

# ABSTRACTS

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## 1. LUMBAR SPINE

### Spinal abnormalities

J Child Orthop. 2016 Jun 23. [

#### **Patterns of congenital bony spinal deformity and associated neural anomalies on X-ray and magnetic resonance imaging.**

Trenga AP<sup>1</sup>, Singla A<sup>2</sup>, Feger MA<sup>1</sup>, Abel MF<sup>1</sup>.

#### **PURPOSE:**

Congenital malformations of the bony vertebral column are often accompanied by spinal cord anomalies; these observations have been reinforced with the use of magnetic resonance imaging (MRI). We hypothesized that the incidence of cord anomalies will increase as the number and complexity of bony vertebral abnormalities increases.

#### **METHODS:**

All patients aged  $\leq 13$  years ( $n = 75$ ) presenting to the pediatric spine clinic from 2003-2013 with congenital bony spinal deformity and both radiographs and MRI were analyzed retrospectively for bone and neural pathology. Chi-squared analysis was used to compare groups for categorical dependent variables. Independent t tests were used for continuous dependent variables. Significance was set at  $p < 0.05$ .

#### **RESULTS:**

Fifty-five percent of congenital spine deformity patients ( $n = 41$ ) had associated spinal cord anomalies on MRI. Complex bony abnormalities had a higher incidence of cord anomalies than simple abnormalities (67, 37 %;  $p = 0.011$ ). Mixed deformities of segmentation and formation had a higher incidence of cord anomalies (73 %) than failures of formation (50 %) or segmentation (45 %) alone ( $p = 0.065$ ). Deformities in the sacrococcygeal area had the highest rate of spinal cord anomalies (13 of 15 patients, 87 %). In 35 cases (47 %), MRI revealed additional bony anomalies that were not seen on the radiographs.

#### **CONCLUSIONS:**

As the number of bony malformations increased, we found a higher incidence of cord anomalies. Clinicians should have increased suspicion of spinal cord pathology in the presence of mixed failures of segmentation and formation.

#### **KEYWORDS:**

Congenital spinal deformity; MRI; Scoliosis; Spinal cord; X-ray

PMID: 27339475

## 2. LBP

### Single interventions

BMC Musculoskelet Disord. 2016 Jun 10;17(1):258. doi: 10.1186/s12891-016-1110-z.

#### **Implementation interventions to improve the management of non-specific low back pain: a systematic review.**

Mesner SA<sup>1</sup>, Foster NE<sup>2</sup>, French SD<sup>3</sup>.

#### **BACKGROUND:**

Recommendations in clinical practice guidelines for non-specific low back pain (NSLBP) are not necessarily translated into practice. Multiple studies have investigated different interventions to implement best evidence into clinical practice yet no synthesis of these studies has been carried out to date. The aim of this study was to systematically review available studies to determine whether implementation interventions in this field have been effective and to identify which strategies have been most successful in changing healthcare practitioner behaviours and improving patient outcomes.

#### **METHODS:**

A systematic review was undertaken, searching electronic databases until end of December 2012 plus hand searching, writing to key authors and using prior knowledge of the field to identify papers. Included studies evaluated an implementation intervention to improve the management of NSLBP in clinical practice, measured key outcomes regarding change in practitioner behaviour and/or patient outcomes and subjected their data to statistical analysis. The Cochrane Effective Practice and Organisation of Care (EPOC) recommendations about systematic review conduct were followed. Study inclusion, data extraction and study risk of bias assessments were conducted independently by two review authors.

#### **RESULTS:**

Of 7654 potentially eligible citations, 17 papers reporting on 14 studies were included. Risk of bias of included studies was highly variable with 7 of 17 papers rated at high risk. Single intervention or one-off implementation efforts were consistently ineffective in changing clinical practice. Increasing the frequency and duration of implementation interventions led to greater success with those continuously ongoing over time the most successful in improving clinical practice in line with best evidence recommendations.

#### **CONCLUSIONS:**

Single intervention or one-off implementation interventions may seem attractive but are largely unsuccessful in effecting meaningful change in clinical practice for NSLBP. Increasing frequency and duration of implementation interventions seems to lead to greater success and the most successful implementation interventions used consistently sustained strategies.

#### **KEYWORDS:**

Best practice guidelines; Implementation; Non-specific low back pain

PMID: [27286812](#)

**Course of chronic LBP**

Clin J Pain. 2016 Jul;32(7):580-7. doi: 10.1097/AJP.0000000000000308.

**The Course of the Spatial Extent of Pain in Nonspecific Chronic Back Pain: A Prospective Population-based Cohort Study With Clinical Evaluation.**

Tesarz J<sup>1</sup>, Gerhardt A, Hartmann M, Kohlmann T, Eich W.

**OBJECTIVES:**

Longitudinal population-based studies on the natural course of nonspecific chronic back pain (nsCBP) concerning the spatial extent of pain are scarce. This study aims to assess the natural course of nsCBP patients concerning their spatial extent of pain and physical impairment over time.

**METHODS:**

Analyses were based on a prospective, population-based survey with clinical evaluation. A representative population-based sample of 4000 German adults was sent a pain questionnaire. Patients mentioning nsCBP in the questionnaire were invited to a comprehensive clinical evaluation, including 1- and 2-year follow-ups. On the basis of pain drawings, the course of the spatial extent of pain over time was classified as "constant-local," "constant-widespread," "constant-amelioration," "constant-spreading," or "variable." Physical impairment was assessed by the Back Performance Scale as an objective clinical assessment tool that measures self-reported activity limitation in daily functioning caused by nsCBP.

**RESULTS:**

Pain drawings and physical assessment from 3 visits were available from 165 patients. The course of the spatial extent of pain was constant-local in 39.4% and constant-widespread in 18.2% of all patients, whereas 11.5% reported a variable course. Constant-amelioration was observed in 18.2% and constant-spreading was observed in 12.7%. Physical impairment remained unchanged over the time in all groups and was worst in the constant-widespread group.

**DISCUSSION:**

Most nsCBP patients report a stable pain extent over the time of the study, whereas a constant spread of pain is observed only in a minority of nsCBP patients. These findings challenge the concept of a continuous transition from local to widespread pain.

PMID: [26491937](#)

**Fear avoidance**

J Pain. 2016 May 31. pii: S1526-5900(16)30066-9. doi: 10.1016/j.jpain.2016.05.005.

**Neural correlates differ in high and low fear-avoidant chronic low back pain patients when imagining back-straining movements.**

Barke A1, Preis MA2, Schmidt-Samoa C3, Baudewig J4, Kröner-Herwig B2, Dechent P3.

The fear-avoidance model postulates that in an initial acute phase chronic low back pain (CLBP) patients acquire a fear of movement that results in avoidance of physical activity and contributes to the pain becoming chronic.

The current fMRI study investigated the neural correlates of imagining back-straining and neutral movements in CLBP patients with high (HFA) and low fear avoidance (LFA) and healthy pain-free participants. Ninety-three persons (62 CLBP patients, 31 healthy controls; age  $49.7 \pm 9.2$  years) participated. The CLBP patients were divided into an HFA and an LFA group using the Tampa Scale of Kinesiophobia. The participants viewed pictures of back-straining and neutral movements and were instructed to imagine that they themselves were executing the activity shown. When imagining back-straining movements, HFA patients as well as healthy controls showed stronger anterior hippocampus activity than LFA patients. The neural activations of HFA patients did not differ from those of healthy controls. This may indicate that imagining back-straining movements triggered pain-related evaluations in healthy controls and HFA participants, but not in LFA participants. Although heightened pain expectancy in HFA compared to LFA patients fits well with the fear-avoidance model, the difference between healthy controls and LFA patients was unexpected and contrary to the fear-avoidance model. Possibly, negative evaluations of the back-straining movements are common but the LFA patients employ some kind of strategy enabling them to react differently to the back-straining events.

**PERSPECTIVE:**

It appears that low fear-avoidant back pain patients utilise some kind of strategy or underlying mechanism which enables them to react with less fear in the face of potentially painful movements. This warrants further investigation since countering fear and avoidance provide an important advantage with respect to disability.

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**KEYWORDS:**

chronic low back pain; fMRI; fear avoidance; fear of movement; kinesiophobia

### 3. DISC

#### Cytokines from disc DJD

Am J Phys Med Rehabil. 2016 Jun;95(6):407-15. doi: 10.1097/PHM.0000000000000399.

#### **Intervertebral Disc Cells Produce Interleukins Found in Patients with Back Pain.**

Zhang Y1, Chee A, Shi P, Adams SL, Markova DZ, Anderson DG, Smith HE, Deng Y, Plastaras CT, An HS.

#### **OBJECTIVE:**

To examine the link between cytokines in intervertebral disc (IVD) tissues and axial back pain.

#### **DESIGN:**

In vitro study with human IVD cells cultured from cadaveric donors and annulus fibrosus (AF) tissues from patients.

#### **RESULTS:**

Cultured nucleus pulposus (NP) and AF cells were stimulated with interleukin (IL)-1 $\beta$ . IL-8 and IL-7 gene expression was analyzed using real-time polymerase chain reaction. IL-8 protein was quantified by enzyme-linked immunosorbent assay. After IL-1 $\beta$  stimulation, IL-8 gene expression increased 26,541 fold in NP cells and 22,429 fold in AF cells, whereas protein released by the NP and AF cells increased 2,389- and 1,784-fold, respectively. IL-7 gene expression increased 3.3-fold in NP cells ( $P < 0.05$ ). Cytokine profiles in AF tissues collected from patients undergoing surgery for back pain (painful group) or scoliosis (controls) were compared by cytokine array. IL-8 protein in the AF tissues from patients with back pain was 1.81-fold of that in controls. IL-7 and IL-10 in AF tissues from the painful group were 6.87 and 4.63 times greater than the corresponding values in controls, respectively ( $P < 0.05$ ).

