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**LBP****LBP and brief intervention**

[Scand J Public Health](#). 2014 Oct 23. pii: 1403494814554029.

**How can a brief intervention contribute to coping with back pain? A focus group study about participants' experiences.**

[Ree E](#)<sup>1</sup>, [Harris A](#)<sup>2</sup>, [Indahl A](#)<sup>3</sup>, [Tveito TH](#)<sup>4</sup>, [Malterud K](#)<sup>5</sup>.

**Abstract**

**Background:** Our aim was to explore how individuals who had participated in a brief back and neck pain intervention perceived connections between the intervention and their subsequent coping.

**Methods:** Three focus group discussions were conducted with a sample of ten employees aged 20-67 years, who had participated in a brief intervention for back and neck pain, perceived the intervention as helpful and had returned or remained at work subsequent to the intervention. Participants were invited to share stories of how the intervention had made a positive difference to their work situation and everyday life and helped them cope with their complaints. Systematic text condensation was used for analysis.

**Results:** Analysis revealed several aspects of how the participants considered the intervention to be helpful. They emphasized the importance of having the information delivered in a comprehensible way, with the use of practical examples and images of the spine. Discussions revealed the significance of trusting the lecturers and perceiving them as experts. Understanding why they felt the pain and that it was not a sign of serious disease changed the participants' perception of how they could live with the complaints. They told stories of how they had exceeded their previous limits and dared to undertake activities they previously had avoided due to fear.

**Conclusions:** Having confidence in the lecturers and seeing them as experts that delivered the information in a comprehensible way helped participants to cope with their pain and was seen as the most important aspects of the brief back and neck pain intervention.

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**KEYWORDS:**

Focus groups; back pain; cognitive therapy; health communication; health education; psychological adaption; sick leave PMID: 25342660

**Drugs vs. conservative intervention**

Int J Rheum Dis. 2014 Oct 10. doi: 10.1111/1756-185X.12468.

**Treatment of low back pain: extended follow up of an original trial (NCT00600197) comparing a multidisciplinary group-based rehabilitation program with oral drug treatment alone up to 24 months.**

Tavafian SS<sup>1</sup>, Jamshidi AR, Shay B.

**Abstract****BACKGROUND:**

This study aimed to examine the effects of the extended follow-up of an original trial (NCT00600197) which has been published in The Clinical Journal of Pain.

**METHODS:**

Eighty-three percent (165 of 197) of the original study, including 82 patients in intervention and 83 patients in the control group, provided extended 24-month follow-up data. The intervention was a group-based multidisciplinary rehabilitation program which was continued by monthly motivational consultation. Data on measures of Short Form 36 (SF-36), Quebec Disability Scale (QDS) and Ronald Morris Disability (RDQ) were collected at 12-, 18- and 24-month follow-ups and analyzed through repeated measures analysis of variance.

**RESULTS:**

The patients who responded (n = 165) and who did not respond (n = 32) to the questionnaires were the same in terms of all baseline data except for physical function which was better for respondents (P < 0.05). Among the respondents, both intervention and control groups were the same at baseline except for education level and mental health which was better in the intervention group (P < 0.05). As a result, the intervention group had consistently better outcomes regarding all variables except for social function at all follow-up times. Furthermore, in the intervention group only for mental health the interaction between time and group was significant (P = 0.01).

**DISCUSSION:**

The designed multidisciplinary program could improve health-related quality of life and disability up to 24 months in chronic low back pain patients.

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**KEYWORDS:**

chronic low back pain; health-related quality of life; multidisciplinary treatment; oral drug treatment

PMID: 25307829

## DISC

### Trace elements

J Orthop Surg Res. 2014 Oct 25;9(1):99

#### **Comparison of trace element concentration in bone and intervertebral disc tissue by atomic absorption spectrometry techniques.**

Kubaszewski U, Zio A-Frankowska A, Frankowski M, Rogala P, Gasik Z, Kaczmarczyk J, Nowakowski A, Dabrowski M, Labeledz W, Mi Ksisiak G, Gasik R.

#### **Abstract**

Background Trace element (TE) analysis in human tissue has the dual purpose of assessing environmental pollution and metabolism. In literature, bone TE analysis is common, but studies in intervertebral disc (IVD) tissue are lacking. The aim of the study was evaluation of the difference of TE concentration in intervertebral disc and bone in patients with degenerative changes. The comparison of the tissues differing in metabolism, blood perfusion, or separateness from adjoining tissues but playing similar biomechanical role and presenting some common morphological traits may shed new light on metabolism nuances, degenerative process, as well as accumulation potential of IVD in respect to bone.

