has inflammation (hence the vet prescribing NSAIDs), it's best to strive for your pet's diet being less than 10% starch: the lower the carb intake, the more anti-inflammatory the diet (4). You must achieve and maintain your animal's ideal body weight. Fresh, unadulterated raw foods also contain

enzymes that are very beneficial for inflamed pets; in the next section, you'll see enzyme therapy listed as one of our favorite ways to naturally control inflammation. Feeding food that has not been heat processed is one way to get enzymes naturally from the diet. Feeding a diet that creates more inflammation doesn't make sense if your pet is taking an NSAID.

NUTRACEUTICALS

INTEGRATIVE INTERVENTIONS

Nutrients that act like pharmaceuticals are called “nutraceuticals,” and are natural substances that elicit beneficial physical responses, but with fewer potential side effects than drugs. For practical purposes we’re lumping all our recommendations (including some foods, herbs, and extracts) into this category of supplements.

Animals on NSAIDs may benefit from *all 3 categories* of supplements we’ve included in this ebook:



**CHONDRO-PROTECTIVE
AGENTS (CPA'S)**
SUPPORT CARTILAGE &
JOINTS



**NATURAL ANTI-
INFLAMMATORIES**
REDUCE INFLAMMATION



**NSAID
PROTECTANTS**
REDUCE SIDE EFFECTS



Obviously, dosing is dependent on your animal's body weight and concurrent medical conditions. You and your vet are best equipped to make dosing decisions.



CHONDRO-PROTECTIVE AGENTS (CPA'S)

CPAs are an important step in slowing down the degenerative changes occurring in your animal's musculoskeletal system, or to help your pet recover from a soft tissue or orthopedic injury, or surgery. CPAs don't directly affect pain, but by supporting your animal's joints and nourishing cartilage, tendons, ligaments, and slowing down how quickly your animal develops degenerative joint disease,

usage can help prevent progressive pain down the road. If your animal is taking NSAIDs because of any bone, joint, muscle, or tendon problem, then CPAs are a must (i.e., non-negotiable if you're focusing on preventing bigger problems later on). We love rotating between them all. Many products contain a blend of several CPAs, which can be beneficial and convenient.

CHONDROITIN & GLUCOSAMINE

Chondroitin is a complex molecule found in connective tissue and contributes lubrication to cartilage. Chondroitin has been shown to reduce pain and increase joint function in patients with osteoarthritis (5).

Glucosamine is a component of larger compounds called glycosaminoglycans and proteoglycans which help trap water in the matrix of cartilage, providing it with the flexibility and resilience needed to function properly. It helps keep your pet's remaining cartilage in good working order because it plays a crucial role in maintaining joint lubrication. Chondroitin sulfate is a complex molecule found in bone, cartilage, tendons, ligaments, and skin. Laboratory studies of cartilage-producing cells suggest glucosamine and chondroitin sulfates may work in a complementary fashion to protect cartilage (6).

A randomized controlled trial compared 1,200 mg per day chondroitin sulfate to 200 mg per day celecoxib (an NSAID) in 138 patients with arthritis of the knee. After two years of treatment, the two treatment groups experienced similar reductions in swelling and symptoms such as knee pain and stiffness. MRI measurements, however, showed that those taking chondroitin sulfate had significantly less cartilage volume loss (7).

MORE CHONDRO-PROTECTIVE AGENTS (CPA'S)

"Supporting your animal's joints and nourishing cartilage... can help prevent progressive pain down the road."

MSM

Sulfur-containing compounds, including the nutraceutical methylsulfonylmethane (MSM), may reduce inflammation and pain and inhibit the degeneration associated with a variety of skeletal and soft tissue problems, and is perfect for animals with sensitivities to ocean-derived supplements. Research using animal models found that MSM reduced cartilage degeneration (8).



