expression of all MMPs was greater in meniscus than AC. In general MMP expression in the outer meniscus was more responsive to TNFα. TIMP-1 and -3 were generally decreased in all tissues by IL-1α and TNFα. There was more pro and active MMP-2, and pro-MMP-13 in control cultures of outer meniscus than AC or inner meniscus. Unlike AC, both meniscal zones released active MMP-13 after IL-1α and TNFα treatment, and active MMP-2 after IL-1α (inner) or both cytokines (outer).

Conclusions: Aggrecan processing differed between outer versus inner meniscus, with the later being similar to AC. Aggrecan proteolysis in the outer meniscus rather than AC, may be responsible for MPP-generated neoepitopes detected in OA human knee synovial fluid. The meniscus was generally more responsive to TNFα than AC, particularly the outer zone. Expression of MMPs and ADAMTS was higher in meniscus than AC, and unlike AC active MMPs were released from meniscus. The meniscus may contribute significantly to metalloproteinase levels in the joint, and therefore to cartilage breakdown in OA. Differential regulation of MMPs and ADAMTS in the knee joint meniscus compared with AC, and between inner and outer meniscal zones has important implications in OA therapy.

033 EFFECTS OF FEEDING A HIGH OMEGA-3 FATTY ACID DIET ON THE PAIN-RELATED DISABILITY IN DOGS WITH NATURALLY OCCURRING OSTEOARTHRITIS
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Purpose: Lameness associated with osteoarthritis (OA) is highly prevalent in dogs. Typically, OA dogs have a decrease in their limb function, demonstrate discomfort and disability with an unwillingness to perform daily life activities. To alleviate those clinical signs, management of OA based on diet enriched in polyunsaturated omega-3 fatty acids (omega-3 PUFAs) is broadly considered by clinicians despite the lack of published clinical trials supporting their efficacy. The aim of this study was to measure functional outcomes in lame client-owned dogs afflicted by naturally occurring OA before and after a 13 week period of feeding with either a control diet (CTR) or a veterinary therapeutic diet (VTD) containing high levels of omega-3 PUFAs. Hypothetically, the functional outcomes would be significantly improved from Baseline only in VTD-treated dogs. The magnitude of those changes would exceed CTR-treated dogs.

Methods: A randomized, double-blinded, placebo-controlled trial was performed in 45 lame client-owned dogs with OA. Dogs were included in the study when they had hind limb lameness observed by a veterinary surgeon, signs of OA upon orthopedic examination and low dynamic weight bearing (peak vertical force, PVF) recorded on force platform gait analysis. The presence of OA was confirmed on radiographs (hip and/or stifle). The initial cohort (baseline) of dogs was determined by the recordings of PVF (primary study outcome) and by client-specific outcome measures (CSOM). Dogs were randomly allocated to 3 groups (15/group) and received a control diet (CTR1 or CTR2) or the therapeutic VTD diet. Assessment by CSOM was performed twice weekly by the owner, and PVF was repeated after 13 weeks of treatment. Statistical analyses were performed using nonparametric tests at p = 0.05.

Results: Median PVF values increased significantly in VTD-treated dogs (+9.4%, p = 0.049). Neither CTR1 (-2.4%, p = 0.582) nor CTR2-treated (+2.6%, p = 0.187) dogs revealed such significant improvement. In addition, at week 13, CSOM assessment denoted a significant decrease in score (meaning improvement) for VTD-treated dogs (-20%, p = 0.021), but not for CTR1 (0%, p = 0.216) or CTR2 (-5.8%, p = 0.267). The magnitude of the changes of PVF and CSOM in VTD-treated dogs was not significantly different from CTR-treated dogs.

Conclusions: The use of a high quality diet and good nutritional habits may have prompted the monitoring of a trend toward a better function in CTR dogs, despite the absence of omega-3 PUFAs in these control diets. Nutrition-based OA management improved functional outcome and performance in daily life activities when dogs were fed with VTD over a short-term period. This veterinary diet containing omega-3 PUFAs should be considered as a therapeutic modality to alleviate the clinical signs in dogs afflicted by OA as a unique treatment or as part of a multimodal approach in the management of OA.