Methods In the study, we analyzed two types of samples: intervertebral disc (n =30, from 22 patients operated due to degenerative disc disease) and femoral bone (n =26, separately femoral head and neck, from 26 patients, acquired in total hip arthroplasty procedure in course of idiopathic osteoarthritis of the hip joint). In the samples we analyzed, with atomic absorption spectrometry, the concentrations of Pb, Ni, Mo, Cu, Mg, and Zn.

Results The element concentrations identified in bone are comparable to those presented in the literature. In the case of Pb, Ni, Mo, Mg, and Zn, the concentration in the bone was 2 to 25.8 times higher than that observed in the disc. Only the Cu concentration was higher in disc tissue than in bone. In disc tissue, fewer samples had TE concentrations below the detection threshold. We found significant differences in TE profiles in the compared tissues.

Conclusions The results show that the disc could serve as a more stable compartment for evaluating TE concentration, especially for TEs that are environmentally related.

PMID: 25342441

## VISCERA

### Breastfeeding and pelvic pain

[BJOG](#). 2014 Oct 20. doi: 10.1111/1471-0528.13118.

#### **Breastfeeding and pelvic girdle pain: a follow-up study of 10 603 women 18 months after delivery.**

[Bjelland E<sup>1</sup>](#), [Owe K](#), [Stuge B](#), [Vangen S](#), [Eberhard-Gran M](#).

#### **Abstract**

##### **OBJECTIVE:**

To study the associations of patterns and duration of breastfeeding with the persistence of pelvic girdle pain 18 months after delivery.

##### **DESIGN:**

Longitudinal population study.

##### **SETTING:**

Norway, for the period 1999-2011.

##### **POPULATION:**

A follow-up of 10 603 women with singleton deliveries in the Norwegian Mother and Child Cohort Study who reported pelvic girdle pain at 0-3 months postpartum.

##### **METHODS:**

Data were obtained by four self-administered questionnaires and linked to the Medical Birth Registry of Norway.

##### **MAIN OUTCOME MEASURE:**

Pelvic girdle pain, defined as combined anterior and bilateral posterior pelvic pain, 18 months after delivery.

##### **RESULTS:**

Eighteen months after delivery, 7.8% of respondents (829/10 603) reported pelvic girdle pain. Breastfeeding patterns at 5 months after delivery were not associated with persistence of pelvic girdle pain. The proportion of women with pelvic girdle pain 18 months after delivery increased as the duration of breastfeeding decreased (test for trend,  $P < 0.001$ ). The estimated associations attenuated after adjustment for educational level, smoking status, and body mass index, but remained statistically significant for the association between 0 and 2 months of breastfeeding and persistent pelvic girdle pain (adjusted odds ratio 1.34; 95% confidence interval 1.03-1.75). The association of short breastfeeding duration with persistent pelvic girdle pain was only present in women with body mass index  $\geq 25 \text{ kg/m}^2$ .

##### **CONCLUSIONS:**

Breastfeeding was associated with a small beneficial effect on the recovery process of pelvic girdle pain in women with a body mass index  $\geq 25 \text{ kg/m}^2$ . Among women with pelvic girdle pain, breastfeeding should be encouraged in accordance with the existing child-feeding recommendations.

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##### **KEYWORDS:**

Breastfeeding; lactation; pelvic girdle pain; prognosis; prognostic factors; the Norwegian Mother and Child Cohort Stud PMID: 25327939

## **Migraine and infection**

### **Association between *Helicobacter pylori* infection and migraine: A meta-analysis**

**World Journal of Gastroenterology, 10/28/2014 Clinical Article**

Su J, et al. – In this study, the authors aim to quantify the association between *Helicobacter pylori* (*H. pylori*) infection and migraine. The pooled data suggest a trend of more frequent *H. pylori* infections in patients with migraine.

#### **Methods**

- A systematic literature search of PubMed and EMBASE was conducted from inception to December 2013.
- Studies that provided data dealing with *H. pylori* infection in patients with migraine, as well as healthy controls, were selected.
- Meta-analysis was carried out using the odds ratio (OR) with a fixed or random effects model, and a 95%CI for the OR was calculated.
- An unconditional logistic regression model was used to analyze potential parameters related to *H. pylori* prevalence.
- Subgroup analyses were conducted as methods of detection and evidence grade.