#### **CONCLUSION:**

Inflammatory mediators found in AF tissues from patients with discogenic back pain are likely produced by IVD cells and may play a key role in back pain.

## 5. SURGERY

### Micro discectomy return to play

#### Return to Play in Elite Athletes After Lumbar Microdiscectomy: A Meta-analysis.

Overley SC<sup>1</sup>, McAnany SJ, Andelman S, Patterson DC, Cho SK, Qureshi SA, Hsu WK, Hecht AC.

**STUDY DESIGN:**

Systematic literature review and meta-analysis of English language studies.

**OBJECTIVE:**

This study is a meta-analysis assessing elite athlete's return-to-play (RTP) rates after a lumbar herniated nucleus pulposus (HNP) treated with microdiscectomy. Additionally, we compare RTP rates of those treated operatively versus nonoperatively.

**SUMMARY OF BACKGROUND DATA:**

Microdiscectomy for a lumbar HNP in elite athletes remains a controversial subject with no consensus in the literature regarding true RTP.

**METHODS:**

A literature search of Medline, Embase, and Cochrane Reviews was performed. The pooled results were analyzed by calculating the effect size based on the logit event rate. Studies were weighted by the inverse of the variance, which included both within and between study errors. Confidence intervals (CIs) were reported at 95%. Heterogeneity was assessed using the Q statistic and I.

**RESULTS:**

The initial literature search resulted in 547 articles, of which 14 were determined relevant on abstract review. Overall, nine studies provided data for 558 patients who underwent a lumbar microdiscectomy. The pooled clinical success rate was 83.5% (CI: 79.7%, 88.0%), which was statistically significant ( $P < 0.0001$ ). The studies demonstrated minimal heterogeneity Q value of 7.41 and I value of 5.53. Four studies included operative and nonoperative cohorts. The odds ratio of RTP with a symptomatic lumbar disc herniation was 1.13 (CI: 0.37-5.90). There was no statistical difference in RTP between the two groups ( $P = 0.59$ ).

**CONCLUSION:**

Elite athletes return to competition 83.5% of the time after undergoing a single level lumbar microdiscectomy. Additionally, when comparing lumbar microdiscectomy to non-operative treatment, there is no difference in RTP rates, suggesting that a more aggressive approach to managing a symptomatic HNP in this population with earlier surgical intervention may be employed judiciously if timing necessitates for the athlete's benefit.

**LEVEL OF EVIDENCE:** 3.

## 7. PELVIC ORGANS/WOMAN'S HEALTH

### Testicular pain

#### The clinical findings in young adults with acute scrotal pain

The American Journal of Emergency Medicine, 06/28/2016

Rottenstreich M, et al.

This study was led to look at the spectrum of diagnoses in young man with Acute Scrotal Pain (ASP) in a pre-hospital setting, the recurrence of noteworthy findings and their results. Testicular torsion (TT) is the etiology of ASP in just 0.12% of the visits to the primary care clinic. Patient postpone before going to the primary care is responsible for a large portion of the testes lost. Patient training notwithstanding high index of suspicion of primary care doctors are required for rescue of more testicles.

#### Methods

- From 2004 to 2014 the medical records of young adults by utilizing the key words: pain, testis, torsion and orchialgia in their obligatory military service presenting with ASP to primary care clinics was investigated.
- Anamnestic information, physical discoveries, primary care doctor choices, and last results were broke down.

#### Results

- The researchers recorded a sum of 9922 medical visits in this study.
- The most widely recognized diagnoses were Idiopathic scrotal pain, varicocele, scrotal trauma and genital tract infections.
- Testicular cancer was diagnosed in 3 (0.03%) visits .
- TT was the etiology of ASP in only 12 (0.12%) visits, and 60% the testes were salvaged.
- The mean duration of symptoms in the salvaged group was 6.33 hours and in the non-salvaged group 44 hours.



**Menopause and sleep**

Menopause. 2016 Jun;23(6):682-90. doi: 10.1097/GME.0000000000000612.

**Menopause status is associated with circadian- and sleep-related alterations.**

Gómez-Santos C1, Saura CB, Lucas JA, Castell P, Madrid JA, Garaulet M.

**OBJECTIVE:**

The aim of the study was to investigate whether postmenopausal women show differences in circadian-related variables and sleep characteristics compared with premenopausal women, and to analyze potential associations between these circadian-related variables and abdominal fat distribution or metabolic syndrome (MetS) components.

**METHODS:**

A total of 177 women were studied (127 premenopausal, 50 postmenopausal). Sixty percent of the total population was overweight/obese, with no significant differences between premenopausal (60%) and postmenopausal women (62%) ( $P=0.865$ ). Wrist temperature (WT) and rest-activity cycles were measured during 8 consecutive days, and sleep and food diaries collected. MetS characteristics and daily patterns of saliva cortisol were analyzed. Sleep characteristics were assessed with domiciliary polysomnography.

**RESULTS:**

Postmenopausal women showed a less robust rhythm in WT with lower amplitude ( $^{\circ}\text{C}$ ) ( $0.8\pm 0.4$  vs  $0.9\pm 0.5$ ) ( $P<0.05$ ) and lower mean temperature values at the midpoint of sleep than premenopausal women. Postmenopausal women were also more morning-type than premenopausal women, showing a phase advance of approximately 1 hour in WT and rest-activity rhythms, and more morning-type habits (earlier sleep onset/offset and breakfast intake) ( $P<0.05$ ). Postmenopausal women showed higher levels of activity in the morning and lower in the evening compared with premenopausal women ( $P<0.05$ ). Daily variability in cortisol was significantly reduced in postmenopausal women compared with premenopausal women ( $P<0.05$ ). Postmenopausal women had increased frequency of sleep-related breathing abnormalities ( $P<0.0001$ ). In the women studied, abdominal fat and MetS were associated with an increase in circadian alterations (high fragmentation and low amplitude of the rhythm) ( $P<0.05$ ).

**CONCLUSIONS:**

Postmenopausal women exhibit loss of circadian robustness and an increase in sleep abnormalities compared with premenopausal women.

**IBD and pregnancy**

Am J Gastroenterol. 2016 Jun 28. doi: 10.1038/ajg.2016.254.

**The Effects of Active IBD During Pregnancy in the Era of Novel IBD Therapies.**

de Lima-Karagiannis A<sup>1</sup>, Zelinkova-Detkova Z<sup>1,2</sup>, van der Woude CJ<sup>1</sup>.

**OBJECTIVES:**

Previous data on inflammatory bowel disease (IBD) relapse during pregnancy mainly originate from retrospective studies. The aim of this study was therefore (i) to evaluate the effect of active disease at conception and IBD disease type on disease relapse during pregnancy and (ii) to study the effects of disease relapse during pregnancy on birth outcomes in a prospective cohort with adequate representation of current treatments.

**METHODS:**

From 2008 to 2014, IBD women were recruited from an ongoing prospective clinical cohort. All patients with confirmed IBD diagnosis with a pregnancy wish or pregnancy were prospectively followed-up until pregnancy and delivery. Disease relapse was measured at each visit. Birth outcomes were recorded from the obstetrician.

**RESULTS:**

A total of 298 pregnancies were observed in 229 IBD patients (157 Crohn's disease (CD), 66 ulcerative colitis (UC), and 6 IBD unclassified), resulting in 226 live births. Active disease at conception was strongly associated with disease relapse during pregnancy (aOR=7.66, 95% confidence interval (CI): 3.77-15.54). UC patients experienced relapse during pregnancy more often than CD patients, independent of maternal age, smoking, periconceptional disease activity, previous IBD surgery, and the use of immunosuppressives or anti-tumor necrosis factor (TNF) (aOR=3.71, 95% CI:1.86-7.40). Disease relapse was not associated with adverse birth outcomes such as spontaneous abortion, low-birth weight, or preterm birth.

**CONCLUSIONS:**

This study confirms that active disease around conception increases the risk of disease relapse during pregnancy. In addition, UC patients relapse more often during pregnancy than CD patients. Birth outcomes were excellent, reflecting the stringent follow-up and treatment of this group of patients. Am J Gastroenterol advance online publication, 28 June 2016; doi:10.1038/ajg.2016.254.

PMID: [27349339](#)

**Sex hormones and pain**

Pain. 2016 Jul;157(7):1425-31. doi: 10.1097/j.pain.0000000000000535.

**Lower sex hormone levels are associated with more chronic musculoskeletal pain in community-dwelling elderly women.**

de Kruijf M<sup>1</sup>, Stolk L, Zillikens MC, de Rijke YB, Bierma-Zeinstra SM, Hofman A, Huygen FJ, Uitterlinden AG, van Meurs JB.

Chronic pain is more prevalent in women than in men, with increasing differences between sexes in advanced age.

