

CANINE j/d™ CLINICAL STUDIES

KEY POINTS:

- ▶ A clinical study shows that foods with high levels of total omega-3 fatty acids and eicosapentaenoic acid (EPA) can improve the clinical signs of canine hip or stifle osteoarthritis.¹
- ▶ Another clinical study concludes that doses of nonsteroidal anti-inflammatory drugs (NSAIDs) can often be reduced for arthritic dogs being fed Hill's® Prescription Diet® Canine j/d™ dog food.
- ▶ Hill's Prescription Diet Canine j/d dog food contains the highest levels of total omega-3 fatty acids of any therapeutic food for the management of dogs with osteoarthritis.

TWO STUDIES SHOW THAT HIGH LEVELS OF DIETARY OMEGA-3 FATTY ACIDS AND EPA CAN HELP IMPROVE THE CLINICAL SIGNS OF OSTEOARTHRITIS IN DOGS.^{1,2}

- Two 90-day, randomized, double-masked, controlled studies were conducted to determine the effect of high dietary omega-3 fatty acids and EPA on the clinical signs of canine osteoarthritis.
- In one study, dogs with osteoarthritis were fed either a positive control food containing 0.5% EPA (dry matter basis), an intermediate-level food containing 1.1% EPA, or a high-level food containing 1.7% EPA.
- In another study, arthritic dogs receiving carprofen were fed either a typical dry commercial dog food (control food) or Hill's® Prescription Diet® Canine j/d™ (test food) with 39 times more total omega-3 fatty acids and EPA than the control food.
- Clinical signs were noted by pet owners, and clinical evaluations, including orthopedic examinations by veterinarians, were conducted at regular intervals throughout both studies.

STUDY RESULTS - Dose Titration Study

- Dogs fed foods with high levels of total omega-3 fatty acids and EPA had significantly higher serum concentrations of these fatty acids.
- Owners of arthritic dogs fed foods with high levels of EPA reported a statistically significant improvement in 13 of 14 clinical signs at Week 3, with further improvements by the end of the study.
- Veterinarians concluded that dogs consuming the food with the highest concentration of EPA showed greater improvements in arthritic condition than dogs fed the foods with lower levels of EPA.

STUDY RESULTS – NSAID STUDY

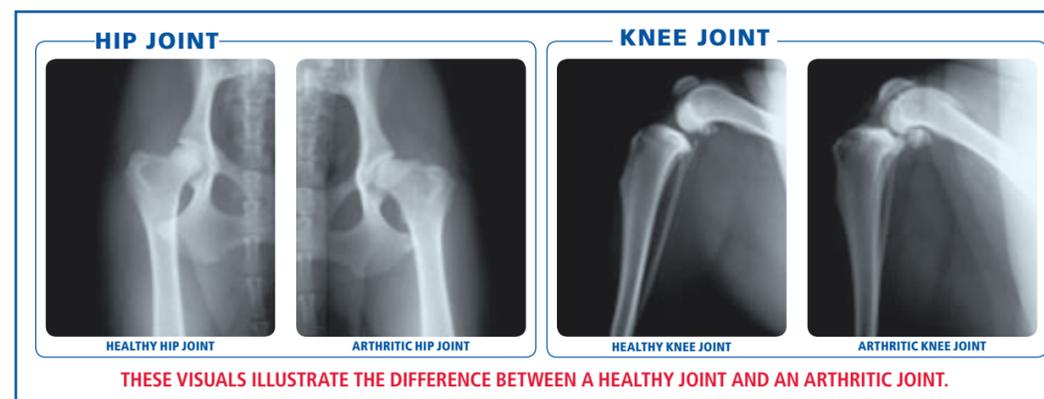
- Owners of arthritic dogs receiving carprofen and fed Hill's® Prescription Diet® Canine j/d™ dog food reported a decrease in severity of most clinical signs and significantly greater pain reduction than owners of dogs fed the control food.
- Significantly greater reductions in carprofen dose were possible in dogs consuming Canine j/d compared to dogs fed the control food.
- The mean carprofen dose reduction was 25% for the dogs fed Canine j/d.

CONCLUSION

The Dose Titration Study indicated that nutritional management using foods with high levels of total omega-3 fatty acids and EPA helped improve the clinical signs of hip or stifle osteoarthritis in dogs. The NSAID Study found that nutritional management using Hill's® Prescription Diet® Canine j/d™ dog food helped improve the clinical signs of canine osteoarthritis and often resulted in reduced doses of the NSAID carprofen.

NUTRITIONAL RECOMMENDATION

Feeding high levels of omega-3 fatty acids is a relatively new concept in helping veterinarians manage canine osteoarthritis. Recent studies such as those above continue to show that foods high in omega-3 fatty acids and EPA can improve the clinical signs of osteoarthritis and may reduce the need for pharmaceutical therapy. Since osteoarthritis is estimated to affect up to 20% of dogs over one year of age,³ much of your client base will be pleased to hear about an innovative, convenient and clinically proven adjunct to existing modes of therapy – Hill's Prescription Diet Canine j/d.