#### **Results**

- Five case-control studies published between 2000 and 2013 were finally identified, involving 903 patients, with a total *H. pylori* infection rate of 39.31%.
- The prevalence of *H. pylori* infection was significantly greater in migraineurs than in controls (44.97% vs 33.26%, OR = 1.92, 95%CI: 1.05-3.51, P = 0.001).
- A sensitivity test indicated that no single study dominated the combined results. Univariate regression analysis found that publication year, geographical distribution and evidence grade were relevant to the results and were the main reason for the heterogeneity.
- Subgroup analysis found a significantly greater infection rate of *H. pylori* in Asian patients with migraine, but no statistically significant infection rate in European patients.
- The ORs were 3.48 (95%CI: 2.09-5.81, P = 0.000) and 1.19 (95%CI: 0.86-1.65, P = 0.288), respectively.

## **CERVICAL SPINE**

### **Chronic pain changes in kinematics**

#### **Interactive cervical motion kinematics: Sensitivity, specificity and clinically significant values for identifying kinematic impairments in patients with chronic neck pain**

**Manual Therapy , 10/27/2014 Clinical Article**

Bahat HS, et al.

Abstract

Chronic neck pain has been consistently shown to be associated with impaired kinematic control including reduced range, velocity and smoothness of cervical motion, that seem relevant to daily function as in quick neck motion in response to surrounding stimuli. The objectives of this study were: to compare interactive cervical kinematics in patients with neck pain and controls; to explore the new measures of cervical motion accuracy; and to find the sensitivity, specificity, and optimal cutoff values for defining impaired kinematics in those with neck pain.

In this cross-section study, 33 patients with chronic neck pain and 22 asymptomatic controls were assessed for their cervical kinematic control using interactive virtual reality hardware and customized software utilizing a head mounted display with built-in head tracking. Outcome measures included peak and mean velocity, smoothness (represented by number of velocity peaks (NVP)), symmetry (represented by time to peak velocity percentage (TTPP)), and accuracy of cervical motion.

Results demonstrated significant and strong effect-size differences in peak and mean velocities, NVP and TTPP in all directions excluding TTPP in left rotation, and good effect-size group differences in 5/8 accuracy measures.

Regression results emphasized the high clinical value of neck motion velocity, with very high sensitivity and specificity (85%–100%), followed by motion smoothness, symmetry and accuracy. These findings suggest cervical kinematics should be evaluated clinically, and screened by the provided cut off values for identification of relevant impairments in those with neck pain. Such identification of presence or absence of kinematic impairments may direct treatment strategies and additional evaluation when needed.

## HEADACHES

### Arterials changes

J Neurol Neurosurg Psychiatry. 2014 Oct 6. pii: jnnp-2014-308813. doi: 10.1136/jnnp-2014-308813

#### TRPV1, CGRP and SP in scalp arteries of patients suffering from chronic migraine.

Del Fiacco M<sup>1</sup>, Quartu M<sup>1</sup>, Boi M<sup>1</sup>, Serra MP<sup>1</sup>, Melis T<sup>1</sup>, Boccaletti R<sup>2</sup>, Shevel E<sup>3</sup>, Cianchetti C<sup>4</sup>.

#### Abstract

##### OBJECTIVE:

The transient receptor potential vanilloid type-1 receptor (TRPV1) and the neuropeptides calcitonin gene-related peptide (CGRP) and substance P (SP) appear to be differently involved in migraine pain. A role of neurovascular scalp structures is also suggested by several data. We performed a quantitative study of TRPV1-like immunoreactive (LI), CGRP-LI and SP-LI innervation of scalp arterial samples from patients affected with chronic migraine (CM).

##### METHODS:

Short segments of scalp arteries were collected from 17 participants undergoing vascular surgery for treatment-resistant CM and from 6 controls who underwent neurosurgery for various indications. The immunoreactivity of the arterial innervation to TRPV1, CGRP, SP and to the pan-neuronal marker protein gene product 9.5 (PGP9.5) was examined. Immunoreactive nerve fibres in vessel cross-sections were quantified by computerised image analysis.

##### RESULTS:

A significant increase of TRPV1-LI nerve fibres was found in the arterial wall from CM compared with control patients ( $p < 0.05$ ), while no significant difference was found for CGRP and SP.

##### CONCLUSIONS:

This study yields the first evidence for the existence of a TRPV1-LI innervation in human scalp arteries and provides the first quantitative assessment of the TRPV1-LI, CGRP-LI and SP-LI innervation of those vessels. The increase of TRPV1-LI periarterial nociceptive fibres of scalp arteries may represent, at least in some participants, a structural condition favouring CM (and possibly migraine), for example, by causing a higher sensitivity to algogenic agents.