This could be caused by differences in sex hormone levels. We therefore studied the relationship between sex hormones and the prevalence and incidence of chronic pain. The association between sex hormone levels and chronic pain was examined in 9717 participants aged 45 years and older from the Rotterdam Study, a population-based study. Chronic pain was defined as pain in the lower back, hands, knees and/or hips for at least 3 months. Sex hormone levels included estrogen, testosterone, androstenedione, and 17-hydroxyprogesterone. Relationships between hormones and prevalent and new onset chronic pain were analyzed using linear and logistic regression, stratified by gender. Women with androstenedione or estradiol levels in the lowest tertile had more chronic pain (odds ratio, 1.20; 95% CI, 1.03-1.39 and odds ratio, 1.27; 95% CI, 1.10-1.48, respectively). Mean estradiol levels were lower among men with chronic pain (mean difference -3.88 pmol/L;  $P = 0.005$ ). Lowest tertile 17-hydroxyprogesterone in women was associated with 38% more new onset pain. All these associations were independent from age, body mass index, health and lifestyle factors, and osteoarthritis. Lower sex hormone levels are associated with chronic musculoskeletal pain, independent from lifestyle and health-related factors, in community-dwelling elderly women.

These results suggest that sex hormones play a role in chronic pain and should be taken into account when a patient presents with chronic pain. Therefore, sex hormones may be a potential treatment target for these patients.

PMID: [27331348](#)

**Alcohol and menopause**

Hum Reprod Update. 2016 Jun;22(4):516-28. doi: 10.1093/humupd/dmw013. Epub 2016 Jun 8.

**Association of alcohol consumption with the onset of natural menopause: a systematic review and meta-analysis.**

Taneri PE<sup>1</sup>, Kiefte-de Jong JC<sup>2</sup>, Bramer WM<sup>3</sup>, Daan NM<sup>4</sup>, Franco OH<sup>5</sup>, Muka T<sup>6</sup>.

**BACKGROUND:** Early onset of menopause is associated with long-term health risks, including cardiovascular disease and premature death. Although alcohol intake has been suggested to affect the age at which natural menopause occurs, results from observational studies are not consistent.

**OBJECTIVE AND RATIONALE:** In the view of the differing risks to the health of early menopause and the increasing trends in alcohol consumption in women, in this systematic review, we aimed to quantify the association between all levels of alcohol consumption and menopause onset.

**SEARCH METHODS:** Six electronic databases (Medline, Embase, Cochrane, PubMed, Google Scholar and Web of Science) were systematically searched until 4 November 2015 to identify relevant studies assessing the association between alcohol consumption and onset of menopause. Two independent reviewers screened the titles and abstracts of all initially identified studies according to the selection criteria. Studies were sought if they (i) were observational cross-sectional, prospective and interventional studies, (ii) had reported on natural onset of menopause, (iii) had reported on alcohol consumption, (iv) had assessed the association between alcohol consumption and menopause onset, (v) were conducted in humans and (vi) were not conducted in patients with cancer. Data were extracted by two independent reviewers using a predesigned data-collection form. The primary exposure variable was the presence of active alcohol drinking at baseline compared with a reference group of non-drinkers. Pooled relative risks (RRs) were calculated.

**OUTCOMES:** Of the 1193 references (all in English language) reviewed for eligibility, 22 articles based on 20 unique studies were included in the final analysis. A total of 41 339 and 63 868 non-overlapping women were included in the meta-analysis of cross-sectional and observational cohort studies, respectively. In cross-sectional studies, the pooled RR for earlier onset of menopause was 0.86 (95% confidence interval (CI): 0.78-0.96) between drinkers versus non-drinkers. Analysis of the levels of alcohol consumed showed that low and moderate alcohol consumption (more than one drink per week (RR = 0.60; 95% CI: 0.49-0.75) and three or fewer drinks per week (RR = 0.75; 95% CI: 0.60-0.94)) were associated with later menopause onset, compared to non-drinkers. In prospective studies, RR for earlier menopause onset was 0.95 (95% CI: 0.91-0.98) when comparing women who reported drinking alcohol versus women who did not. Analysis of the dose of alcohol consumed showed that low-to-moderate alcohol intake (0-8 g/day (RR = 0.95; 95% CI: 0.93-0.98), and 16 g/day (RR = 0.89, 95%CI: 0.86-0.92)) was associated with later menopause onset, compared to non-drinking.

**WIDER IMPLICATIONS:**

The findings of this review indicate that alcohol consumption, particularly low and moderate alcohol intake, might be associated with later onset of menopause although the magnitude of the association is low. Further studies are needed to corroborate these findings, clarify the level of alcohol intake at which menopause is delayed and identify the potential mechanisms behind this association.

**KEYWORDS:**

age of menopause; alcohol; early menopause.; late menopause; low and moderate drinking; menopause; menopause onset PMID: [27278232](https://pubmed.ncbi.nlm.nih.gov/27278232/)

**Inflammatory diet and ovarian cancer**

Cancer Causes Control. 2016 Jul;27(7):897-906. doi: 10.1007/s10552-016-0767-9. Epub 2016 Jun 4.

**Dietary inflammatory index and ovarian cancer risk in a large Italian case-control study.**

Shivappa N<sup>1,2,3</sup>, Hébert JR<sup>4,5,6</sup>, Rosato V<sup>7,8</sup>, Rossi M<sup>7</sup>, Montella M<sup>9</sup>, Serraino D<sup>10</sup>, La Vecchia C<sup>7</sup>.

**BACKGROUND:**

While inflammation has been shown to play an important etiologic role in ovarian carcinogenesis, little is known about the association between inflammatory properties of diet and ovarian cancer risk.

**METHODS:**

We explored the association between the dietary inflammatory index (DII) and ovarian cancer risk in a multicentric Italian case-control study conducted between 1992 and 1999. Cases were 1,031 women with incident, histologically confirmed ovarian cancer from four areas in Italy. Controls were 2,411 women admitted to the same network of hospitals as the cases for acute, non-malignant and non-gynecological conditions, unrelated to hormonal or digestive-tract diseases or committed to long-term modifications of diet. DII scores were computed based on 31 nutrients and food items assessed using a reproducible and validated 78-item food frequency questionnaire. Odds ratios (ORs) were estimated through logistic regression models adjusting for age, total energy intake and other recognized confounding factors.

**RESULTS:**

Subjects in the highest quartile of DII scores (i.e., with the most pro-inflammatory diets) had a higher risk of ovarian cancer compared to subjects in the lowest quartile (i.e., with an anti-inflammatory diet) (OR<sub>Quartile4vs1</sub> 1.47, 95% confidence interval, CI, 1.07, 2.01; p trend = 0.009). When analyses were carried out using continuous DII, a significant positive association with ovarian cancer was observed: the OR for one-unit increment in DII score (corresponding to approximately 8 % of its range in the current study, +6.0 to -6.20) was 1.08 (95% CI 1.02, 1.14).

**CONCLUSION:**

A pro-inflammatory diet as indicated by higher DII scores is associated with increased ovarian cancer risk.

**KEYWORDS:**

Diet; Dietary Inflammatory Index; Ovarian cancer; Risk factor

PMID: [27262447](https://pubmed.ncbi.nlm.nih.gov/27262447/)

**Lipids and breast cancer**

Radiology. 2016 Jun 7:151959.

**Evaluation of Breast Lipid Composition in Patients with Benign Tissue and Cancer by Using Multiple Gradient-Echo MR Imaging.**

Freed M<sup>1</sup>, Storey P<sup>1</sup>, Lewin AA<sup>1</sup>, Babb J<sup>1</sup>, Moccaldi M<sup>1</sup>, Moy L<sup>1</sup>, Kim SG<sup>1</sup>.

**Purpose** To demonstrate the feasibility of the use of a rapid, noninvasive, in vivo imaging method to measure fatty acid fractions of breast adipose tissue during diagnostic breast magnetic resonance (MR) examinations and to investigate associations between fatty acid fractions in breast adipose tissue and breast cancer status by using this method.

**Materials and Methods** The institutional review board approved this retrospective HIPAA-compliant study and informed consent was waived. Between July 2013 and September 2014, multiple-echo three-dimensional gradient-echo data were acquired for 89 women. Spectra were generated and used to estimate fractions of monounsaturated fatty acid (MUFA), polyunsaturated fatty acid (PUFA), and saturated fatty acid (SFA) in the breast adipose tissue. Analysis of covariance and exact Mann-Whitney tests were used to compare groups and the Spearman rank correlation coefficient was used to characterize the association of each imaging measure with each attribute.

**Results** For postmenopausal women, MUFA was lower ( $0.38 \pm 0.06$  vs  $0.46 \pm 0.10$ ;  $P < .05$ ) and SFA was higher ( $0.31 \pm 0.07$  vs  $0.19 \pm 0.11$ ;  $P < .05$ ) for women with invasive ductal carcinoma than for those with benign tissue. No correlation was found between body mass index (BMI) and fatty acid fractions in breast adipose tissue. In women with benign tissue, postmenopausal women had a higher PUFA ( $0.35 \pm 0.06$  vs  $0.27 \pm 0.05$ ;  $P < .01$ ) and lower SFA ( $0.19 \pm 0.11$  vs  $0.30 \pm 0.12$ ;  $P < .05$ ) than premenopausal women.

**Conclusion** There is a possible link between the presence of invasive ductal carcinoma and fatty acid fractions in breast adipose tissue for postmenopausal women in whom BMI values are not correlated with the fatty acid fractions. © RSNA, 2016 Online supplemental material is available for this article.

PMID: [27266558](#)

**Cannabis and pregnancy**

Am J Obstet Gynecol. 2016 Jun 2. pii: S0002-9378(16)30262-9. doi: 10.1016/j.ajog.2016.05.044.

**Marijuana Use and Its Effects in Pregnancy.**

Chabarria KC1, Racusin DA1, Antony KM1, Kahr M1, Suter MA1, Mastrobattista JM1, Aagaard KM2.