REFERENCES

- ¹ Dose titration effects of omega-3 fatty acids fed to dogs with osteoarthritis. 2004. Unpublished data.
- ² A multi-center practice-based study of a therapeutic food and a nonsteroidal anti-inflammatory drug in dogs with osteoarthritis. 2004. Unpublished data.
- ³ Johnston SA. Osteoarthritis: joint anatomy, physiology and pathobiology. *Vet Clin North Am Small Anim Pract* 1997; 27:699-723.



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NUTRITION





DOSE TITRATION EFFECTS OF OMEGA-3 FATTY ACIDS FED TO DOGS WITH OSTEOARTHRITIS, 2004. UNPUBLISHED DATA.

BACKGROUND

Osteoarthritis (OA) or degenerative joint disease is a chronic, progressive disease characterized by pathologic changes of movable joints accompanied by clinical signs of pain and disability. OA is associated with degeneration of articular cartilage, loss of proteoglycan and collagen, proliferation of new bone and a variable inflammatory response. OA has been estimated to affect up to 20% of the canine population over 1 year of age. The goals of managing OA include: 1) prevention or risk factor management, 2) managing progression of the disease, and 3) controlling clinical signs. Proper nutrition, weight control, controlled exercise, physical therapy, anti-inflammatory and analgesic medication, and other disease-modifying agents are often incorporated into all three categories to manage OA. A relatively new concept in the treatment of OA is the use of omega-3 fatty acids. The mechanisms likely for the potential clinical benefits of omega-3 fatty acids include controlling inflammation and reducing the expression and activity of cartilage proteoglycan degrading enzymes. The objective of this study was to determine the effect of foods containing different levels of omega-3 fatty acids on clinical signs of OA in dogs.

STUDY DETAILS

The investigation was conducted as a 90-day prospective, randomized, double-masked, controlled study in 28 veterinary hospitals in the United States. OA was diagnosed based on compatible history, clinical signs and radiographic evidence of arthritis in one or more joints on the clinically affected limb. The study included a positive control dog food containing 0.5% of eicosapentaenoic acid (EPA) concentration on dry matter basis, an intermediate level food containing 1.1% EPA concentration on dry matter basis and a high level food containing 1.7% EPA concentration on dry matter basis. Owners could feed either a dry food or a combination of dry plus canned foods of each formula. To be eligible for inclusion, dogs also had to be at least 1 year of age, have a body condition score higher than 1 (on a five point scale), consume dry dog food and be free of systemic disease as determined by history, physical examination, complete blood count (CBC), serum biochemistry analysis and urinalysis. Exclusion criteria included acute traumatic injuries, complicating disease conditions, preexisting conditions for which corrective surgery was anticipated during the feeding period and recent intra-articular injection or arthrocentesis. Concurrent medications and supplements were permitted if the dosing regimen was not altered during the 90-day feeding period.

For baseline purposes, owners completed a questionnaire that detailed their dogs' arthritic condition. Baseline assessments included the frequency with which dogs exhibited the following signs: difficulty in rising from rest, limping, stiffness, soreness when touched, vocalizing in pain, aggression, lagging behind on walks, and reluctance in running, walking, jumping, climbing stairs, playing and general activity. Variables were assessed at the beginning of the study and at 3, 6 and 12 weeks after onset of feeding the foods. Additionally, veterinary clinical evaluations were conducted at each time interval. These consisted of an orthopedic examination with a specific emphasis on lameness and pain, limitation in weight-bearing ability, range of motion of the affected joint(s) and willingness to bear weight on the most affected limb when the contralateral limb was elevated. Samples for complete blood count, serum biochemistry and serum fatty acid determinations were also obtained at each time interval.

Of 249 dogs screened, 215 were assigned to test foods, and 177 completed the 90-day feeding period (55 dogs received the positive control food, 62 received the intermediate-EPA food and 60 received the high-EPA food). Of the 177 dogs completing the 90-day feeding period, 71% had OA of the coxofemoral joint and 29% had OA of the stifle joint.

Dogs consuming EPA-fortified foods had increased serum omega-3 fatty acid concentrations (including EPA), decreased serum omega-6 fatty acid concentrations (including arachidonic acid), and shifts in serum omega-6:omega-3 ratios. The serum EPA level increased and the arachidonic acid level decreased in a dose dependent fashion. Compared with baseline, pet owners noticed a statistically significant improvement in most (13 of 14) clinical signs at week 3 with further improvement in clinical signs by the end of the study. Both medicated and non-medicated animals exhibited improvements in arthritic condition while consuming EPA-fortified foods. All foods resulted in significant improvement in clinical signs, although pet owners reported no statistically significant differences among treatments over the 90-day feeding period. Assessments by veterinarians concluded that dogs consuming food with the highest concentration of EPA (1.7%) displayed greater improvements in arthritic condition than dogs fed foods with lower levels of EPA.