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**KEYWORDS:** HEADACHE; MIGRAINE

PMID: 25288608

## **GLENOHUMERAL/SHOULDER**

### **Tennis players Rotation**

#### **Comparison of shoulder rotation range of motion In professional tennis players with and without history of shoulder pain**

**Manual Therapy , 10/27/2014 Clinical Article**

Moreno-Pérez V, et al.

#### Abstract

A glenohumeral internal rotation deficit of the dominant shoulder relative to the non-dominant shoulder (GIRD) is considered a risk factor for shoulder injury in overhead athletes.

The aim of this study was to investigate whether professional tennis players with a history of self-reported shoulder pain show differences in rotation range of motion (ROM) of the dominant and non-dominant shoulder compared to asymptomatic controls. Forty-seven professional tennis players belonging to the Association of Tennis Professionals World Tour took part in the study: 19 with shoulder pain history and 28 without. Passive shoulder ROM was measured using a process of photography and software calculation of angles. The dominant shoulder had reduced internal rotation (IR) ROM and total rotation ROM, and increased external rotation (ER) ROM compared to the non-dominant side. These differences did not correlate significantly with years of tennis practice, years of professional play, nor the players' age. However, glenohumeral rotation ROMs correlated negatively with the duration of tennis practice and players' age. Although tennis players with shoulder pain history showed less IR ROM in both shoulders compared with the no-pain group, no significant differences between groups were found for ER ROM, side-to-side ROM asymmetries, years of tennis practice or years of professional play.

In professional tennis players, limited IR ROM rather than a GIRD, seems to be associated with shoulder pain history, duration of tennis practice and the players' age, when compared to a similar cohort with no history of shoulder pain.

## **Shoulder position**

### **Predictor variables for forward scapular posture including posterior shoulder tightness**

**Journal of Bodywork & Movement Therapies , 10/27/2014 Clinical Article**

Lee JH, et al.

#### Summary

The purpose of this study was (1) to determine the relationships between the degree of forward scapular posture and the pectoralis minor index, the strength of the serratus anterior, the thoracic spine angle, and posterior shoulder tightness, and (2) to identify predictors of forward scapular posture, including posterior shoulder tightness.

The study recruited eighteen subjects with forward scapular posture and objectively measured the acromion distance, the pectoralis minor index, and the strength of the serratus anterior muscle of each participant. The amount of glenohumeral horizontal adduction and internal rotation were evaluated to measure posterior shoulder tightness. There were high intra-rater reliabilities in all measurements. The measurement results showed a statistically strong negative correlation between the degree of forward scapular posture and the pectoralis minor index. They also revealed a moderate positive correlation between the degree of forward scapular posture and the thoracic spine angle and a moderate negative relationship between the degree of forward scapular posture and the amount of the glenohumeral horizontal adduction.

A multiple regression analysis indicated that a total multiple regression model explained 93% of the amount of forward scapular posture. All predictor variables, including posterior shoulder tightness, should be considered while assessing, managing, and preventing forward scapular posture.

## **Myofascial issues**

### **Myofascial origin of shoulder pain: A literature review**

**Journal of Bodywork & Movement Therapies , 10/27/2014 Review Article Clinical Article**

Sergienko S, et al.

The aim of this study is to examine current evidence associated with myofascial origin of shoulder pain, with emphasis on diagnosis, prevalence and treatment efficacy. The data suggest that MTrPs in shoulder muscles is a common condition among patients with shoulder complaints and can be reliably diagnosed by palpation. The reviewed interventions seem to be effective in reducing pain, increasing range of motion and improving function of the painful shoulder.

#### **Methods**

- PubMed, Google Scholar and PEDro databases were searched from inception until December 2013 for terms relating to myofascial pain in the shoulder area.

#### **Results**

- Two studies showed a high reliability of the following diagnostic characteristics during palpation: presence or absence of the taut band, spot tenderness, jump sign, pain recognition and referred pain sensation.
- Three prevalence studies showed a significant greater number of active myofascial trigger points (MTrPs) on the painful shoulder side.
- Reduced muscle strength, accelerated muscle fatigue, inconsistent muscle activation pattern under load and reduced antagonist reciprocal inhibition were found in subjects with latent MTrPs in four observational studies.
- Six interventional studies demonstrated the effectiveness of dry needling, myofascial manipulation, ischemic compression, laser therapy and multimodal treatment

## ELBOW

### Olecranon bursitis

[Arch Orthop Trauma Surg.](#) 2014 Nov;134(11):1517-36. doi: 10.1007/s00402-014-2088-3. Epub 2014 Sep 19.

#### **Treatment of olecranon bursitis: a systematic review.**

[Sayegh ET](#)<sup>1</sup>, [Strauch RJ](#).