**BACKGROUND:**

It is generally assumed that marijuana is one of the more widely used controlled substances during pregnancy. However, there remains a general paucity of population-based data regarding its use and subsequent perinatal morbidity. We hypothesized that direct patient query during pregnancy regarding marijuana, tobacco, and nicotine use would provide crucial initial population-based data on perinatal risk.

**OBJECTIVE:**

Our study sought to examine maternal and neonatal outcomes in pregnancies with reported marijuana exposure, in isolation or in combination with maternal cigarette smoking.

**STUDY DESIGN:**

We applied a retrospective cohort study design to subjects (n=12,069) with available information on marijuana use and pregnancy outcomes. Since 2011, we have routinely and directly questioned all gravidae regarding use of marijuana, tobacco, and nicotine containing products. We examined perinatal outcomes in marijuana smokers versus non-smokers, as well as patients reporting both marijuana and cigarette smoking. Multivariate analysis enabled determination of adjusted odds ratios for maternal and fetal outcomes, adjusting for confounders. Significance was determined with Mann-Whitney U, Chi square and Fischer's exact tests (as appropriate).

**RESULTS:**

106/12,069 reported marijuana use (0.88%), with 48/12069 (0.4%; or 48/106, 45%) concurrently using cigarettes and marijuana. After controlling for potential confounding variables, while marijuana use alone was not associated with significant adverse outcomes, use in combination with cigarette smoking was significantly associated with increased risk of multiple adverse perinatal outcomes (increased occurrence of maternal asthma (aOR 2.4; 95% CI 1.0-5.9), preterm birth (aOR 2.6, 95% CI 1.3-4.9), decreased (<25%ile) head circumference (aOR 2.8, 95% CI 1.3 - 4.3), and decreased (<25%ile) birthweight (aOR 2.8; 95% CI 1.6-5.0)). Maternal pregnancy-related hypertension was not increased in marijuana smokers (aOR, 1.30; 95% CI 0.681-2.498), nor cigarette smoking (aOR=1.4; 95% CI 0.9-1.9). However, co-users were found to have elevated rates of preeclampsia compared to non-users (aOR= 2.5; 95% CI 1.4-5.0)

**CONCLUSION:** In our initial cohort analysis, after controlling for potential confounders, while marijuana exposure alone was not associated with significant perinatal adverse outcomes, co-use with cigarette smoking rendered increased risk over either alone. Due to observed prevalence of concurrent cigarette and marijuana use, it is of likely importance to counsel patients regarding use in pregnancy.

**KEYWORDS:** cannabis; cigarettes; marijuana; pregnancy; tetrahydrocannabinol; tobacco

Vit D deficiency and fx

**Serum of 25-Hydroxyvitamin D and Intact Parathyroid Hormone Levels in Postmenopausal Women with Hip and Upper Limb Fractures.**

Lv JT<sup>1</sup>, Zhang YY<sup>1</sup>, Tian SQ<sup>1</sup>, Sun K<sup>1</sup>.

**OBJECTIVES:**

To assess the serum of 25-hydroxyvitamin D (25(OH)D) and intact parathyroid hormone (iPTH) levels in postmenopausal women from northern China with hip and upper limb fractures.

**DESIGN:**

Case-control.

**SETTING:**

Affiliated Hospital of Qingdao University.

**PARTICIPANTS:**

Postmenopausal women diagnosed with hip fracture (n = 335) and matched controls without fracture (n = 335).

**MEASUREMENTS:**

Between 2011 and 2013, fasting venous samples were analyzed for 25(OH)D, iPTH, alkaline phosphatase (ALP), calcium, and phosphorus. All women completed a standardized questionnaire designed to document putative risk factors for fractures.

**RESULTS:**

Eight percent of participants had vitamin D deficiency, and 66.0% had secondary hyperparathyroidism. Serum 25(OH)D levels were significantly ( $P < .001$ ) lower in women with hip fracture than in controls. Multivariate logistic regression analysis adjusted for common risk factors showed that serum 25(OH)D of 20 ng/mL or less was an independent indicator of hip fracture (odds ratio (OR) = 2.98, 95% confidence interval (CI) = 2.11-4.20) and concomitant upper limb fracture in those with existing hip fractures (OR = 4.77, 95% CI = 1.60-10.12). The area under the receiver operating characteristic curve of 25(OH)D was 0.77 (95% CI = 0.68-0.84) for hip fracture and 0.80 (95% CI = 0.72-0.89) for hip and upper limb fractures.

**CONCLUSION:**

Vitamin D insufficiency and secondary hyperparathyroidism were a common problem in postmenopausal women who presented with concomitant hip and upper limb fractures, suggesting that they might contribute to the pathophysiology of fractures in postmenopausal women.



## 8. VISCERA

### IBS gut microbial

J Gastroenterol Hepatol. 2016 Jun 14. doi: 10.1111/jgh.13471.

#### **Alterations of gut microbiota in patients with irritable bowel syndrome: A systematic review and meta-analysis.**

Zhuang X<sup>1</sup>, Xiong L<sup>1</sup>, Li L<sup>1</sup>, Li M<sup>1</sup>, Chen MH<sup>1</sup>.

#### **BACKGROUND AND AIMS:**

Alterations of gut microbiota were assumed to be the etiology and pathogenesis of irritable bowel syndrome (IBS) in some studies. However, alterations of gut microbiota in IBS patients had not been systematically assessed with a meta-analysis. We performed a meta-analysis to explore and compare the alterations of gut microbiota in IBS patients from China and other regions around the world.

#### **METHODS:**

Case-control studies detecting gut microbiota in IBS patients were identified through English and Chinese databases. The standardized mean difference (SMD) with 95% confidence interval (CI) of bacterial counts was calculated.

#### **RESULTS:**

Ten studies from China and seven studies from other regions around the world were included in our study. As compared to healthy controls, the SMDs of Bifidobacteria, Lactobacillus, Escherichia Coli and Enterobacter in Chinese IBS patients were -1.42 (CI: -2.10, -0.75), -0.91 (95% CI: -1.31, -0.52), 0.83 (95% CI: 0.26, 1.40) and 0.57 (95% CI: 0.33, 0.82), respectively. But the SMDs of Bacteroides and Enterococcus were found no significant differences in Chinese IBS patients. However, the SMDs of Bifidobacteria and Bacteroides in IBS patients from other regions were -0.76 (CI: -1.43, -0.09) and 1.17 (CI: 0.00, 2.35), while the SMDs of Lactobacillus, Escherichia Coli, Enterobacter and Enterococcus were found no significant differences.

#### **CONCLUSIONS:**

There were alterations of gut microbiota in IBS patients and it implied that alterations of gut microbiota might be involved in the pathogenesis of IBS. However, the species-specific alterations of gut microbiota were different between IBS patients from China and other regions.

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#### **KEYWORDS:**

gut microbiota; irritable bowel syndrome; meta-analysis

PMID: 27300149

**Amygdala problems in IBS**

AJNR Am J Neuroradiol. 2016 Jun;37(6):1139-45. doi: 10.3174/ajnr.A4655. Epub 2016 Jan 14.

**Abnormal Amygdala Resting-State Functional Connectivity in Irritable Bowel Syndrome.**

Qi R<sup>1</sup>, Liu C<sup>2</sup>, Ke J<sup>1</sup>, Xu Q<sup>1</sup>, Ye Y<sup>2</sup>, Jia L<sup>3</sup>, Wang F<sup>2</sup>, Zhang LJ<sup>4</sup>, Lu GM<sup>4</sup>.

***BACKGROUND AND PURPOSE:***

Functional neuroimaging studies in irritable bowel syndrome have revealed abnormalities in the corticolimbic regions, specifically, hyperactivity of the amygdala during visceral and somatic stimulation. This study investigated changes in the neural circuitry of the amygdala in patients with irritable bowel syndrome based on resting-state functional connectivity.

***MATERIALS AND METHODS:***

Functional MR imaging data were acquired from 31 patients with irritable bowel syndrome and 32 healthy controls (matched for age, sex, and educational level) during rest, and the resting-state functional connectivity of bilateral amygdalae was compared. Multiple regression was performed to investigate the relationship between clinical indices of patients with irritable bowel syndrome and resting-state functional connectivity.

***RESULTS:***

Compared with healthy controls, patients with irritable bowel syndrome had higher positive resting-state functional connectivity between the amygdala and insula, midbrain, parahippocampal gyrus, pre- and postcentral gyri, and supplementary motor area. The inclusion of anxiety and depression as covariates did not alter amygdala resting-state functional connectivity differences between the study groups. Multiple covariate regression results showed that the pain intensity in patients with irritable bowel syndrome positively correlated with resting-state functional connectivity between the amygdala and supplementary motor area, pre- and postcentral gyri, and insula, while the Irritable Bowel Syndrome-Symptom Severity Score positively correlated with resting-state functional connectivity between the amygdala and insula and midbrain.

***CONCLUSIONS:***

Patients with irritable bowel syndrome showed disturbed amygdala resting-state functional connectivity with the corticolimbic regions, which could partly account for the enhanced emotional arousal and visceral information processing associated with irritable bowel syndrome.

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PMID: 26767708

**Parasites**

Pediatr Int. 2016 Jun;58(6):531-3. doi: 10.1111/ped.12959.

**Detection of parasites in children with chronic diarrhea.**

Maçın S<sup>1</sup>, Kaya F<sup>1</sup>, Çağdaş D<sup>2</sup>, Hizarcioglu-Gulsen H<sup>2</sup>, Saltik-Temizel İN<sup>2</sup>, Tezcan İ<sup>2</sup>, Demir H<sup>2</sup>, Ergüven S<sup>1</sup>, Akyön Y<sup>1</sup>.

