

STUDIER I LEDSYGDOM OG ARTROSE

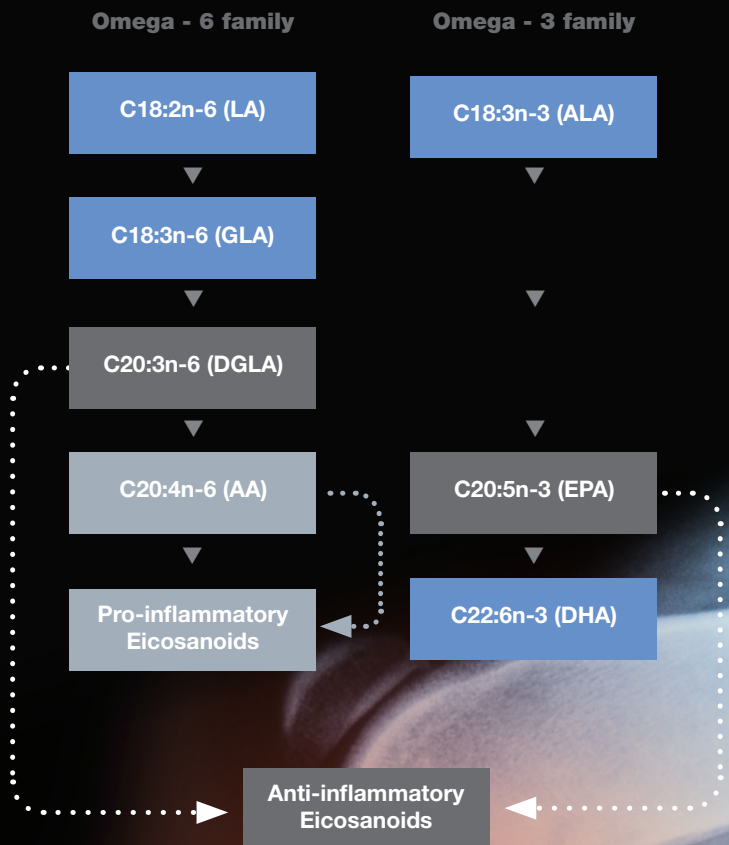
FUNKTIONEN AF OMEGA-6- OG OMEGA-3-FEDTSYRER OG VIGTIGHEDEN AF AT VÆLGE DEN RIGTIGE FEDTSYRE

Fedtsyrer spiller en nøglerolle i kroppens håndtering af inflammation. Celler som er involveret i at udløse det inflammatoriske respons, er rige på omega-6-fedtsyren arakidonsyre (AA), og eikosanoider afledt fra AA er proinflammatoriske.

Eikosanoider som dannes af omega-3-fedtsyren eicosapentaensyre (EPA) er mindre inflammatorisk og hjælper med at mindske inflammationen ved at konkurrere om samme enzymveje som de inflammatoriske omega-6-eikosanoider.

Pattedyr kan ikke selv producere omega-3- og omega-6-fedtsyrer, og de skal indtage det med føden. Kroppen behøver både omega-6- og omega-3-fedtsyrer, men eftersom de har modsat effekt på det inflammatoriske respons, er det vigtigt at de indtages i den rette balance.

Problemet er at omega-6 er tilgængelig fra et bredt spektrum af kilder inklusiv de fleste vegetabiliske olier, mens omega-3 ikke er lige så hyppigt forekommende. De fleste typiske vestlige kostvaner indeholder for meget omega-6 i forhold til omega-3. Dette kan udbedres gennem øget konsum af fisk.





EPA-FISKEOLIE NEDSÆTTER BRUSKNEDBRYDNINGEN

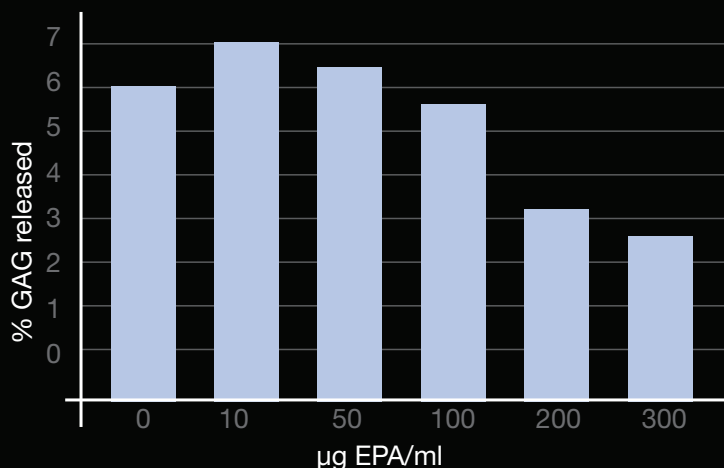
PATHOLOGIC INDICATORS OF DEGRADATION AND INFLAMMATION IN HUMAN OSTEOARTHRITIC CARTILAGE ARE ABROGATED BY EXPOSURE TO N-3 FATTY ACIDS.