#### **Abstract**

##### **INTRODUCTION:**

The optimal management of olecranon bursitis is ill-defined. The purposes of this review were to systematically evaluate clinical outcomes for aseptic versus septic bursitis, compare surgical versus nonsurgical management, and examine the roles of corticosteroid injection and aspiration in aseptic bursitis.

##### **MATERIALS AND METHODS:**

The English-language literature was searched using PubMed, Cumulative Index to Nursing and Allied Health Literature, Physiotherapy Evidence Database, Allied and Complementary Medicine, and Cochrane Central Register of Controlled Trials. Analyses were performed for clinical resolution and complications after treatment of aseptic and/or septic olecranon bursitis.

##### **RESULTS:**

Twenty-nine studies containing 1278 patients were included. Compared with septic bursitis, aseptic bursitis was associated with a significantly higher overall complication rate ( $p = 0.0108$ ). Surgical management was less likely to clinically resolve septic or aseptic bursitis ( $p = 0.0476$ ), and demonstrated higher rates of overall complications ( $p = 0.0117$ ), persistent drainage ( $p = 0.0194$ ), and bursal infection ( $p = 0.0060$ ) than nonsurgical management. Corticosteroid injection for aseptic bursitis was associated with increased overall complications ( $p = 0.0458$ ) and skin atrophy ( $p = 0.0261$ ). Aspiration did not increase the risk of bursal infection for aseptic bursitis.

##### **CONCLUSIONS:**

Based primarily on level IV evidence, nonsurgical management of olecranon bursitis is significantly more effective and safer than surgical management. The clinical course of aseptic bursitis appears to be more complicated than that of septic bursitis. Corticosteroid injection is associated with significant risks without improving the outcome of aseptic bursitis.

##### **LEVEL OF EVIDENCE:**

Therapeutic IV.

PMID: 25234151

**OA****Environmental factors**

[J Child Orthop.](#) 2014 Oct 25.

**A review of environmental factors implicated in human developmental dysplasia of the hip.**

[Rhodes AM](#)<sup>1</sup>, [Clarke NM](#).

**Abstract****PURPOSE:**

Developmental dysplasia of the hip (DDH) is common, and the term encompasses a spectrum of anatomical abnormalities of the hip in which the femoral head displaces from the acetabulum. These abnormalities may be congenital or develop during infancy and/or childhood. Neither the prenatal and postnatal factors that predispose to hip instability nor the determinants of its resolution or persistence are well characterised. A multifactorial pathogenesis of DDH is commonly accepted and identified risk factors include a family history, being first born, breech presentation, female gender, high birth weight and oligohydramnios 1. Further to genetic factors, a number of nutritional, hormonal and mechanical influences on ligament laxity have been hypothesised.

**METHODS:**

A comprehensive search was conducted using NICE Healthcare Databases Advanced Search and Google Scholar engines, and the terms "nutrition", "environmental", "risk factors", "CDH" and "DDH". Wherever possible, evidence from randomised controlled trials, systematic reviews and expert review articles published in the medical and veterinary literature was considered.

**RESULTS:**

The relationship between a number of hormones and biochemical markers of nutritional status and the development of DDH has been repeatedly hypothesised upon in the last 45 years. Of those most frequently cited are calcium, vitamins C and D, and relaxin hormone. The evidence for these potential risk factors is provided mainly by canine studies, with a paucity of consistent or strong evidence in humans.

**CONCLUSIONS:**

DDH is common and remains a leading cause of hip osteoarthritis in young adults. Neonatal clinical screening programmes for this condition have been in practice since the 1950s, albeit with varying levels of sensitivity. This review summarises current understanding of some of the most frequently cited nongenetic hypothesised risk factors, the significance of which remain to be determined.

PMID: 25344062

**KNEE/ACL****Age and risk of ACL injury**

[Arch Orthop Trauma Surg.](#) 2014 Nov;134(11):1565-71. doi: 10.1007/s00402-014-2055-z. Epub 2014 Jul 24.

**Effects of menarcheal age on the anterior cruciate ligament injury risk factors during single-legged drop landing in female artistic elite gymnasts.**

[Kim KW<sup>1</sup>](#), [Lim BO](#).

**Abstract****INTRODUCTION:**

Although numerous studies have demonstrated the relationship between maturation and lower extremity biomechanics during landing in team sport athletes, we are presently uninformed of any research that examined the single-legged drop landing biomechanics of gymnasts. The purpose of this study is to investigate the effects of the menarcheal age on the lower extremity biomechanics during a single-legged drop landing in female artistic elite gymnasts.

