KAM = 0.12 and 0.05%Nm/BW-HT respectively). Function did not improve significantly following quadriceps strengthening in either alignment group but there was a significant improvement in knee pain in the more neutral group only (P < 0.001).

Conclusions: Quadriceps strengthening did not have any significant effect on the KAM in participants with either more varus or more neutral alignment. The benefits of quadriceps strengthening on pain were more evident in those with more neutral alignment. Knee alignment thus represents a local mechanical factor that can mediate symptomatic outcome from exercise interventions in knee OA.

**516 CURCUMIN (DIFERULOYLMETHANE) BLOCKS II-1ß STIMULATED GLYCOSAMINOGLYCAN AND PROSTAGLANDIN E2 RELEASE FROM CARTILAGE EXPLANTS IN AN INVITRO MODEL OF OSTEOARTHRITIS**

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Purpose: Curcumin is the principal biologically active component of turmeric (Curcuma longa). Although it has been extensively investigated for its anti-tumor, antioxidant and anti-inflammatory properties in various cell models, few studies have explored its potential for counteracting inflammatory and catabolic pathways in articular cartilage. Curcumin has been shown to suppress the NFκB pathway and protect isolated human chondrocytes from the catabolic effects of II-1β. The aim of this study was to see if curcumin could reduce glycosaminoglycan (GAG) and prostaglandin E2 (PGE2) release from explants of equine articular cartilage incubated with recombinant equine II-1ß in an invitro model of inflammatory OA.

Methods: Normal articular cartilage was obtained from weight bearing regions of the metacarpophalangeal joints of three horses euthanized for purposes other than for research. Cartilage explants were incubated with 10ng/ml equine recombinant II-1ß and curcumin at 25µM, 50 µM, 75µM or 100 µM at 37°C for 5 days in serum free DMEM. The dimethylthene blue (DMMB) assay was used to measure GAG release and PGE2 immunoassays were used to assess the potential anti-inflammatory effects of curcumin. Results were statistically analyzed using a one way ANOVA with a Newman-Keuls post hoc test. Statistical significance was set at P < 0.05.

**Results:** Curcumin significantly reduced II-1ß-stimulated GAG release in the explants at 50 µM (P < 0.05), 75 µM (P < 0.01) and 100 µM (P < 0.001). PGE2 release in response to II-1ß exposure was diminished by curcumin at 25µM (50 µM, 75µM and 100 µM (P < 0.001).

Conclusions: This study demonstrates that micromolar concentrations of curcumin exert significant anti-catabolic and anti-inflammatory effects in our inflammatory model of OA. These results support the use of this cartilage explant model as a screening assay for novel functional ingredients.

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**517 DUROLANE PROVIDES ANTI-NOCICEPTIVE EFFECTS IN A MODEL OF ARTICULAR JOINT PAIN**

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Purpose: The degenerative joint disease, osteoarthritis (OA), is characterised with a loss of cartilage and increased pain from affected joints. It is this chronic pain which most patients associate with their condition. Non-steroidal anti-inflammatory drugs (NSAIDs) are used to treat inflammation and as a knock on effect, through the reduction of COX2 and prostaglandin E2 (PGE2), can reduce the pain associated with OA. However, NSAIDs are generally administered systemically and can exhibit harmful side effects. Hyaluronans have also been shown to reduce the pain associated with OA but their potential for counteracting inflammatory OA. These results support the use of this cartilage explant model as a screening assay for novel functional ingredients.

Methods: The model utilized the pain inducing substances bradykinin & PGE2 administered intra-articular (IA) and unilaterally into the knee joints of adult female Lewis rats. Rats were randomly allocated to one of three groups, Durolane, saline or morphine. The saline and Durolane (20mg/ml) groups were injected IA (50 ul) once (Day 1), 2–4 hours before the first injection of bradykinin (182.25 µg) and PGE2 (0.5 µg) into the rat knee. The administration of the pain inducing agents was approximately 45 minutes before initiation of behavioural testing on each testing day. The morphine actived as a positive control and was administered at 2.5 mg/kg subcutaneously 30 minutes after bradykinin/PGE2 on each testing day. Behavioural testing was performed at 2 hours and 1, 2, 4, 7, 14, 21 and 28 days and included the assessment of mechanical thresholds at the knee, weight bearing and locomotor coordination on a rotarod.

**Results:** Mechanical thresholds at the knee were significantly decreased in saline treated animals. However, a single IA injection of Durolane on day 1 revealed similar anti-nociceptive effects as did the subcutaneous injection of morphine on each testing day until the end of the observation period on the knee which was seen at days 1, 2, 4, 14 and 28. Significant differences between saline and Durolane were seen at days 1, 2, 4, 14 and 28. The incapacitance test showed that animals treated with Durolane favoured a more 1:1 weight bearing between treated and untreated limbs. This result was again similar to those receiving a daily injection of morphine, whereas those treated with saline favoured the untreated limb, i.e. protecting the injected limb. Significant differences were seen at days 1, 2 and 14 between the saline and Durolane groups. Rotarod parameters indicating locomotive function were not significantly altered from baseline measures with any of the treatments administered. This demonstrates that animals could walk normally and that the pain inducing agents were not causing intolerable pain in the joints.

Conclusions: This study has demonstrated that a single IA injection of Durolane provides anti-nociceptive effects until at least day 28, in this model of induced joint pain.

**518 EVALUATION OF ORAL AVACADO/SOYBEAN UNSAPONIFIABLES USING AN EXPERIMENTAL MODEL OF EQUINE OSTEOARTHRITIS**

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Purpose: Joint disease and specifically osteoarthritis (OA) is one of the most prevalent and debilitating diseases affecting horses and humans.