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Joint supplements for dogs: The helpful vs. the hype

There's a lot of crazy info out there when it comes to canine joint health and mobility. (Elk antler, anyone?) Arm yourself with the evidence and position your veterinary practice as the trusted source of reliable data. By Sarah J. Wooten, DVM

Whether their dogs are old and stiff, young and developing, or couch potatoes, pet owners tend to be highly concerned about canine joints. They're searching online for information on mobility and arthritis, asking each other for recommendations, or going with what's been recommended by their own doctor.

Chances are they've already come to you with questions about things like hyper-immune milk factor and *Boswellia serrata*, but how do you begin to shed light on the veiled world of nutraceuticals? How much to give? How often? What brand? Glucosamine-enriched dog food or shark cartilage supplement? What is truth? What is "claim"? So many questions.

Fortunately, when it comes to evidence-based use of joint supplements in dogs, Fetch dvm360 conference speaker

Matt Brunke, DVM, CCRP, CVPP, CVA, has the answers. You know pet owners are going to ask you for your opinion. Why not be the expert?

Dr. Brunke's guide to oral joint supplements

Here's a rundown of the joint supplements getting the most buzz in the pet world these days.

Glucosamine hydrochloride. Glucosamine hydrochloride is an amino sugar, but it's not involved in the glucose pathway. It's a building block of the cartilage matrix and stimulates growth of cartilage cells. Glucosamine is readily available, cheap and can be given safely to diabetic patients, Dr. Brunke says.

Notice that we're discussing glucosamine hydrochloride, here, not glucosamine sulfate. Although glucosamine sulfate is absorbed better, there have been no studies published showing that glucosamine sulfate actually shows up in synovial tissue after it's been ingested orally. A joint supplement doesn't help if it doesn't get where it needs to be.

A loading dose of two times maintenance for four to six weeks is required for glucosamine hydrochloride to reach therapeutic levels, Dr. Brunke says. Maintenance is 500 to 1,000 mg for a 75-lb dog, which works out to about 15 mg/kg.

Does it work? A randomized, double-blind, positive-controlled, multicenter trial assessed 35 dogs with confirmed osteoarthritis of the hip or elbow for their response to orally administered glucosamine hydrochloride and chondroitin sulfate. Carprofen was used as the control. Although onset of efficacy was slower than carprofen, dogs treated with glucosamine-chondroitin showed statistically significant improvements in pain scores, severity and weightbearing by day 70.¹

Chondroitin sulfate. This supplement works by inhibiting cartilage-destroying enzymes, but it's difficult to source and extract, which raises the cost. Chondroitin is a large molecule with variable absorption, Dr. Brunke says, though some companies produce a low-molecular-weight version that can increase absorption from the gastrointestinal tract.

Chondroitin requires a loading dose similar to glucosamine, and the standalone dosage is the same as glucosamine. When given with glucosamine,

chondroitin has a synergistic effect and has been shown to lessen inflammation if given before a joint injury in dogs, Dr. Brunke says.

Avocado soybean unsaponifiables (ASUs).

ASUs protect cartilage matrix against damage by inhibiting key mediators of the structural changes that take place in osteoarthritis,² and they stimulate healing of osteochondral defects in the canine knee, possibly by increasing transforming growth factor (TGF)-beta in the tissues.³ The dosage used in the studies referenced was one 300-mg capsule ASUs every three days, but Dr. Brunke recommends daily administration based on body weight. He adds that the efficacy of ASUs is similar to NSAIDs in dogs, but they have a delay in onset similar to glucosamine and chondroitin. When combined with glucosamine and chondroitin, ASUs modify and amplify the actions of each and reduce the amount of chondroitin required.

Omega-3 fatty acids. Omega-3s are known to support heart health and joints, improve kidneys and boost the immune system, but the dosage for each condition varies. For example, the dose needed for kidneys is one-fifth the dose needed for joints, Dr. Brunke says. When it comes to omega-3s, docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) from wild-caught coldwater fish is best. Farm-raised fish have low levels of omega-3s and high levels of omega 6s, Dr. Brunke says. One study found that some dogs receiving carprofen for osteoarthritis pain that were also fed a diet supplemented with fish oil omega-3 fatty acids needed less carprofen.⁴ Dr. Brunke recommends a dosage of 100 mg/kg combined EPA and DHA for osteoarthritis. FYI—in case your clients ask, flaxseed does not provide sufficient amounts of DHA and EPA in dogs.

Stop the itch: Essentials for treating atopic dermatitis



5 vile veterinary derm conditions that get under *my skin*



When the going gets gross, get going on finding solutions that preserve both the health of the pet and the human-animal bond.