**MATERIALS AND METHODS:**

Twenty-two female artistic elite gymnasts, between 9 and 36 years of age, participated in this study. The participants were divided into two groups pre- (n = 11) and post- (n = 11) menarche and asked to perform a single-legged drop landing on top of a 30 cm platform and land on a force plate. The statistical analysis consisted of the multivariate analysis with the level of significance set at  $p < 0.05$ .

**RESULTS:**

The post-menarche group showed a decrease in their maximum knee flexion angle and increase in their maximum knee abduction angle, maximum internal tibial rotation angle, maximum knee abduction moment, and hamstring-quadriceps muscle activity ratio compared with the pre-menarche group during the single-legged drop landing.

**CONCLUSIONS:**

The post-menarche group showed an increased noncontact anterior cruciate ligament injury risk, due to their greater knee loads, compared with the pre-menarche group.

PMID: 25055755

## MENISCUS

### Genes involved

[J Knee Surg](#). 2014 Oct 23.

#### Characterization of Meniscal Pathology Using Molecular and Proteomic Analyses.

[Roller BL](#)<sup>1</sup>, [Monibi F](#)<sup>2</sup>, [Stoker AM](#)<sup>2</sup>, [Bal BS](#)<sup>3</sup>, [Stannard JP](#)<sup>3</sup>, [Cook JL](#)<sup>2</sup>.

#### Abstract

The meniscus is a complex tissue and is integral to knee joint health and function. Although the meniscus has been studied for years, a relatively large amount of basic science data on meniscal health and disease are unavailable. Genomic and proteomic analyses of meniscal pathology could greatly improve our understanding of etiopathogenesis and the progression of meniscal disease, yet these analyses are lacking in the current literature.

Therefore, the objective of this study was to use microarray and proteomic analyses to compare aged-normal and pathologic meniscal tissues. Meniscal tissue was collected from the knees of five patient groups ( $n = 3/\text{group}$ ). Cohorts included patients undergoing meniscectomy with or without articular cartilage pathology, patients undergoing total knee arthroplasty with mild or moderate-severe osteoarthritis, and aged-normal controls from organ donors. Tissue sections were collected from the white/white and white/red zones of posterior medial menisci. Expression levels were compared between pathologic and control menisci to identify genes of interest (at least a  $\times 1.5$  fold change in expression levels between two or more groups) using microarray analysis. Proteomics analysis was performed using mass spectrometry to identify proteins of interest (those with possible trends identified between the aged-normal and pathologic groups).

The microarray identified 157 genes of interest. Genes were categorized into the following subgroups: (1) synthesis, (2) vascularity, (3) degradation and antidegradation, and (4) signaling pathways. Mass spectrometry identified 173 proteins of interest. Proteins were further divided into the following categories: (1) extracellular matrix (ECM) proteins; (2) proteins associated with vascularity; (3) degradation and antidegradation proteins; (4) cytoskeleton proteins; (5) glycolysis pathway proteins; and (6) signaling proteins. These data provide novel molecular and biochemical information for the investigation of meniscal pathology. Further evaluation of these disease indicators will help researchers develop algorithms for diagnostic, therapeutic, and prognostic strategies related to meniscal disorders.

Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.

PMID: 25340674

## OSTEOARTHRITIS/KNEE

### Hyaluronan

#### **Hyaluronan molecular weight distribution is associated with the risk of knee osteoarthritis progression**

Osteoarthritis and Cartilage , 10/27/2014 Clinical Article

Band PA, et al.

#### Summary

#### Objective

We investigated the relationship between the molecular weight (MW) distribution of hyaluronan (HA) in synovial fluid (SF) and risk of knee osteoarthritis (OA) progression.

#### Methods

HA MW was analyzed for 65 baseline knee SFs. At 3-year follow-up, knees were scored for change in joint space narrowing (JSN), osteophyte (OST) progression, or occurrence of total knee arthroplasty (TKA). HA MW distribution was analyzed using agarose gel electrophoresis (AGE), and its relationship to OA progression was evaluated using logistic regression. The association between HA MW and self-reported baseline knee pain was analyzed using Pearson's correlation coefficients.

#### Results

Knee OA was categorized as non-progressing (OST-/JSN-, 26 knees, 40%), or progressing based on OST (OST+/JSN-, 24 knees, 37%), OST and JSN (OST+/JSN+, 7 knees, 11%) or total knee arthroplasty (TKA, 8 knees, 12%). The MW distribution of HA in baseline SFs was significantly associated with the odds of OA progression, particularly for index knees. After adjusting for age, gender, BMI, baseline X-ray grade and pain, each increase of one percentage point in %HA below 1 million significantly increased the odds of JSN (odds ratios (OR) = 1.45, 95% CI 1.02–2.07), TKA or JSN (OR = 1.24, 95%CI 1.01–1.53) and the odds of any progression (OR = 1.16, 95% CI 1.01–1.32). HA MW distribution significantly correlated with pain.