The aim of this study was to investigate the frequency of intestinal parasites in patients with chronic diarrhea and clarify the importance of these parasitic pathogens in such cases.

A total of 60 pediatric patients with chronic diarrhea between June 2012 and October 2014 were enrolled in the study. Out of 60 stool samples, five were positive for *Giardia lamblia*, two, *Dientamoeba fragilis*, and one, *Blastocystis hominis*. One stool sample was positive for *Entamoeba hartmanni* and *B. hominis*, another one was positive for *G. lamblia* and *B. hominis*, another, *G. lamblia* and *E. hartmanni* and one sample was positive for *Enterobius vermicularis*, *D. fragilis* and *B. hominis* together.

Parasitic infection, which decreases quality of life and increases susceptibility to other infections, should not be neglected, particularly in patients with chronic diarrhea. Accurate diagnosis decreases morbidity and mortality in patients with parasite infection.

**KEYWORDS:**

chronic diarrhea; diagnosis; immunodeficiency; parasite; pediatric patient

PMID: 27322863

**Giardia**

Clin Infect Dis. 2016 Jun 16. pii: ciw391

**A Prospective Longitudinal Cohort to Investigate The Effects of Early Life Giardiasis on Growth and All Cause Diarrhea.**

Donowitz JR<sup>1</sup>, Alam M<sup>2</sup>, Kabir M<sup>2</sup>, Ma JZ<sup>3</sup>, Nazib F<sup>4</sup>, Platts-Mills JA<sup>5</sup>, Bartelt LA<sup>6</sup>, Haque R<sup>2</sup>, Petri WA Jr<sup>5</sup>.

**BACKGROUND:**

Growth stunting in children under 2 years of age in low-income countries is common. Giardia is a ubiquitous pathogen in this age group but studies investigating Giardia's effect on both growth and diarrhea have produced conflicting results.

**METHODS:**

We conducted a prospective longitudinal birth cohort study in Dhaka, Bangladesh with monthly Giardia and continuous diarrheal surveillance.

**RESULTS:**

629 children were enrolled within the first 72 hours of life and 445 completed two years of the study. 12% of children were stunted at birth with 57% stunted by 2 years. 7% of children had a Giardia positive surveillance stool in the first 6 months of life while 74% had a positive by 2 years. The median time to first Giardia positive surveillance stool was 17 months. Presence of Giardia in a monthly surveillance stool within the first 6 months of life decreased length-for-age Z score at two years by 0.4 (95% confidence interval (CI): -0.80 to -0.001; p value 0.05) while total number of Giardia positive months over the two-year period of observation did not. Neither variable was associated with weight-for-age Z score at two years. In our model to examine predictors of diarrhea only exclusive breastfeeding was significantly associated with decreased diarrhea (p value <0.001). Concomitant giardiasis was neither a risk factor nor protective.

**CONCLUSIONS:**

Early life Giardia was a risk factor for stunting at age two but not poor weight gain. Presence of Giardia neither increased nor decreased odds of acute all cause diarrhea.

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PMID: 27313261

**10 A. CERVICAL SPINE****Cervical myelopathy and hip replacement dislocations****Cervical myelopathy doubles the rate of dislocation and fracture after total hip arthroplasty**

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Charles Sheets, PT Michael P. Bolognesi, MD Thorsten M. Seyler, MD, PhD

DOI: <http://dx.doi.org/10.1016/j.arth.2016.05.070>

**Background**

Cervical spondylotic myelopathy (CSM) is a common and underdiagnosed cause of gait dysfunction, rigidity, and falls in the elderly. Given the frequent concurrency of CSM and hip osteoarthritis, this study is designed to evaluate the relative risk of CSM on peri-operative and short-term outcomes following total hip arthroplasty (THA).

**Methods**

The Medicare Standard Analytical Files were searched from 2005-2012 to identify all patients undergoing primary THA as well as the subset of patients with preexisting CSM. Risk ratios (RRs) with 95% confidence intervals (CIs) were calculated for 90-day, 1-year, and overall follow-up for common post-operative complications: periprosthetic dislocation, fracture, infection, revision THA, and wound complications.

**Results**

The RR of all surgical complications, including dislocation, periprosthetic fractures and prosthetic joint infection, were increased approximately 2-fold at all post-operative time-points for patients.

**Conclusions**

Preexisting CSM is a significant risk-factor for primary THA complications including dislocation, periprosthetic fractures and prosthetic joint infection.

*Keywords:*

Myelopathy, cervical myelopathy, total hip arthroplasty, complications, dislocation, falls

### Cervical flexors

Manual Therapy , 06/06/2016

#### **Does increased superficial neck flexor activity in the craniocervical flexion test reflect reduced deep flexor activity in people with neck pain?**

Gwendolen Jullmailto:g.jull@uq.edu.au, Deborah Falla

##### Background

The craniocervical flexion test assesses the deep cervical flexor muscles (longus capitis, longus colli). Ideally, electromyography (EMG) studies measure activity in both deep and superficial (sternocleidomastoid, anterior scalene) flexors during the test, but most studies confine recordings to superficial muscle activity as the technique to record the deep muscles is invasive. Higher activity of the superficial flexors has been interpreted as an indicator of reduced deep flexor activity in people with neck pain but how close the inverse relationship is during this test is unknown.

##### Methods

EMG was recorded from the sternocleidomastoid, anterior scalene and deep cervical flexor muscles to quantify their relationship during the craniocervical flexion test, from 32 women (age:  $38.0 \pm 11.6$  yrs) with a history of chronic non-specific neck pain. The range of craniocervical flexion at each of the five test stages was also measured.

##### Results

A moderate negative correlation was identified ( $r = -0.45$ ;  $P < 0.01$ ) between the average normalized EMG amplitude of the deep cervical flexors and sternocleidomastoid across all stages of the craniocervical flexion test. There was a moderate although weaker and non-significant negative correlation between deep cervical flexors and anterior scalene activity ( $r = -0.34$ ;  $P = 0.053$ ).

##### Conclusions

The results affirm the interpretation that higher levels of activity of the superficial flexor muscles are an indicator of reduced deep cervical flexor activity in the craniocervical flexion test. Further studies of neuromuscular and movement strategies used by people with neck pain to compensate for poorer activation of the deep cervical flexors will inform best clinical assessment.

**10 B. CERVICAL EXERCISES****Exercise and CBT helps neck pain**

Clin Rehabil. 2016 May 31. pii: 0269215516651979.

**Group-based multimodal exercises integrated with cognitive-behavioural therapy improve disability, pain and quality of life of subjects with chronic neck pain: A randomized controlled trial with one-year follow-up.**

Monticone M1, Ambrosini E2, Rocca B3, Cazzaniga D3, Liquori V3, Pedrocchi A4, Vernon H5.

**OBJECTIVE:**

To evaluate the effect of a group-based multidisciplinary rehabilitation programme on disability, pain and quality of life in subjects with chronic neck pain.

**DESIGN:**

Randomized controlled trial.

**SETTING:**

Specialized rehabilitation centre.

**SUBJECTS:**

A total of 170 patients (mean age of 53 years (13); 121 females).

**INTERVENTIONS:**

The multidisciplinary group underwent a multidisciplinary rehabilitation programme combining multimodal exercises with psychologist-lead cognitive-behavioural therapy sessions. The general exercise group underwent general physiotherapy. Both groups followed group-based programmes once a week for ten weeks. Additionally, the multidisciplinary group met with the psychologist once a week for a 60-minute session.

**MAIN MEASURES:**

The Neck Disability Index (primary outcome), the Tampa Scale for Kinesiophobia, the Pain Catastrophizing Scale, a pain numerical rating scale and the Short-Form Health Survey. The participants were evaluated before, after training and after 12 months.

**RESULTS:**

A linear mixed model for repeated measures was used for each outcome measure. Significant effects (p-value <0.001) were found over time and between groups for all outcome measures. After training, significant improvements were found for both groups for all outcome measures except kinesiophobia and catastrophizing, which did not change in the control group; however, the improvements were significantly greater for the multidisciplinary group. At 12-month follow-up a clinically meaningful between-group difference of 12.4 Neck Disability Index points was found for disability.

**CONCLUSIONS:**

A group-based multidisciplinary rehabilitation programme including cognitive-behavioural therapy was superior to group-based general physiotherapy in improving disability, pain and quality of life of subjects with chronic neck pain. The effects lasted for at least one year.

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**KEYWORDS:**

Chronic neck pain; cognitive-behavioural therapy; randomized controlled trial; rehabilitation; task-oriented exercises

## Tai Chi helps neck pain

### The effects of Tai Chi and neck exercises in the treatment of chronic non-specific neck pain: A randomized controlled trial

The Journal of Pain, 06/27/2016

Lauche R, et al.

Clinicians examined the impact of Tai Chi for the management of chronic neck pain.

They found that Tai Chi serves moderate benefit for patients with chronic non-specific neck pain. Tai Chi was more effective than no treatment in improving pain in subjects with chronic non-specific neck pain. Since Tai Chi is probably as effective as neck exercises it may be considered a suitable alternative to conventional exercises for those with a preference towards Tai Chi.

#### Methods

- A total of 114 subjects were enrolled (91 females, 49.4±11.7 years) in this study.
- Participants assigned randomly with chronic non-specific neck pain to 12 weeks of group Tai Chi or conventional neck exercises with weekly sessions of 75–90 minutes, or a wait-list control.
- The primary outcome measure was pain intensity (visual analog scale, VAS).
- Secondary outcomes included pain on movement, functional disability, quality of life, well-being and perceived stress, postural and interoceptive awareness, satisfaction and safety.