By Melissa Hall, DVM, DACVD

Though working in veterinary dermatology is a daily assault on the senses, I find the grossest of diseases to be the most rewarding to treat, as they greatly improve the quality of life for the patient and the client while restoring and strengthening the human-animal bond (since most of us like to be near our pets without gagging). Here are five of the most cringe worthy dermatologic conditions I've encountered:

Perianal fistula

Alias: Anal furunculosis

Description: Perianal fistula is a chronic, progressive inflammatory disease that's most often diagnosed in middle-aged German shepherds. The etiopathogenesis is only partially understood, but genetic and anatomic factors and a dysregulated immune response are known disease contributors.



Signs: Dogs often present with perianal licking, tenesmus, painful defecation, weight loss and lethargy. The perianal lesions are not associated with the anal sacs and can range from pinpoint-sized draining tracts to large, cavitating, ulcerated sinuses. Upon palpitation, the anus and rectum may be thickened and fibrous, and a malodorous mucopurulent discharge is often present. Because about half of affected individuals have concurrent colitis, it can be assumed that the scope of the disease extends beyond external lesions.

Diagnostics: Diagnosis is based on the patient's history and on clinical findings.

Treatment: Treatment involves systemic cyclosporine (5 to 10 mg/kg/day) and topical 0.1% tacrolimus ointment. Systemic antibiotics are initially needed to treat the secondary bacterial infection, and concurrent prednisone can be used to reduce inflammation at presentation. If the pet doesn't demonstrate a complete response to initial therapy, a diet trial may be needed to rule out concurrent cutaneous adverse food reactions.

Mycobacterial panniculitis

Alias: Atypical mycobacterial granulomas

Description: Mycobacteria are ubiquitous, saprophytic organisms that can cause problems when the skin's barrier is compromised and they are given access to the fatty subcutis. Obese outdoor cats may be more predisposed to disease development.

Signs: Opportunistic mycobacteriosis often presents as chronic, nonhealing wounds. The lesions may initially resemble catfight abscesses and are most commonly seen along the caudal abdominal or inguinal regions or the lumbar region (though they can be present anywhere). The areas develop circumscribed plaques or nodules and progress to underlying thickening of the subcutis and the development of punctuate fistulae that discharge watery, bloody exudate.



Diagnostics: The disease can be difficult to diagnose. Acid-fast stains are necessary to detect the elusive organisms obtained via fine-needle aspiration of closed lesions. Dermatohistopathology demonstrates nodular to diffuse pyogranulomatous dermatitis and panniculitis, but additional stains are recommended to identify organisms. Mycobacterial tissue culture can take longer than typical bacterial cultures.

Treatment: Treatment is often frustrating for both the client and the veterinarian. Systemic antimicrobial therapy is often needed for a long period of time (three to 12 months) and is then extended one to two months past clinical resolution. Antimicrobial selection should be made based on the mycobacterial culture's susceptibility tests. Combination therapy is often needed, and some cases require surgical excision to debride the affected tissues.

Soothing stomachs: Essentials for treating gastrointestinal disease





Flatulence in dogs: Annoyance or sign of GI illness?

Persistence in finding the cause and crafting a solution can help keep owners content and your canine patients in their homes.

By Ed Kane, PhD

Being the owner of both a boxer and a bulldog with flatulence, Claudia Kirk, DVM, DACVN, DACVIM, a professor at the University of Tennessee College of Veterinary Medicine, can relate to the challenges excess flatus provides to pet owners. Episodes of flatus make living in close quarters with pets less than enjoyable, especially when the foul odor is enough to clear a room. Flatus, a by-

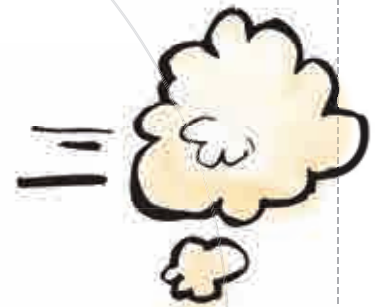
product of bacterial fermentation, often results from dietary causes—highly fermentable fiber, indigestible carbohydrates, dietary indiscretions or a sudden diet change, Kirk says. Plus, some breeds seem to be predisposed to the condition, with boxers, bulldogs, Boston terriers and other brachycephalic breeds among the most notorious.

Some definitions

Flatulence: Marked by excessive formation of gases in the stomach and small intestine.



Flatus: Gas expelled through the anus.



Prebiotic: A substance that, when consumed produces microorganisms in the GI tract.



Probiotic: Microorganisms that provide health benefits when consumed.



Resistant starch: Any starch that is not digested in the small intestine but passes to the large bowel, where it becomes a substrate for bacterial fermentation. Examples: potatoes, yams, pasta, brown rice and corn.

