variables to predict medial compartment loading during walking in patients with knee OA. As we hypothesized, the effect of body mass on the KAM depends on the extent of limb malalignment. Those with greatest malalignment exhibit the greatest association between mass and peak knee adduction moment. Individuals with both increased mass and increased malalignment may benefit most from earlier intervention strategies intended to decrease dynamic knee joint loads.

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FUNCTIONAL OUTCOMES IN DOGS WITH NATURALLY OCCURRING OSTEOARTHRITIS: FORCE PLATFORM GAIT ANALYSIS AND LOCOMOTOR ACTIVITY RECORDING

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Purpose: In dogs, gait analysis using force platform documents the in vivo pathomechanics of osteoarthritis (OA) based on ground reaction forces generated during locomotion. In clinical trials designed to evaluate the efficacy of OA therapeutic modalities, gait analysis provide objective data to detect changes in limb function overtime. However, gait analysis requires special settings and, therefore, limits its uses to onsite evaluation, rendering difficult the recording of daily evolution of functional outcomes. To overcome this drawback, telemetric recording of accelerometry represents an interesting method to evaluate the dog’s continuous locomotor activity. Using an omni-directional accelerometer inserted in a dedicated collar, any dog movement is detected and collected with a pre-selected epoch, mapping the pattern of daily living activity. To date, little is known about the relationship between daily ambulatory monitoring and punctual limb function in dogs. The aim of the study was to test the hypothesis of a relationship between force platform gait analysis and accelerometry recording in dogs with naturally occurring OA.

Methods: Nine lame client-owned dogs were evaluated. In all dogs, lameness was examined by an orthopaedist, which was later confirmed by radiographic evidence of stifle or hip OA. Force platform gait analysis and accelerometry recording in dogs of the study was to test the hypothesis of a relationship between bulatory monitoring and punctual limb function in dogs. The aim of the study was to test the hypothesis of a relationship between daily ambulatory monitoring and punctual limb function in dogs. The aim of the study was to test the hypothesis of a relationship between bulatory monitoring and punctual limb function in dogs. The aim of the study was to test the hypothesis of a relationship between bulatory monitoring and punctual limb function in dogs.

Results: Positive correlation between the change in limb loading (PVF) and the level of locomotor activity was observed. Hence, dogs, with an increase in PVF at day 45, demonstrated a greater change in knee adduction moment. The relationship between knee OA pain and gait changes remains to be clarified and a better understanding of this relationship could advance treatment and prevention of disease progression. This study investigated changes in knee joint mechanics during walking with experimental knee pain in healthy volunteers, and whether the experimentally pain induced changes replicated the gait abnormalities observed in knee OA patients.

Methods: In a cross-over study 34 healthy subjects were tested on three different days; 3-dimensional gait analyses were conducted before, during and after pain induced by injections of hypertonic saline (0.75 ml) into the infrapatellar fat pad. Isotonic saline and sham injections were used as control conditions. Pain intensities were scored on a 100 mm visual analogue scale. Peak moments in frontal and sagittal planes were analyzed. The peak adduction moment (quadriceps) during early stance, and the terminal stance knee flexor moment (hamstring and gastrocnemius) are reduced among knee OA patients compared to healthy subjects, which may be interpreted as a load reducing gait pattern. Pain induced changes in the gait pattern could be a possible explanation for the differences between healthy subjects and between radiographic disease severity grades, and pain relief does increase both the adduction moments and sagittal plane moments. The relationship between knee OA pain and gait changes remains to be clarified and a better understanding of this relationship could advance treatment and prevention of disease progression. This study investigated changes in knee joint mechanics during walking with experimental knee pain in healthy volunteers, and whether the experimentally pain induced changes replicated the gait abnormalities observed in knee OA patients.

Results: Hypertonic saline injections caused a significant pain intensity (mean: 26 mm, P < 0.001) confined to the anterior knee. Isotonic saline and sham injections were used as control conditions. Pain intensities were scored on a 100 mm visual analogue scale. Peak moments in frontal and sagittal planes were analyzed. The results were compared to baseline data from 177 of knee OA patients enrolled in a dietary intervention study. The patients were divided into less severe and severe OA based K-L scores with cut-off at 2.

Results: Hypertonic saline injections caused a significant pain intensity (mean: 26 mm, P < 0.001) confined to the anterior knee. Isotonic saline and sham injections did not induce any significant pain (P>0.14 and 0.5 respectively). The experimental knee pain led to reduced peak adduction moments in the healthy volunteers while walking at the same speed (Figure 1). Similarly, the peak moments in the sagittal plane were significantly reduced by pain.