#### Conclusion

These data suggest that the odds of knee OA progression increases as HA MW distribution shifts lower and highlight the value of reporting MW distribution rather than just average MW values for HA.

## **FOOT AND ANKLE**

### **Identifying foot posture**

#### **Clinical analysis and baropodometric evaluation in diagnosis of abnormal foot posture: A clinical TRIAL**

**Journal of Bodywork & Movement Therapies , 10/27/2014 Clinical Article**

Neto HP, et al.

#### Summary

Foot posture involves the integration of sensory information from the periphery of the body. This information generates precise changes through fine adjustments that compensate for the continuous, spontaneous sway of the body in the standing position. Orthopedic insoles are one of the therapeutic resources indicated for assisting in this process. Evaluation of these podal influences, by clinical examination and/or the assistance of baropodometry becomes crucial.

Thus, the aim of the present study was determine the combination of the components of orthopedic insoles using two different evaluation methods. Forty healthy female volunteers between 18 and 30 years participated in the study. The volunteers were submitted to two different evaluations: clinical analysis and baropodometry. During the exams, different insole components were tested. The statistical analysis of the two evaluations revealed differences regarding the normalization of posture following the application of the insole components and in the determination of the combination of these components.

The findings suggest that the clinical analysis is a fast and accurate method for determining the immediate benefits of the postural insole components and is therefore the more indicated method for the evaluation of foot posture, but does not present a concrete foundation to differentiate it with respect to baropodometric evaluation in the assessment and diagnosis of foot posture, however, a greater difficulty was encountered in achieving posture normalization when using information obtained through baropodometry.

## MUSCLES

### Compartment syndrome

[J Orthop Trauma](#). 2014 Nov;28(11):e263-8. doi: 10.1097/BOT.000000000000097.

#### **The Severity of Microvascular Dysfunction Due to Compartment Syndrome Is Diminished by the Systemic Application of CO-Releasing Molecule-3.**

[Lawendy AR<sup>1</sup>](#), [Bihari A](#), [Sanders DW](#), [Potter RF](#), [Cepinskas G](#).

#### **Abstract**

##### **OBJECTIVES:**

To examine the protective effects of carbon monoxide (CO), liberated from a novel CO-releasing molecule (CORM-3), on the function of compartment syndrome (CS)-challenged muscle in a rodent model, thus providing for a potential development of a pharmacologic adjunctive treatment for CS.

##### **METHODS:**

Wistar rats were randomized into 4 groups: sham (no CS), CS, CS with inactive CORM-3 (iCORM-3), and CS + CORM-3 (10 mg/kg intraperitoneally). CS was induced by elevation of intracompartmental pressure to 30 mm Hg through an infusion of isotonic saline into the anterior compartment of the hind limb for 2 hours. Both CORM-3 and iCORM-3 were injected immediately after fasciotomy. Microvascular perfusion, cellular tissue injury, and inflammatory response within the extensor digitorum longus muscle were assessed using intravital video microscopy 45 minutes after fasciotomy. Systemic levels of tumor necrosis factor alpha (TNF- $\alpha$ ) were also measured.

##### **RESULTS:**

Elevation of intracompartmental pressure resulted in significant microvascular perfusion deficits (23%  $\pm$  2% continuously perfused capillaries in CS vs. 76%  $\pm$  4% in sham,  $P < 0.0001$ ; 55%  $\pm$  2% nonperfused capillaries in CS vs. 13%  $\pm$  2% in sham,  $P < 0.0001$ ), significant increase in tissue injury (ethidium bromide/bisbenzimidazole of 0.31  $\pm$  0.05 in CS vs. 0.05  $\pm$  0.03 in sham,  $P < 0.0001$ ) and adherent leukocytes (13.7  $\pm$  0.9 in CS vs. 1.8  $\pm$  0.5 in sham,  $P < 0.0001$ ), and a progressive rise in systemic TNF- $\alpha$ . CORM-3 (but not iCORM-3) treatment restored the number of continuously perfused capillaries (57%  $\pm$  5%,  $P < 0.001$ ), diminished tissue injury (ethidium bromide/bisbenzimidazole of 0.07  $\pm$  0.01,  $P < 0.001$ ), reversed the CS-associated rise in TNF- $\alpha$ , and decreased leukocyte adherence (0.6  $\pm$  0.3,  $P < 0.001$ ).