PERNA MUSSEL

Also called green-lipped mussel (GLM), as their name implies these supplements come from the "green-lipped" mussel (*Perna canaliculus*) that's native to the New Zealand coast. A 2006 double-blind placebo-controlled study involving 81 dogs with mild-to-moderate degenerative joint disease found that the dogs significantly benefited from long-term

(eight weeks or longer) supplementation with a tablet containing 125 mg GLM extract (9). A 2013 study published in the Canadian Journal of Veterinary Research reported that a diet enriched with GLM extract significantly improved the gait of dogs clinically afflicted with arthritis compared with a regular control diet (10).

NATURAL ANTI-INFLAMMATORIES

In many cases, supplements that naturally reduce inflammation in the body can be helpful in reducing the amount of anti-inflammatory drugs required for our pets.



OMEGA-3 FATTY ACIDS

EPA/DHA supplements may help fight several types of inflammation, including musculoskeletal inflammation. In a human study of 250 people with pain from degenerative disc disease, 59% of the participants were able to substitute EPA and DHA coming from fish oil for nonsteroidal anti-inflammatory drugs (11). Animal research suggests omega-3 fatty acid supplementation improves daily activity with dogs that have arthritis (12), and research utilizing animal models indicates that krill oil supplementation may improve cartilage structure (13). The confusion (and bad rap) around fish oil supplementation lies in what form the fish oil comes in. Fish oil supplementation has come under scrutiny from many studies demonstrating the more refined form, ethyl ester (which is cheaper to produce than the naturally occurring triglyceride or phospholipid form) can rapidly oxidize and deplete the body of beneficial antioxidants. When you buy fish oil, make sure it's the triglyceride or phospholipid form, and sustainably sourced. We rotate through a variety of oils sourced from salmon, krill, anchovy, mussels, and squid. If your dog is allergic to ocean-sourced oils, which is rare, vegetarian sources of high-DHA microalgae (called algal oil) can be an alternative.

S-ADENOSYL-METHIONINE (SAMe)

SAMe is a substance that the body creates naturally to facilitate many metabolic reactions. In veterinary medicine, it has been found beneficial for liver disease, joint disease, and improving canine cognition. In one study, SAMe given to dogs reported a 44 percent reduction in problem behaviors, including a reduction in house soiling, after both four and eight weeks (compared to 24 percent in the placebo group); marked improvement in activity and playfulness; significant increase in awareness; decreased sleep problems; and decreased disorientation and confusion (14). Human research suggests SAM-e may help relieve the pain and inflammation associated with various types joint disease, sometimes as well as NSAIDs (15).

MORE NATURAL ANTI-INFLAMMATORIES

CURCUMIN

Curcumin is an active component of turmeric root, a plant related to ginger that is grown throughout Asia, India, and Central America. Turmeric has traditionally been used to treat a variety of medical conditions because it has potent anti-inflammatory properties. In one study, curcumin was found to work synergistically with NSAIDs to control inflammation (16), enough so that we are often able to use this supplement to reduce drug intake.



BOSWELLIA

Boswellia serrata, a tree that grows in the mountains of India, Northern Africa, and the Middle East, contains gum resin extracts shown to have potent anti-inflammatory properties (17). Boswellia may play a role due to boswellic acids. A randomized study of 28 people with moderate osteoarthritis compared a *Curcuma longa* and *Boswellia serrata* combination at 500 mg twice daily and 100 mg celecoxib (an NSAID) twice daily for 12 weeks. There were greater improvements in reported pain, walking distance, and joint line tenderness in the boswellia-curcumin group compared with those that took the drug, and the treatment was also found to be safe and well-tolerated (18). Given to dogs for 6 weeks, it reduced lameness, local pain, and stiff gait (19). This herb is also added into feline joint support products, such as Cosequin. It has an excellent track record of helping with many inflammatory conditions in veterinary medicine (20).



