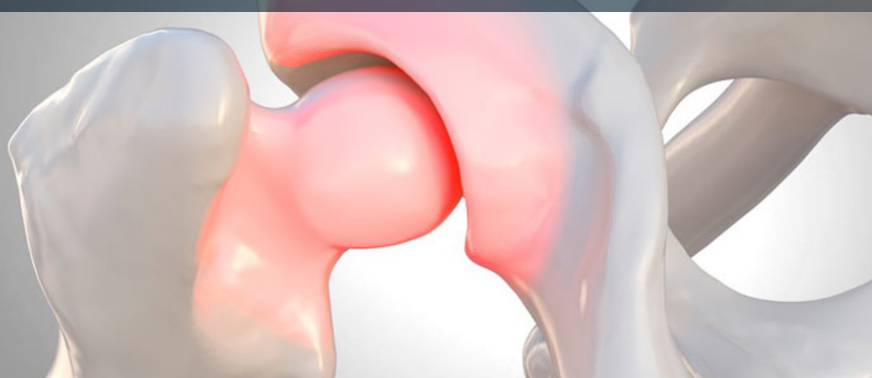


HOT TOPIC

Nutrition and joint health in pets



In focus

Osteoarthritis is the most common chronic joint disorder in dogs and cats.^{1,2} Nutrition as a part of a multimodal management approach may help improve quality of life for pets with joint disease and may also be beneficial in supporting joint health in well pets.

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What are risk factors for osteoarthritis?

While osteoarthritis can occur at any age, it is seen more commonly with increasing age.^{1,3,4} Excess weight magnifies the risk—in part by increasing mechanical stress on the musculoskeletal system.^{3,5} Excess adipose tissue also releases elevated levels of pro-inflammatory mediators, which promote a chronic, low-grade inflammatory state in the body.⁶ In dogs, other risk factors include prior joint injury or a developmental orthopedic disorder, genetics, size (large and giant breeds), and, possibly, high exercise level, which may injure joint tissues.^{3,7}

How can nutrition help lower the risk of osteoarthritis?

Purina research showed that maintaining dogs in lean body condition from puppyhood and throughout their lives:

- Delayed the onset of hip osteoarthritis.⁴
- Decreased the prevalence of osteoarthritis of the hip, shoulder, and multiple joints.^{4,5}
- Reduced the severity of hip and elbow osteoarthritis.⁵

In large and giant breed puppies, rapid growth and excess calcium intake should be avoided to help reduce the risk of developmental orthopedic conditions.⁸ Complete and balanced growth diets contain all the nutrients, including minerals, in the optimal quantities and ratios, and thus no supplementation is required.

How can nutrition support pets with osteoarthritis?

For osteoarthritic pets that are overweight or obese, weight loss via an energy-restricted diet and increased exercise (when tolerated) is crucial.

- Weight loss of only 6.1% on average decreased lameness in obese osteoarthritic dogs.⁹

Feeding overweight or obese dogs and cats a diet with a high protein-to-calorie ratio supported maintenance of lean body mass (LBM) while promoting loss of body fat during caloric restriction.^{10,11} LBM includes not only muscles but tendons and ligaments, which help stabilize joints. Thus, a high protein-to-calorie ratio diet also may help support joint health in osteoarthritic pets that are at ideal or low body condition.

Ingredients in diets or supplements may support joint health:

- Feeding osteoarthritic dogs a therapeutic diet high in the omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) found in fish oil significantly improved mobility, weight-bearing, and comfort, and slowed clinical progression.^{12,13} A Purina-supported study suggested that feeding dogs an EPA and DHA-enriched therapeutic diet may affect balance of degradative and anti-degradative enzymes in the synovial fluid and thus potentially reduce cartilage breakdown.¹⁴ EPA and DHA have anti-inflammatory activity.^{14,15}
- A supplement containing glucosamine and chondroitin sulfate improved joint comfort, weight bearing, and general condition in osteoarthritic dogs.¹⁶ Glucosamine and chondroitin sulfate play a structural role in cartilage composition, and research suggests the compounds may slow cartilage breakdown.¹⁵
- Osteoarthritic dogs administered an eggshell membrane supplement showed significantly improved joint comfort and function, and quality of life.¹⁷ Serum levels of a cartilage

degradation biomarker also decreased significantly, suggestive of a chondroprotective effect.

- Mobility and comfort improved in osteoarthritic dogs administered a green-lipped mussel supplement or diet.^{18,19} Additional research is needed to understand the ingredient's mechanism of action.
- In osteoarthritic cats, an EPA and DHA-supplemented diet²⁰ and a diet containing glucosamine, chondroitin sulfate, EPA, DHA, and green-lipped mussel extract²¹ improved mobility.
- Antioxidants, e.g., vitamin E, may help reduce oxidative stress and associated tissue damage in the joints.⁸

Validated tools are available to assess chronic pain, many specific for osteoarthritis. They can be utilized to monitor response to management in osteoarthritic patients.

Environmental modifications that may help osteoarthritic pets include:

- Placement of resources, e.g., food and water bowls and litterboxes, where can easily be accessed.
- Non-weight-bearing exercise, e.g., swimming, rather than weight-bearing to support mobility and manage weight.

Which healthy dogs benefit from joint health support?

To address potential risk factors, feeding a therapeutic joint health diet or providing a joint health supplement may benefit:

- Canine athletes
- Working dogs
- Other very active dogs
- Large and giant breeds

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