#### Results

- After 12 weeks Tai Chi participants reported significantly less pain compared to the wait list (average difference in mm VAS: -10.5; 95%CI:-20.3,-0.9;p=0.033).
- Group differences were also found for pain on movement, functional disability and quality of life compared to wait list.
- No differences were found for Tai Chi compared to neck exercises.
- Patients' satisfaction with both exercise interventions was high, and only minor side effects were observed.



**13. CRANIUM/TMJ****TMJ training**

J Prosthet Dent. 2016 May 26. pii: S0022-3913(16)30060-9. doi: 10.1016/j.prosdent.2016.03.021.

**Mandibular kinesiographic pattern of women with chronic TMD after management with educational and self-care therapies: A double-blind, randomized clinical trial.**

Giro G<sup>1</sup>, Policastro VB<sup>2</sup>, Scavassin PM<sup>2</sup>, Leite AR<sup>1</sup>, Mendoza Marin DO<sup>1</sup>, Gonçalves DA<sup>3</sup>, Compagnoni MA<sup>4</sup>, Pero AC<sup>5</sup>.

**STATEMENT OF PROBLEM:**

Limited mandibular movements are one of the most important signs of temporomandibular disorders (TMDs) and may cause functional difficulties.

**PURPOSE:**

The purpose of this double-blind, randomized clinical trial was to evaluate the effect of treatment with only educational or education associated with self-care therapies on the pattern of mandibular movements of women with chronic painful TMDs.

**MATERIAL AND METHODS:**

Forty-two women were selected and randomly divided into 3 groups, control group (CG, n=13), education group (EG, n=16), and education and self-care group (ESG, n=13), according to the sequence of treatment they received. A kinesiograph device recorded mandibular movements during maximum mouth opening and mastication at baseline (T0) and at 30-day (T1) and 60-day (T2) follow-up. Kinesiographic data were statistically analyzed using 1-way ANOVA, followed by the Bonferroni test for multiple comparisons of means ( $\alpha=.05$ ).

**RESULTS:**

The ESG group demonstrated an improvement in the maximum vertical opening (MVO= 5.1  $\pm$ 3.4 mm; P=.012) and anteroposterior mandibular movement (MAM) during maximum opening (7.4  $\pm$ 9.5; P=.019), significantly higher than that of the EG (MVO=1.8  $\pm$ 3.5 mm; MAM=0.8  $\pm$ 5.0 mm) and the CG (MVO=0.9  $\pm$ 3.8 mm; MAM=0.8  $\pm$ 4.4 mm) after 30 days of follow-up. Moreover, at T1, vertical mandibular movement during mastication was significantly higher in the ESG group (17.4  $\pm$ 1.7 mm) than in the EG group (15.0  $\pm$ 2.8, P=.027). No significant differences were found between the women who received treatment with educational and self-care therapies for 60 days and the women who received this treatment for 30 days.

**CONCLUSIONS:**

In the short-term, education and self-care treatment positively influenced the mandibular movement pattern of women with chronic painful TMDs.

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PMID: [27236596](#)

**Laryngeal myofascial syndrome**

Auris Nasus Larynx. 2016 Jun 1. pii: S0385-8146(16)30150-X. doi: 10.1016/j.anl.2016.05.001.

**Laryngeal myofascial pain syndrome as a new diagnostic entity of dysphonia.**

Jung SY<sup>1</sup>, Park HS<sup>2</sup>, Bae H<sup>3</sup>, Yoo JH<sup>4</sup>, Park HJ<sup>5</sup>, Park KD<sup>5</sup>, Kim HS<sup>1</sup>, Chung SM<sup>6</sup>.

**OBJECTIVE:**

To consider the feasibility of diagnosing intrinsic laryngeal muscle myofascial pain syndrome (MPS) in dysphonic patients who demonstrated immediate symptom and stroboscopic finding improvement after laryngeal electromyography (LEMG) without further treatment.

**METHODS:**

A chart review of patients who showed subtle vocal fold movement abnormalities on a stroboscopic examination and underwent ultrasonography (US)-guided LEMG was performed. Patients with vocal fold paralysis, mucosal lesions, spasmodic dysphonia, and vocal tremor on stroboscopic examination were excluded. Among them, patients with normal EMG findings were included in this study. The patients who reported voice symptom improvement after LEMG without further treatment were placed in laryngeal MPS (LMPS) group and the other patients were placed in non-laryngeal MPS (non-MPS) group. Predisposing factors, voice symptom, symptom-duration, and stroboscopic findings of these patients were reviewed.

**RESULTS:**

Among the 16 patients, LEMG findings were normal, five (31%) were included in the LMPS group and the other 11 patients (69%) were included in the non-MPS group. All LMPS group patients had a history of voice abuse and reported odynophonia. The Korean Voice Handicap Index-10 score decreased significantly after US-guided LEMG without additional treatment in the LMPS group. The stroboscopic findings revealed that vocal fold hypomobility was the most common finding in the LMPS group, and two patients showed a muscle tension dysphonia pattern. The LMPS groups showed improvement of vocal fold mobility on 1-week stroboscopic evaluation.

**CONCLUSION:**

LMPS is a potential diagnosis for patients with vocal fold hypomobility finding on stroboscopic findings but with normal EMG results. Diagnosis of LMPS could be considered in patients who showed symptom and vocal fold movement improvement after LEMG.

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**KEYWORDS:**

Electromyography; Myofascial pain syndrome; Ultrasonography

PMID: [27262220](https://pubmed.ncbi.nlm.nih.gov/27262220/)

### TMJ pain botox

Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, 06/08/2016

#### **Intramuscular botulinum toxin injection additional to arthrocentesis in the management of temporomandibular joint pain**

Oksana Ivask, DDS, PhD [javascript:void\(0\);mailto:Oksana.Ivask@kliinikum.ee](mailto:Oksana.Ivask@kliinikum.ee), Edvitar Leibur, MD, PhD, Dr med SC, Dr. h.c, Stephanie Akermann, DDS, Tiia Tamme, MD, PhD, Ülle Voog-Oras, MD, PhD

#### Objective

The aim of this study was to compare the effect of intramuscular injection of botulinum toxin (BTX-A) as an adjunct to arthrocentesis between BTX-A injection only in the treatment of temporomandibular joint disorders (TMD-s) with masticatory muscles tension.

#### Study Design

The clinical study included 20 TMD patients divided in two groups. The influence of daily activities on pain in the TMJ area was evaluated in both group using the rating scale by List and Helkimo, 1995. Range of maximal interincisal opening (MIO) and joint pain (VAS) were examined to determine the clinical efficiency of the procedures before treatment and after. Group A consisted of 12 patients, they were treated with arthrocentesis and BTX-A injections in the temporal and masseter muscles. Group B consisted of 8 patients, they had only BTX-A injections in the same muscles as mentioned.

#### Results

In the group A, VAS decreased significantly ( $p=0.005$ ) and MIO improved significantly ( $p<0.005$ ).

#### Conclusions

Arthrocentesis with BTX-A seems to effect the clinical outcomes in regards to MIO and VAS compared with the results when BTX-A only was used. BTX-A in combination with arthrocentesis improved the TMJ area symptoms.

### Bit correction

Prog Orthod. 2016 Dec;17(1):17. doi: 10.1186/s40510-016-0131-3. Epub 2016 Jun 8.

### **A comparison of three-dimensional stress distribution and displacement of naso-maxillary complex on application of forces using quad-helix and nickel titanium palatal expander 2 (NPE2): a FEM study.**

Kumar A1, Ghafoor H2, Khanam A2.

#### **BACKGROUND:**

Our objectives are to analyse and to compare the stress distribution and displacement of the craniofacial structures, following the application of forces from quad-helix and Nickel Titanium Palatal Expander-2 (NPE2) using finite element analysis.

#### **METHODS:**

Three-dimensional finite element models of young dried human skull, quad-helix appliance and NPE2 were constructed, and the initial activation of the expanders was stimulated to carry out the analysis and to evaluate the Von Misses stresses and displacement.

#### **RESULTS:**

Both the models demonstrated the highest stresses at the mid-palatal suture, with maximum posterior dislocation. The second highest stress was recorded at the fronto-zygomatic suture. The pattern of stress distribution was almost similar in both the groups, but NPE2 revealed lower magnitude stresses than quad-helix. The only exception being quad-helix model showed high stress levels around pterygo-maxillary suture whereas minimal stress around pterygo-maxillary suture was noticed after NPE2 activation. The cusp of the erupting canine and the erupting mesiobuccal cusp of the second molar showed outward, backward and downward displacement signifying increase in their eruption pattern following maxillary expansion.

#### **CONCLUSIONS:**

Maxillary expansion using quad-helix and NPE2 can be used in posterior crossbite correction in cases where maximum skeletal changes are desirable at a younger age; it is furthermore effective in treating young patients with impacted or displaced teeth. Quad-helix and NPE2 produced acceptable forces for orthopaedic treatment even after being orthodontic appliances; their clinical application should be correctly planned as the effects of these appliances are largely age dependent.

**14. HEADACHES****Prayer helps HA's**

J Evid Based Complementary Altern Med. 2016 Feb 9. pii: 2156587215627551.

**Effect of Prayer on Intensity of Migraine Headache: A Randomized Clinical Trial.**

Tajadini H1, Zangiabadi N2, Divsalar K3, Safizadeh H4, Esmaili Z5, Rafiei H6.