MORE NATURAL ANTI-INFLAMMATORIES

GINGER

Ginger is a tropical plant traditionally used both as a spice and to treat gastrointestinal issues. Some evidence suggests its anti-inflammatory properties may help combat pain as well. In a randomized, double-blind, placebo-controlled human trial, 120 people in moderate-to-severe pain from osteoarthritis were divided into three groups: one group received 30 mg ginger extract (in two 500 mg capsules), another received placebo, and a third took three 400 mg tablets of ibuprofen (an NSAID) daily. Ginger extract and ibuprofen were equally effective at

improving symptoms, including pain and joint motion (21). Ginger has been shown to help prevent ulcers from forming in lab animals taking NSAIDs (22). We recommend grating fresh ginger on your pet's food, **¼ teaspoon of fresh ginger root for every 10 pounds of body weight daily**. You can also use the dried powder in your spice drawer at a dose of **1/8 teaspoon per 10 pounds of body weight**. Just make sure your ginger spice isn't old; use up and replace your kitchen spices annually for the most health benefits.

PROTEOLYTIC ENZYMES

Various proteolytic enzymes, including bromelain, papain, and trypsin, have been shown to reduce pain and increase range of motion (23). In fact, in one study, a supplement containing bromelain was more effective than NSAIDs in a human clinical trial (24). Our favorite brand, Wobenzym, has often replaced NSAIDs in pets with similar efficacy as reported in human trials (25). Proteolytic enzymes should be given in between meals, three times daily, and *should not be given* to animals that have been diagnosed as already having GI ulcers.

PEONY ROOT EXTRACT

An extract from the root of a fragrant flowering plant, the peony, has traditionally been used to combat inflammation due to the active compounds apocynin and paeonol. Recently, this combination (referred to as "APPA") has been studied as a way to control joint pain from arthritis in dogs. A randomized controlled trial involving 55 dogs compared treatment with 40 mg/kg APPA, 0.1 mg/kg meloxicam (an NSAID), or placebo for four weeks. The APPA group had significantly better function compared with placebo (26). Unfortunately, this combination is not available for sale as a supplement yet, but be on the lookout for its arrival in the near future!

**SUPPLEMENT
TO KEEP AN
EYE OUT FOR!**



PROTECTANTS

The most common unwanted side effects of NSAIDs include destroying the gut lining (erosions and ulcers), negatively affecting the microbiome, creating leaky gut, and stressing the liver and kidneys. It's impossible to know what potential side effects will occur with anti-inflammatory administration, but there are some important points to remember. Learn more about how NSAIDs work in your pet's body, at this link: <https://www.fda.gov/animal-veterinary/animal-health-literacy/get-facts-about-pain-relievers-pets>.

BILBERRY

When it comes to protecting your pet's gut against ulcers, bilberry can be helpful (27). Bilberry positively influences the production of protective substances in the gut called mucopolysaccharides, which improve the resiliency of the mucus barrier in the gut and reduce the risk of NSAID gut-related complications (28).



GREEN BANANAS

Unripe bananas were effective both as a prophylactic treatment and also in healing the ulcers already induced by aspirin in animals (30). Further studies reveal that green banana increases the mucosal defense by promoting mucus secretion; in fact one study found 70% of endoscopically-proved duodenal ulcers healed after 12 weeks of treatment with banana powder as compared to about 16% with placebo (30). We recommend you buy green (unripe) bananas, slice or cube them up, and use them as treats for the entire duration of your dog's NSAID administration. (Sorry, most cats won't eat unripe bananas, but if they do, let them!)



CURCUMIN

Curcumin (the bioactive component in turmeric we hope you're already giving to help reduce pain) does some amazing things to prevent ulcers too; it's both a natural COX-2 inhibitor and improves the healing rate of ulcers. You can learn more about COX-2 inhibitors here: <https://www.fda.gov/animal-veterinary/animal-health-literacy/get-facts-about-pain-relievers-pets>

Curcumin-treated animals with ulcers recovered substantially faster than untreated animals, and because it naturally helps reduce pain associated with inflammation, we recommend this supplement if animals stay on NSAIDs longer than a week (29).