Curtis et al. 2002 Arthritis Rheum 46: 1544-1553.

I et in vitro-studie blev bruskvæv dyrket med osteoarthritis i medium med forskellige store mængder af tilsat EPA eller i medium uden EPA.

Mængderne af GAG (glucosaminoglycaner) blev observeret for at opnå en måling af brusknedbrydning. Da GAG er en af hovedkomponenterne i brusk frigives disse når brusk nedbrydes. Jo større mængder frie GAG'er der kan påvises, jo mere brusk er der blevet nedbrudt.

Det blev observeret, at EPA-additivet i mediet indeholdt mindre mængder af fri GAGs. Brusknedbrydningen var således blevet reduceret ved tilsætning af EPA.



IMPELLIZERI ET AL. (2000) VISTE AT EN VÆGTREDUKTION KAN LINDRE DE KLINISKE SYMPTOMER VED ARTROSE.

EFFECT OF WEIGHT REDUCTION ON CLINICAL SIGNS OF LAMENESS IN DOGS WITH HIP OSTEOARTHRITIS.

Impellizeri JA1, Tetrick MA, Muir P. J Am Vet Med Assoc. 2000 Apr 1;216(7):1089-91.

Ved Start: Vægt 39kg, BCS 5 (=obese). I løbet af 10-19 uger tabte hundene 15% af den oprindelige kropsvægt og endte på BCS 3 (=ideelvægt).

Ved Start: Haltheden blev graderet på en skala fra 0-100 i skridt og trav.

Ved studiets afslutning hvor hundene havde nået deres ideelvægt var deres halthed forbedret signifikant og var næsten helt forsvundet.

ABSTRACT

OBJECTIVE: To determine the effect of weight reduction on clinical signs of lameness among overweight dogs with clinical and radiographic signs of hip osteoarthritis.

DESIGN: Nonblinded prospective clinical trial.

ANIMALS: 9 client-owned dogs with radiographic signs of hip osteoarthritis that weighed 11 to 12% greater than their ideal body weight and were examined because of hind limb lameness.

PROCEDURE: Dogs were weighed, and baseline body condition, hind limb lameness, and hip function scores were assigned. Severity of lameness was scored using a numerical rating scale and a visual analogue scale. Dogs were fed a restricted-calorie diet, with amount of diet fed calculated to provide 60% of the calories needed to maintain the dogs' current weights. Evaluations were repeated midway through and at the end of the weight-loss period.

RESULTS: Dogs lost between 11 and 18% of initial body weight. Body weight, body condition score, and severity of hind limb lameness were all significantly decreased at the end of the weight-loss period.

CONCLUSIONS AND CLINICAL RELEVANCE: Results suggest that in overweight dogs with hind limb lameness secondary to hip osteoarthritis, weight reduction alone may result in a substantial improvement in clinical lameness. At earlier time points in the study (day 21, 42) – in contrast to the GAG-group where improvements were not noticed before day 70.

HANSEN ET AL. 2008 VISTE AT OMEGA-3-FEDTSYRER MINDSKER AKTIVITETEN AF BRUSKNEDBRYDENDE ENZYMER.

FISH OIL DECREASES MATRIX METALLOPROTEINASES IN KNEE SYNOVIA OF DOGS WITH INFLAMMATORY JOINT DISEASE.

Hansen RA1, Harris MA, Pluhar GE, Motta T, Brevard S, Ogilvie GK, Fettman MJ, Allen KG. J Nutr Biochem. 2008 Feb;19(2):101-8. Epub 2007 May 24

Fremgangsmåde: Hundene fodres enten med foder indeholdende 480 mg EPA + DHA/MJ eller med et kontrolfoder. De fodres med dette fra en uge før operation af korsbåndsskade til 8 uger efter operationen.

Prøver til at måle indholdet af forstadier til brusknedbrydende enzymer blev taget fra det raske knæ på dag 7, 14 og 56. Det raske knæ anvendtes som model på et led udsat for ekstra stress pga. den større belastning på dette led i forbindelse med operation på det modsatte ben.

Resultat:

Man fandt på flere tidspunkter et lavere niveau af forstadier til de brusknedbrydende enzymer i fiskeoliegruppen hvilket i praksis mindsker nedbrydningen af brusk.