**BACKGROUND AND AIM:**

Migraine is a common form of headache that affects patients quality of life negatively. In addition to pharmacologic treatment, there are a variety of nonpharmacologic treatments for migraine headache. In present study, we examined the effect of prayer on intensity of migraine pain.

**METHODS:**

In a prospective, randomized, controlled trial from October 2013 to June 2014, this study has been conducted in Kerman, Iran. We randomly assigned 92 patients in 2 groups to receive either 40 mg of propranolol twice a day for 2 month (group "A") or 40 mg of propranolol twice a day for 2 months with prayer (group "B"). At the beginning of study and 3 months after intervention, patients' pain was measured using the visual analogue scale.

**RESULTS:**

At the beginning of study and before intervention, the mean score of pain in patients in groups A and B were  $5.7 \pm 1.6$  and  $6.5 \pm 1.9$ , respectively. According to results of independent t test, mean score of pain intensity at the beginning of study were similar between patients in 2 groups ( $P > .05$ ). Three month after intervention, mean score of pain intensity decreased in patients in both groups. At this time, the mean scores of pain intensity were  $5.4 \pm 1.1$  and  $4.2 \pm 2.3$  in patients in groups A and B, respectively. This difference between groups was statistically significant ( $P < .001$ ).

**CONCLUSIONS:**

The present study revealed that prayer can be used as a nonpharmacologic pain coping strategy in addition to pharmacologic intervention for this group of patients.

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**KEYWORDS:**

alternative therapies; complementary therapies; migraine headache; pain intensity

### Anxiety and depression

Cephalalgia. 2016 Jun 1. pii: 0333102416653235.

#### **Anxiety and depression in probable migraine: A population-based study.**

Song TJ1, Cho SJ2, Kim WJ3, Yang KI4, Yun CH5, Chu MK6.

#### **BACKGROUND:**

Although probable migraine (PM) is common among headache sufferers, there is little knowledge of the prevalence and impacts of comorbid anxiety and depression in patients with PM. We assessed the prevalence and impact of anxiety and depression among PM sufferers in the general population.

#### **METHODS:**

We recruited Korean individuals aged 19-69 years via stratified random sampling and assessed headache type, anxiety, and depression among them using structured interviews.

#### **RESULTS:**

In a representative sample of 2695 individuals, 143 (5.3%) and 379 (14.1%) had migraine and PM, respectively. Fewer patients with PM had anxiety (17.7% vs. 30.1%,  $p = 0.002$ ) and depression (8.7% vs. 16.8%,  $p = 0.007$ ) compared to those with migraine. Prevalence of anxiety and depression was lower in people with PM than in those with migraine in univariable analysis, but insignificant after including headache intensity and headache frequency for adjustment. Headache frequency, headache intensity, and impact of headache were significantly higher among PM and migraine patients with anxiety and depression than among those without.

#### **CONCLUSIONS:**

The prevalence of anxiety and depression was lower among individuals with PM compared to those with migraine. However, they were still prevalent and associated with an exacerbation of symptoms among individuals with PM.

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#### **KEYWORDS:**

Anxiety; depression; headache; migraine; probable migraine

**Migraineurs cognition**

Eur J Neurol. 2016 Jun 27. doi: 10.1111/ene.13066.

**Migraine is associated with better cognition in the middle-aged and elderly: the Rotterdam Study.**

Wen K<sup>1</sup>, Nguyen NT<sup>1</sup>, Hofman A<sup>1</sup>, Ikram MA<sup>1,2</sup>, Franco OH<sup>1</sup>.

**BACKGROUND AND PURPOSE:**

Converging evidence suggests that migraine has, in part, a vascular basis. In turn, vascular pathology is a strong risk factor for cognitive decline. In this population-based study, we studied cognition amongst individuals with and without migraine.

**METHODS:**

In 6708 participants of the Rotterdam Study, migraine was assessed using a validated questionnaire. Cognition was assessed by the Mini Mental State Examination (MMSE) and a dedicated cognitive test battery. Participants were classified as non-migraineurs (n = 5399), migraineurs (n = 1021) or probable migraineurs (n = 288). Multivariable linear regression was used to cross-sectionally evaluate the association between migraine and cognition, adjusting for age, sex and cardiovascular risk factors. Additionally, we stratified the analysis by sex and by migraine subtype.

**RESULTS:**

Migraineurs had higher mean MMSE scores [unstandardized regression coefficient 0.21, (95% confidence interval, 0.08; 0.34)] and global cognition [0.10 (0.04; 0.15)] than non-migraineurs. This difference was particularly marked for migraineurs with aura [MMSE: 0.39 (0.13; 0.66); global cognition: 0.13 (0.01; 0.24)]. Migraineurs performed better on tests of executive function and fine motor skills amongst specific cognitive domains. The difference in MMSE between migraineurs and non-migraineurs was greater in women [0.25 (0.10; 0.40)] than in men [0.13 (-0.15; 0.40)], whereas the difference in global cognition was similar in men and women [0.15 (0.04; 0.27) and 0.09 (0.02; 0.15), respectively].

**CONCLUSIONS:**

Migraineurs, particularly migraineurs with aura, tend to score higher in cognition tests than non-migraineurs. More studies are needed to corroborate these findings.

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**KEYWORDS:**

cognition; cohort studies; migraine

PMID: 27346448

**20 A. ROTATOR CUFF****Subscapularis tears**

Int Orthop. 2016 May;40(5):975-9. doi: 10.1007/s00264-015-3043-9. Epub 2015 Nov 19.

**Prevalence of subscapularis tears and accuracy of shoulder ultrasound in pre-operative diagnosis.**

Narasimhan R1, Shamse K2, Nash C3, Dhingra D4, Kennedy S2.

**PURPOSE:**

Subscapularis tears can be difficult to diagnose and their treatment requires advanced arthroscopic skills. The objective of this study was to find the prevalence of subscapularis tears on arthroscopic examination of shoulders with rotator cuff pathology and to determine the accuracy of pre-operative ultrasound in diagnosing these tears.

**METHOD:**

Ultrasound and intra-operative reports of 236 patients who underwent shoulder arthroscopy for rotator cuff pathology by the senior author at his institution were compared. Prevalence of subscapularis tear was noted and classified using Lafosse classification system. Ultrasound reports and intra-operative findings were compared to determine the accuracy, sensitivity and specificity of ultrasound in detecting subscapularis tears.

**RESULTS:**

The prevalence of subscapularis tears in patients needing rotator cuff repair was found to be 31.4 %. A total of 6.4 % of patients needing a rotator cuff repair had an isolated subscapularis tear. The sensitivity of ultrasound was 39.5 % and specificity 93.1 % in detection of these tears. The overall accuracy of ultrasound was 75.8 %. Sensitivity of ultrasound was low (42.8 %) for smaller (type 1 and 2) tears and higher (79 %) for larger (types 3, 4, 5) tears. The overall positive predictive value of USS was 73.1 % and negative predictive value 76.4 %.

**CONCLUSION:**

The shoulder surgeon should be skilled in diagnosing and repairing subscapularis tendon tears arthroscopically and cannot completely rely on pre-operative ultrasound scans in ruling out smaller tears as its sensitivity in diagnosing smaller tears is quite low. Unsettling anterior shoulder pain with a normal ultrasound may need further arthroscopic evaluation to rule out missed subscapularis tears.

**KEYWORDS:**

Arthroscopy; Rotator cuff tear; Subscapularis; Ultrasound



**Fluid in biceps sheath**

J Shoulder Elbow Surg. 2016 Apr 7. pii: S1058-2746(16)00117-8. doi: 10.1016/j.jse.2016.02.009.

**Biceps sheath fluid on shoulder ultrasound as a predictor of rotator cuff tear: analysis of a consecutive cohort.**

Hanusch BC1, Makaram N2, Utrillas-Compaired A2, Lawson-Smith MJ2, Rangan A2.

**BACKGROUND:**

Ultrasound provides evaluation of rotator cuff disease with accuracy comparable to that of magnetic resonance imaging. Fluid in the sheath of the long head of the biceps tendon (LHB), identified on ultrasound scan, has been associated with disease of the rotator cuff, LHB, and glenohumeral joint. Prior literature has compared ultrasound findings only with arthrography, and results have been conflicting. Arthroscopy remains the reference standard in assessing accuracy of imaging modalities. We present the first study investigating the significance of fluid in the LHB on ultrasound in predicting subsequent rotator cuff disease identified on arthroscopy.

**METHODS:**

Records were reviewed of 175 patients undergoing ultrasound and subsequent arthroscopy under 1 shoulder surgeon. Experienced musculoskeletal radiologists and sonographers performed ultrasound. Ultrasound examination and operating records were collected and analyzed. Data were analyzed using descriptive statistics, correlation, and logistic regression modeling.

**RESULTS:**

Highly significant correlation ( $P < .001$ ;  $\rho = 0.354$ ) was found between fluid in the LHB sheath and rotator cuff tears on arthroscopy. Statistically significant but weak correlation ( $P < .05$ ;  $\rho = 0.187$ ) was found between fluid in the LHB sheath and both biceps tendon disease and glenohumeral joint disease. Fluid around the LHB was shown to increase the likelihood of having rotator cuff tear (odds ratio, 2.641; 95% confidence interval, 1.229-5.674) and biceps tendon disease (odds ratio, 2.698; 95% confidence interval, 1.216-5.987).