MORE PROTECTANTS

GREEN TEA

Bioflavonoids found in **decaf** green tea can be an effective additional treatment for stomach ulcers. Theaflavin (the flavonoid found in tea) helped ulcers heal faster due to the antioxidative properties naturally found in tea (31). They have also been proven to prevent ulcers from occurring (32)! Green tea reduced NSAID-induced gastric ulcer via their antioxidative as well as immunomodulatory activity, with one article stating:

"Amongst the various factors known to cause gastric ulcer, widespread use of nonsteroidal anti-inflammatory drugs (NSAIDs) is another major cause. NSAID is a "catch all" name for a large number of chemically distinct drugs. Functionally gastrointestinal tract is a complex organ. Drug induced functional modification of stomach could affect the normal physiology and lead to gastric lesions followed by generation of ulcer. The NSAID-induced stomach ulceration ranks fourth amongst the diseases causing morbidity and mortality. The solution of the NSAID-induced gastropathy has so far been elusive, despite recent advances, and continues to be of concern for both clinical practitioners and researchers. Many drugs like H2 receptor antagonists, proton pump inhibitors, and antacids are currently being used for the treatment of NSAID induced gastric ulcer. But their long term use ultimately causes significant side effects and they are expensive for the less wealthy rural population." (27) And pet owners without insurance, we may add!



DIRECTIONS:

- Brew organic decaf green tea.
- Let cool.
- Add 1/2 cup of cooled tea for every 20 pounds of body weight to food daily.

"Approximately 90% of diseases are avoidable by changing dietary habits only. These inventions have rapidly amplified the consumer awareness of the potential benefits of naturally occurring compounds from plants in health promotion and maintenance. Hence, researchers in nutraceuticals and natural health products have become the hot topics in the last few years. A search of nutraceuticals has become essential for the development of nontoxic, inexpensive, and easily available drugs to protect different diseases including gastric ulcer. Various pure phytochemicals have also been tested for their antiulcerogenic actions." (27)

MORE PROTECTANTS

MILK THISTLE

The anti-ulcer effects of milk thistle, or silymarin, may be related to its inhibitory mechanism on inflammation (27,32,33), but the good news is it also protects your pet's liver from the long-term negative effects of NSAIDs (33). This is a supplement we recommend using if you keep your animal on NSAIDs longer than a week. Repeated NSAID use causes dysbiosis (or "leaky gut") but giving probiotics helps combat this destructive process (34). We recommend keeping your pet on probiotics for at least a month after discontinuing all conventional NSAID medications in order to help your animal's gut recover.

RAW HONEY

Raw honey is a powerful antibacterial food that has been demonstrated to be beneficial for gastroenteritis (GI irritation that's common with NSAIDs) and might be as soothing and beneficial as Sucralfate (a common soothing medication vets prescribe to animals with GI erosions), according to research (35). Try and find local raw honey from your farmer's market or local health food store. We use **a teaspoon for every 20 pounds of body weight once a day on an empty stomach.**

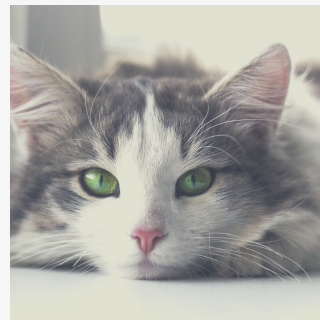
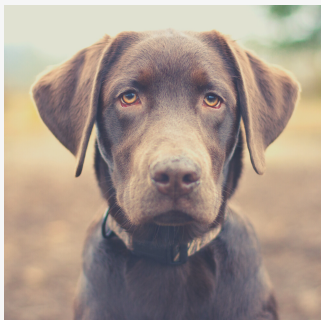
LICORICE ROOT

Licorice root also promotes mucus secretion from the stomach, increases the lifespan of surface cell of the stomach, and has additional activity which ultimately leads to ulcer healing (27,32,33). Thankfully, you can find this supplement (labeled as "deglycyrrhized licorice") at any health food store.

"90% of diseases are avoidable by changing dietary habits only."

GINGER & ROYAL JELLY

Ginger (36) and Royal Jelly (the gelatinous substance produced by honeybees) were protective against kidney damage induced by NSAIDs in animal lab models (37). Royal Jelly also helps GI ulcers heal at a dose of 200mg/kg body weight a day (38), so we recommend this supplement during NSAID use if your animal needs additional kidney protection.