##### **CONCLUSIONS:**

CORM-3 displays a potent protective/anti-inflammatory action in an experimental model of CS, suggesting a potential therapeutic application to patients at risk of developing CS.

PMID: 24675751

## CORE

### Abdominal muscle strength and LBP

#### **Abdominal muscle strength is related to the quality of life among older adults with lumbar osteoarthritis**

**Journal of Bodywork & Movement Therapies , 10/27/2014 Clinical Article**

Vieira S, et al.

The aim of the present study was to determine the association between abdominal muscle strength and quality of life among older adults with lumbar osteoarthritis. Based on the present findings, older adults with lumbar osteoarthritis with greater abdominal muscle strength have a better quality of life.

#### **Methods**

- A blind, cross-sectional study was conducted involving 40 older adults: 20 with lumbar osteoarthritis (12 women and 8 men, mean age of  $65.90 \pm 4.80$  years) and 20 controls (14 women and 6 men, mean age of  $67.90 \pm 4.60$  years).
- The volunteers were submitted to an abdominal muscle strength test.
- Quality of life was evaluated using the SF-36 questionnaire.

#### **Results**

- Both abdominal muscle strength and quality of life scores were significantly lower in the group with lumbar osteoarthritis in comparison to the controls ( $p < 0.05$ ).
- Moreover, significant and positive associations were found between abdominal muscle strength and the subscales of the SF-36 questionnaire ( $p < 0.05$ ,  $0.421 \geq r_s \leq 0.694$ ).

## Body awareness

### **Effectiveness of body awareness interventions in fibromyalgia and chronic fatigue syndrome: A systematic review and meta-analysis**

**Journal of Bodywork & Movement Therapies , 10/27/2014 Evidence Based Medicine**

#### **Review Article**

Courtois I, et al.

The aim of this systematic review is to assess the effectiveness of body awareness interventions (BAI) in fibromyalgia (FM) and chronic fatigue syndrome (CFS). Body awareness seems to play an important role in anxiety, depression and HRQoL. Still, interpretations have to be done carefully since the lack of high quality studies.

#### **Methods**

- Two independent readers conducted a search on Medline, Cochrane Central, PsycINFO, Web of knowledge, PEDro and Cinahl for randomized controlled trials.

#### **Results**

- The authors identified and screened 7.107 records of which 29 articles met the inclusion criteria.
- Overall, there is evidence that BAI has positive effects on the Fibromyalgia Impact Questionnaire (FIQ) (MD -5.55; CI -8.71 to -2.40), pain (SMD -0.39, CI -0.75 to -0.02), depression (SMD -0.23, CI -0.39 to -0.06), anxiety (SMD -0.23, CI -0.44 to -0.02) and Health Related Quality of Life (HRQoL) (SMD 0.62, CI 0.35–0.90) when compared with control conditions.
- The overall heterogeneity is very strong for FIQ (I2 92%) and pain (I2 97%), which cannot be explained by differences in control condition or type of BAI (hands-on/hands-off).
- The overall heterogeneity for anxiety, depression and HRQoL ranges from low to moderate (I2 0%–37%).

## **FIBROMYALGIA**

### **Effects of massage**

#### **Effectiveness of different styles of massage therapy in fibromyalgia: A systematic review and meta-analysis**

**Manual Therapy , 10/27/2014 Clinical Article**

Yuan SLK, et al.

Limited evidence supports the application of connective tissue massage and Shiatsu. Manual lymphatic drainage may be superior to connective tissue massage, and Swedish massage may have no effects. Overall, most styles of massage therapy consistently improved the quality of life of fibromyalgia patients.

#### **Methods**

- Ten randomized and non-randomized controlled trials investigating the effects of massage alone on symptoms and health-related quality of life of adult patients with fibromyalgia were included.
- Two reviewers independently screened records, examined full-text reports for compliance with the eligibility criteria, and extracted data.
- Meta-analysis (pooled from 145 participants) shows that myofascial release had large, positive effects on pain and medium effects on anxiety and depression at the end of treatment, in contrast with placebo; effects on pain and depression were maintained in the medium and short term, respectively.

#### **Results**

- Narrative analysis suggests that: myofascial release also improves fatigue, stiffness and quality of life; connective tissue massage improves depression and quality of life; manual lymphatic drainage is superior to connective tissue massage regarding stiffness, depression and quality of life; Shiatsu improves pain, pressure pain threshold, fatigue, sleep and quality of life; and Swedish massage does not improve outcomes.
- There is moderate evidence that myofascial release is beneficial for fibromyalgia symptoms.