Pro-MMP-2: En signifikant reduktion i fiskeoliegruppen på dag 7 og 14.

Pro-MMP-9: En signifikant reduktion i fiskeoliegruppen ved dag 56.

(Obs, eftersom dette ikke fandtes på alle tidspunkter foreslås det at en højere koncentration måske kræves for optimal effekt).

ABSTRACT

This study was designed to determine whether dietary fish oil affects the expression and activity of matrix metalloproteinases (MMP), tissue inhibitors of MMP-2 (TIMP-2) and urokinase plasminogen activator (uPA) in synovial fluid from dogs with spontaneously occurring stifle (knee) instability in a single hind limb resulting from acute cranial cruciate ligament (CCL) injury.

Two groups of 12 dogs were fed diets from 1 week prior to surgery on the affected knee to 56 days post-surgery. The fish oil and control diets provided 90 and 4.5 mg, respectively, of combined eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA)/kg body weight per day. Plasma and synovial fluid, from both surgical and nonsurgical knee joints, were obtained at start of the diet (-7), surgery day (0) and 7, 14, 28 and 56 days post-surgery.

Plasma total EPA and DHA were significantly increased, and plasma total arachidonic acid (AA) was significantly decreased by the fish oil diet. In synovial fluid from the nonsurgical knee, fish oil treatment significantly decreased proMMP-2 expression at Days 7 and 14, and proMMP-9 expression at Day 56, and uPA activity at 28 days and significantly increased TIMP-2 expression at Days 7 and 28. There were no differences in MMP expression or activity, TIMP-2 expression and uPA activity in the surgical joint synovial fluid at any time throughout the study.

These results suggest that dietary fish oil may exert beneficial effects on synovial fluid MMP and TIMP-2 equilibrium in the uninjured stifle of dogs with unilateral CCL injury.



ET STUDIE AF ROUSH ET AL. 2010 HAR VIST AT EPA EFFEKTIVT NEDSÆTTER DE KLINISKE TEGN PÅ ARTROSE HOS HUND.

EVALUATION OF THE EFFECTS OF DIETARY SUPPLEMENTATION WITH FISH OIL OMEGA-3 FATTY ACIDS ON WEIGHT BEARING IN DOGS WITH OSTEOARTHRITIS

James K. Roush, dvm, ms, dacvs; Chadwick E. Dodd, dvm; Dale A. Fritsch, ms; Timothy A. Allen, dvm, dacvim; Dennis E. Jewell, phd, dacan; William D. Schoenherr, phd; Daniel C. Richardson, dvm, dacvs; Phillip S. Leventhal, phd; Kevin A. Hahn, dvm, phd, dacvim (J Am Vet Med Assoc 2010;236:59–66)

Dobbeltblindet placebokontrolleret studie vedrørende effekten på kliniske tegn af artrose ved indtagelse af en diæt med 2,5% fiskeolie.

Deltagende hunde: kontrolgruppe 16, testgruppe 22.

Vigtigste målparametre: Hvor godt hundene bar vægt på det påvirkede ben.

Testperiode: 90 dage

Resultat: 38% af hundene i kontrolgruppen viste en forbedring (placeboeffekten), mens 82% af hundene i testgruppen viste en forbedring.

ABSTRACT

OBJECTIVE—To evaluate the effects of a food supplemented with fish oil omega-3 fatty acids on weight bearing in dogs with osteoarthritis.

DESIGN—Randomized, double-blinded, controlled clinical trial.

ANIMALS—38 client-owned dogs with osteoarthritis examined at 2 university veterinary clinics.

PROCEDURES—Dogs were randomly assigned to receive a typical commercial food (n = 16) or a test food (22) containing 3.5% fish oil omega-3 fatty acids. On day 0 (before the trial began) and days 45 and 90 after the trial began, investigators conducted orthopedic evaluations and force-plate analyses of the most severely affected limb of each dog, and owners completed questionnaires to characterize their dogs' arthritis signs.

RESULTS—The change in mean peak vertical force between days 90 and 0 was significant for the test-food group (5.6%) but not for the control-food group (0.4%). Improvement in peak vertical force values was evident in 82% of the dogs in the test-food group, compared with 38% of the dogs in the control-food group. In addition, according to investigators' subjective evaluations, dogs fed the test food had significant improvements in lameness and weight bearing on day 90, compared with measurements obtained on day 0.

CONCLUSIONS AND CLINICAL RELEVANCE—At least in the short term, dietary supplementation with fish oil omega-3 fatty acids resulted in an improvement in weight bearing in dogs with osteoarthritis.



Dechra
Veterinary Products

www.specific-diets.dk