

IL-1 $\beta$ , stimulated with IL-1 $\beta$  and Tendoactive<sup>®</sup> or pre-stimulated with Tendoactive<sup>®</sup> followed by co-treatment with Tendoactive<sup>®</sup> and IL-1 $\beta$ . Cell viability, adhesion, proliferation and the production of ECM were analysed with light microscopy and transmission electron microscopy (TEM). Immunofluorescence was used to evaluate production of type I collagen, the main extracellular matrix protein produced by tenocytes. We also studied the expression of the signal transduction and adhesion molecule  $\beta$ 1-integrin. Western Blotting (WB) was performed to evaluate the expression of apoptotic and inflammatory markers (metalloprotease-1 (MMP-1), cyclooxygenase-2 (Cox-2) and caspase-3).

**Results:** Tendoactive<sup>®</sup> had a potent stimulatory effect on human tenocyte proliferation and ECM production and was also able to suppress the catabolic, apoptotic and inflammatory effects induced by IL-1 $\beta$  in human tenocytes. This was demonstrated by the suppression of IL-1 $\beta$ -induced expression of MMP-1, Cox-2 and caspase-3 and up-regulation of type I collagen and  $\beta$ 1-integrin.

**Conclusions:** The results presented suggest that this formulation inhibits catabolic and inflammatory processes in an *in vitro* model of tendonitis. Tendoactive<sup>®</sup> may therefore be used on prophylaxis and treatment of tendinopathies to stimulate tendon healing, regeneration and repair.

#### 473

##### EFFECTIVENESS OF TREATMENT OF TENDINITIS AND PLANTAR FASCIITIS BY TENDOACTIVE<sup>TM</sup>

F. Nadal<sup>1</sup>, T. Bové<sup>2</sup>, D. Sanchís<sup>3</sup>, **D. Martínez-Puig**<sup>4</sup>  
<sup>1</sup>*Clínica Sagrada Família, Barcelona, Spain;* <sup>2</sup>*Futbol Club Barcelona, Barcelona, Spain;* <sup>3</sup>*Ctr. de Fisioteràpia Toni Bové, Barcelona, Spain;* <sup>4</sup>*Bioiberica S.A., Palafròls, Spain*

**Purpose:** To evaluate the effectiveness of Tendoactive<sup>TM</sup> administration in the treatment of 3 different tendinopathies, such as epicondylitis, supraspinous tendinopathy, achilles tendinopathy and plantar fasciitis.

**Methods:** Twenty patients with each clinical condition, clinically and ecographically verified, were enrolled between October 2007 and March 2008 resulting in a total of eighty participants. Patients were randomly assigned to either a study group (n = 10) or a control group (n = 10). During 3 months all the patients received between 20 and 30 rehabilitation sessions. In addition the study group consumed 2.16g/d of Tendoactive<sup>TM</sup>, a food supplement containing collagen, mucopolysaccharides and vitamin C. Pain, SF36 quality of life survey, as well as standardized functional assessment were evaluated before and 1, 2 and 3 months after treatment.

**Results:** The study group displayed a significant pain reduction (P<0.05) in all the subgroups except for the epicondylitis group. Pain reduction was associated with an improvement of at least one SF36 subscale in each subgroup (P<0.05). At the end of the treatment a significant improvement in the functional assessment of the physiotherapist was reported for all the tendinopathies (P<0.05).

**Conclusions:** Our results suggest that the use of Tendoactive<sup>TM</sup> for the management of tendinopathies and plantar fasciitis is safe and effective, leading to a significant reduction in pain and improving the biomechanical properties of the joint, without adverse effects.

## Pain: Clinical and Pathophysiology

#### 474

##### A DOSE-DEPENDENT IMPACT OF A STANDARDIZED POWDER MADE FROM HIPS OF A ROSE SUBSPECIES (*ROSA canina*) ON WOMAC PAIN SCORES IN PATIENTS WITH OSTEOARTHRITIS OF THE HIP AND/OR KNEE

K. Winther<sup>1</sup>, A.S. Hansen<sup>1</sup>, A. Kharazmi<sup>2</sup>  
<sup>1</sup>*Frederiksberg Hosp., Univ. of Copenhagen, Frederiksberg, Copenhagen, Denmark;* <sup>2</sup>*RigsHosp.et, Univ. of Copenhagen, Copenhagen, Denmark*

**Purpose:** A fixed daily dose of five grams of a standardized powder, made from hips of a Rose subspecies (*Rosa canina*), produced using a standardized methodology by Hyben Vital, Denmark, has significantly lowered symptom scores in patients with osteoarthritis and shown anti-inflammatory properties. The aim of the present study was to test whether there was any indication of a dose dependent impact on the WOMAC pain score, from the present rose hip powder, when evaluating a group of patients all suffering from osteoarthritis of the hip and/or knee according to the American College of Rheumatology criteria for the classification of osteoarthritis.

**Methods:** 52 patients, mean weight 78.3 kg (range 50 -122 kg), were randomly allocated to either 3 month treatment with five grams daily of encapsulated standardised rose hip powder, or five grams of placebo. There were no significant difference regarding weight, sex, duration of the disease, educational background or consumption of additional pain killers, when comparing the two groups. WOMAC questionnaires were used throughout the study and each patients noted his/hers daily consumption of rescue medication in a diary. Data evaluation was based on intention to treat (ITT). To search for a possible dose-dependency of the present treatment, a non-parametric Spearman correlation test was applied on the active treated group as well as the placebo group.

**Results:** An overall reduction in WOMAC pain, WOMAC stiffness and ADL function was observed as a result of active treatment when compared to placebo (p<0.05). Moreover active treatment resulted in a reduction in the consumption of rescue medication, as compared to the consumption observed during placebo (p<0.05). There was a significant negative correlation between weight and reduction in pain score in the group treated with rose hip (correlation coefficient = - 0.39, p value = 0.019) after three weeks treatment and (correlation coefficient = - 0.41, p value = 0.014) after three months treatment. No negative correlation was observed when a similar analysis was applied on placebo treated patients. No significant correlation to weight was observed when evaluating changes in WOMAC stiffness or ADL function in any of the two groups.

**Conclusions:** It is suggested that the present rose hip powder reduces WOMAC scores and the consumption of rescue medication in patients suffering from osteoarthritis of the hip and/or knee. Further more the present powder may act dose-dependently on pain.

#### 475

##### COMPARISON OF SYNOVIAL B-ENDORPHIN LEVEL IN AVASCULAR NECROSIS, RHEUMATOID ARTHRITIS AND OSTEOARTHRITIS OF THE FEMORAL HEAD AND KNEE

K. Tóth<sup>1</sup>, K. Wellinger<sup>1</sup>, **G. Sohar**<sup>1</sup>, T. Bender<sup>2</sup>, L. Mécs<sup>1</sup>  
<sup>1</sup>*Univ. of Szeged, Szeged, Hungary;* <sup>2</sup>*Hosp.ler Brothers of St John of God, Budapest, Hungary*

**Purpose:** Avascular necrosis of the femoral head (AVN) is a