BUILDING YOUR TEAM

Your vet is your best partner when it comes to creating a well-rounded, viable pain management protocol. As your animal responds to a multi-modal protocol to manage pain, the amount of drugs needed to keep your pet comfortable will decrease, requiring the frequency of administration to change. The goal is to provide excellent pain management with the least amount of pharmaceuticals that carry potential side effects.

Ongoing reassessment of pain and inflammation, quality of life, and drug monitoring are all ways your vet will actively participate in your animal's care. Occasionally, we meet pet parents that are fortunate enough to have a vet that is certified in rehabilitation and well-versed in constructing hybrid, multi-modal pain management protocols. Lucky you!

Most of the time humans have a variety of health and wellness professionals that focus on different areas of building wellbeing and health. For instance, it's not uncommon for people to have an ob/gyn, a nutritionist, massage therapist, chiropractor, general practitioner, as well as an occasional specialist (i.e., dermatologist) all working together to give your body the best chance at true wellbeing. Sometimes you need to assemble additional players for your pet's wellbeing; most vets wear a lot of hats, but expecting them to be everything all the time can be unrealistic. The good news is we can all work together to achieve the common goal: making your animal the healthiest they can possibly be for the longest period of time.

To join in the conversation about NSAIDs, as well as CBD for managing pain, join the Inside Scoop, our private group for 2.0 pet lovers. We meet once a week online: <https://www.facebook.com/groups/insidescoopers>

FUNCTIONAL MEDICINE

WHAT IS A FUNCTIONAL MEDICINE VETERINARIAN?

Functional Medicine considers food and lifestyle medicine to be the primary modes of healing rather than pharmaceutical interventions as the first or only option for managing chronic disease. Functional Medicine veterinarians strive to identify and remove lifestyle and environmental obstacles before disease occurs. We create customized, dynamic wellness protocols for animals with the goal of promoting a higher state of ongoing wellbeing, an above-average quality of life, and an above-average lifespan.

This differs from the conventional medical approach of reactively treating ailments and diseases after symptoms alert us the body is diseased or degenerating. Of course, sometimes this approach isn't always possible. When the body breaks or begins degenerating, functional medicine vets create customized, innovative, well-rounded protocols to support the entire patient, starting with the least-toxic options first. If toxic medications are required, detoxification and adjunctive support is always concurrently prescribed.

These are professional organizations that embrace functional medicine. On each organization's website, you can find a list of practitioners in your area as well as those that do phone consults.

- The American Veterinary Chiropractic Association: www.animalchiropractic.org
- The American College of Veterinary Botanical Medicine: www.acvbm.org
- The Veterinary Botanical Medicine Association: www.vbma.org
- The College of Integrative Veterinary Therapies: www.civtedu.org
- The Veterinary Medical Aromatherapy Association: www.vmaa.vet
- The American Academy of Veterinary Acupuncture: www.aava.org
- The International Veterinary Acupuncture Society: www.ivas.org
- Academy of Veterinary Homeopathy: www.theavh.org
- International Association of Animal Massage and Bodywork: www.iaamb.org
- American Holistic Veterinary Medical Association: www.ahvma.org

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The Forever Dog Book will be available worldwide on Sept 14, 2021.

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 31. Black Tea and Theaflavins Assist Healing of Indomethacin-Induced Gastric Ulceration in Mice by Antioxidative Action
 32. Flavonoids with gastroprotective activity
 33. Phytotherapeutic modalities for the management of Helicobacter pylori associated with peptic ulcer
 34. NSAID–Gut Microbiota Interactions
 35. Traditional and Modern Uses of Natural Honey in Human Diseases: A Review
 36. Therapeutic Potential of Ginger against Renal Injury Induced by Carbon Tetrachloride in Rats
 37. Protective effect of royal jelly against diclofenac-induced hepato-renal damage and gastrointestinal ulcerations in rats
 38. Royal jelly accelerates healing of acetate induced gastric ulcers in male rats