CLINICAL IMPACT

This study indicates that nutritional management using a food with high levels of total omega-3 fatty acids and 0.5, 1.1 or 1.7% EPA helps improve the clinical signs of hip or stifle osteoarthritis in pet dogs.



A MULTI-CENTER PRACTICE-BASED STUDY OF A THERAPEUTIC FOOD AND A NON-STEROIDAL ANTI-INFLAMMATORY DRUG IN DOGS WITH OSTEOARTHRITIS, 2004. UNPUBLISHED DATA.

BACKGROUND

Osteoarthritis (OA) or degenerative joint disease is a chronic, progressive disease characterized by pathologic changes of movable joints accompanied by clinical signs of pain and disability. OA is associated with degeneration of articular cartilage, loss of proteoglycan and collagen, proliferation of new bone, and a variable inflammatory response. OA has been estimated to affect up to 20% of the canine population over 1 year of age. The goals of managing OA include: 1) prevention or risk factor management, 2) managing progression of the disease, and 3) controlling clinical signs. Proper nutrition, weight control, controlled exercise, physical therapy, anti-inflammatory and analgesic medication, and other disease-modifying agents are often incorporated into all three categories to manage OA. Previous studies demonstrated that a food containing high levels of eicosapentaenoic acid (EPA) helped improve the clinical signs of osteoarthritis in pet dogs, especially in the context of rising from a resting position, walking, running and playing with their owners. The mechanisms likely for the potential clinical benefits of omega-3 fatty acids include controlling inflammation and reducing the expression and activity of cartilage proteoglycan degrading enzymes. The primary objective of this study was to determine if a therapeutic food alters the dose of a nonsteroidal anti-inflammatory drug (NSAID) required to manage clinical signs in dogs with OA.

STUDY DETAILS

The investigation was conducted as a 90-day prospective, randomized (dietary treatments), double-masked, controlled study in 35 veterinary hospitals in the United States. OA was diagnosed based on compatible history, clinical signs and radiographic evidence of arthritis in one or more joints on the clinically affected limb. To be eligible for inclusion, dogs also had to be at least 1 year of age, weigh 25 pounds or more, consume dry food and be free of systemic disease as determined by history physical examination, complete blood count (CBC), serum biochemistry analysis and urinalysis. Exclusion criteria included acute traumatic injuries, complicating disease conditions, preexisting conditions for which corrective surgery was anticipated during the feeding period, and recent intra-articular injection or arthrocentesis. Dogs satisfying the inclusion/exclusion criteria were randomly assigned to receive either a typical commercial dog food (control food) or a test food for 12 weeks. The test food (Hill's® Prescription Diet® Canine j/d™) contained a 39-fold increase in eicosapentenoic acid (EPA) concentration (xx% EPA dry matter basis), compared to the control food (xx% EPA, dry matter basis). Owners could feed either a dry food or a combination of dry plus canned foods of the control or test formulas.

Pet owner and veterinary clinical evaluations were completed at 0, 3, 6, 9 and 12 weeks. The pet owner evaluation consisted of a standardized questionnaire that included assessments of the frequency and severity of the following signs: difficulty rising from rest, limping, stiffness, soreness when touched, vocalizing in pain, aggression, lagging behind on walks, and reluctance in running, walking, jumping, climbing stairs, playing and general activity. Based on these activities, pet owners were also asked to provide an overall assessment of the severity of their pets' pain. The veterinary clinical assessment consisted of careful evaluation of the following parameters: reluctance to bear weight, lameness, reduced range of motion, pain on palpation of the affected joint and reluctance to hold up the contralateral limb. All dogs were being administered the NSAID carprofen to help manage clinical signs of OA. At each evaluation period, the veterinarian considered the results of the orthopedic examination and the pet owner's assessment to determine if lowering the dose of carprofen was feasible.

Pet owners reported a decrease in severity for 10 of 15 individual arthritic signs during the first 21 days of feeding Hill's® Prescription Diet® Canine j/d™. Pet owners also observed significantly greater pain reduction in dogs consuming Canine j/d, compared to the control food. Carprofen dose reductions were possible in 43% of dogs consuming Canine j/d vs. 32% of dogs eating the control food. Carprofen dose increases were necessary in 11% of the dogs consuming the control food and in only 2% of dogs consuming Canine j/d. For the group receiving Canine j/d the mean carprofen dose reduction was 25%. Significantly greater reductions in carprofen dose (mg/lb. body weight) were possible in the dogs consuming Canine j/d, compared with the control group.

CLINICAL IMPACT

This study indicates that nutritional management using a food with high levels of total omega-3 fatty acids and EPA helps improve the clinical signs of osteoarthritis in dogs. Furthermore, doses of NSAID can often be reduced in dogs with osteoarthritis consuming Hill's Prescription Diet Canine j/d.