**CONCLUSION:**

This is the first report identifying significant correlation between fluid in the LHB sheath identified on ultrasound and subsequent rotator cuff disease identified at arthroscopy. We recommend routine reporting of fluid in the LHB sheath as it is likely to improve the accuracy of detecting rotator cuff and biceps tendon diseases.

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**KEYWORDS:**

Long head of biceps; biceps sheath fluid; rotator cuff tear; shoulder arthroscopy; shoulder pain; ultrasound

**RC and sarcopenia****Rotator cuff tear and sarcopenia: are these related?**

Chung SW<sup>1</sup>, Yoon JP<sup>2</sup>, Oh KS<sup>1</sup>, Kim HS<sup>3</sup>, Kim YG<sup>3</sup>, Lee HJ<sup>3</sup>, Jeong WJ<sup>3</sup>, Kim DH<sup>3</sup>, Lee JS<sup>1</sup>, Yoon JW<sup>3</sup>.

**BACKGROUND:**

Sarcopenia is the loss of muscle mass and consequent loss of muscle function with aging. Its prevalence among the general population is 12% to 30% in those aged >60 years. We evaluated (1) the difference in the prevalence of sarcopenia between patients with rotator cuff tear and controls and (2) the sarcopenia severity according to the size of the rotator cuff tear.

**METHODS:**

Group 1 included 48 consecutive patients with chronic symptomatic full-thickness rotator cuff tears (mean age, 60.1 ± 6.5 years; range, 46-76 years), and group 2 included 48 age- and sex-matched patients. The sarcopenic index was evaluated by using the grip strength of the asymptomatic contralateral side and the skeletal muscle mass.

**RESULTS:**

No significant differences were found in the baseline data and demographic factors between the groups. The sarcopenic index was significantly inferior in the rotator cuff tear group than in the age- and sex-matched control groups ( $P = .041$ ,  $.007$ , and  $.05$ , respectively). Patients with large to massive tears had a significantly inferior sarcopenic index than those with small and medium tears.

**CONCLUSION:**

The results showed that sarcopenia was more severe in patients with a chronic symptomatic full-thickness rotator cuff tear than in the age- and sex-matched control population and was correlated with the size of the tear, with the numbers available. Despite the individual variance in the underlying medical condition and physical activities, this study suggests that clinicians should consider the sarcopenic condition of patients with a rotator cuff tear, especially in elderly patients with large to massive tears.

**23. SURGERY****SLAP repair and more surgery****Subsequent Shoulder Surgery After Isolated Arthroscopic SLAP Repair.**

Mollon B<sup>1</sup>, Mahure SA<sup>2</sup>, Ensor KL<sup>1</sup>, Zuckerman JD<sup>1</sup>, Kwon YW<sup>1</sup>, Rokito AS<sup>1</sup>.

**PURPOSE:**

To quantify the incidence of and identify the risk factors for subsequent shoulder procedures after isolated SLAP repair.

**METHODS:**

New York's Statewide Planning and Research Cooperative System database was searched between 2003 and 2014 to identify individuals with the sole diagnosis of a SLAP lesion who underwent isolated arthroscopic SLAP repair. Patients were longitudinally followed up for a minimum of 3 years to analyze for subsequent ipsilateral shoulder procedures.

**RESULTS:**

Between 2003 and 2014, 2,524 patients met our inclusion criteria. After 3 to 11 years of follow-up, 10.1% of patients (254 of 2,524) underwent repeat surgical intervention on the same shoulder as the initial SLAP repair. The mean time to repeat shoulder surgery was  $2.3 \pm 2.1$  years. Subsequent procedures included subacromial decompression (35%), debridement (26.7%), repeat SLAP repair (19.7%), and biceps tenodesis or tenotomy (13.0%). After isolated SLAP repair, patients aged 20 years or younger were more likely to undergo arthroscopic Bankart repair (odds ratio [OR], 2.91; 95% confidence interval [CI], 1.36-6.21;  $P = .005$ ), whereas age older than 30 years was an independent risk factor for subsequent acromioplasty (OR, 2.3; 95% CI, 1.4-3.7;  $P < .001$ ) and distal clavicle resection (OR, 2.5; 95% CI, 1.1-5.5;  $P = .030$ ). The need for a subsequent procedure was significantly associated with Workers' Compensation cases (OR, 2.4; 95% CI, 1.7-3.2;  $P < .001$ ).

**CONCLUSIONS:**

We identified a 10.1% incidence of subsequent surgery after isolated SLAP repair, often related to an additional diagnosis, suggesting that clinicians should consider other potential causes of shoulder pain when considering surgery for patients with SLAP lesions. In addition, the number of isolated SLAP repairs performed has decreased over time, and management of failed SLAP repair has shifted toward biceps tenodesis or tenotomy over revision SLAP repair in more recent years.

**LEVEL OF EVIDENCE:** Level III, case-control study.

**27. HIP****Dislocations following surgery****Hip Dislocation or Subluxation After Hip Arthroscopy: A Systematic Review.**

Duplantier NL<sup>1</sup>, McCulloch PC<sup>1</sup>, Nho SJ<sup>2</sup>, Mather RC 3rd<sup>3</sup>, Lewis BD<sup>3</sup>, Harris JD<sup>4</sup>.

**PURPOSE:**

To determine patient- and surgery-specific characteristics of patients sustaining postarthroscopic hip dislocation or subluxation.

**METHODS:**

A systematic review of multiple medical databases was registered with PROSPERO and performed using Preferred Reporting Items for Systemic Reviews and Meta-Analysis guidelines. Level I to IV clinical outcome studies reporting the presence of hip dislocation or subluxation after hip arthroscopy were eligible. Length of follow-up was not an exclusion criterion. All patient- and surgery-specific variables were extracted from each, specifically evaluating osseous morphology and resection details; labral, iliopsoas, ligamentum teres, and capsular management; generalized ligamentous laxity; instability direction and mechanism; management; and outcome. Study authors were individually contacted to assess most recent outcome.

**RESULTS:**

Ten articles with 11 patients were analyzed (mean patient age:  $36.6 \pm 12.3$  years). There were 9 hip dislocations and 2 subluxations. Mean time between surgery and dislocation was  $3.2 \pm 4.0$  months (range: recovery room to 14 months). Anterior was the most frequent dislocation direction (8 cases). Acetabular undercoverage (preoperative dysplasia or iatrogenic rim over-resection) was observed in 5 cases. Labral debridement was performed in 5 cases, iliopsoas tenotomy in 3 cases, and ligamentum teres debridement in 1 case. A "T" capsulotomy was created in 1 case (isolated interportal in other 10 cases). Capsular closure was performed in 2 cases (both interportal). Generalized ligamentous laxity was diagnosed in 1 case. A combination of external rotation and extension was observed in 5 of the 6 cases reporting the mechanism of anterior dislocation. Four cases were successfully treated with closed reduction; 4 required total hip arthroplasty; and 3 required revision capsulorrhaphy.

**CONCLUSIONS:**

Postarthroscopic hip instability was observed in patients with acetabular undercoverage (including iatrogenic resection), labral debridement, capsular insufficiency, or iliopsoas tenotomy. Most dislocations were anterior, occurring with hip extension and external rotation.

**LEVEL OF EVIDENCE:** Level IV, systematic review of Level IV studies.

**28. REPLACEMENTS****Cervical myelopathy and dislocations****Cervical myelopathy doubles the rate of dislocation and fracture after total hip arthroplasty**

Daniel J. Blizzard, MD, MS Mitchell R. Klement, MD Colin T. Penrose, BA, BS  
Charles Sheets, PT Michael P. Bolognesi, MD Thorsten M. Seyler, MD, PhD

DOI: <http://dx.doi.org/10.1016/j.arth.2016.05.070>

**Background**

Cervical spondylotic myelopathy (CSM) is a common and underdiagnosed cause of gait dysfunction, rigidity, and falls in the elderly. Given the frequent concurrency of CSM and hip osteoarthritis, this study is designed to evaluate the relative risk of CSM on peri-operative and short-term outcomes following total hip arthroplasty (THA).

**Methods**

The Medicare Standard Analytical Files were searched from 2005-2012 to identify all patients undergoing primary THA as well as the subset of patients with preexisting CSM. Risk ratios (RRs) with 95% confidence intervals (CIs) were calculated for 90-day, 1-year, and overall follow-up for common post-operative complications: periprosthetic dislocation, fracture, infection, revision THA, and wound complications.

**Results**

The RR of all surgical complications, including dislocation, periprosthetic fractures and prosthetic joint infection, were increased approximately 2-fold at all post-operative time-points for patients.

**Conclusions**

Preexisting CSM is a significant risk-factor for primary THA complications including dislocation, periprosthetic fractures and prosthetic joint infection.

*Keywords:*

Myelopathy, cervical myelopathy, total hip arthroplasty, complications, dislocation, falls

**Vit. D deficiency****Vitamin D deficiency adversely affects early post-operative functional outcomes after total knee arthroplasty.**

Shin KY<sup>1</sup>, Park KK<sup>1</sup>, Moon SH<sup>1</sup>, Yang IH<sup>1</sup>, Choi HJ<sup>1</sup>, Lee WS<sup>2</sup>.

**PURPOSE:**

Vitamin D has received considerable attention in recent years owing to the increasing evidence of its importance in muscle function and physical performance. The present study attempted to determine whether patients with low serum vitamin D levels had impairment in early functional outcomes following total knee arthroplasty (TKA).

**METHODS:**

This was a prospective cohort study that included 92 patients. Patients were divided into two groups according to their vitamin D levels as assessed at the preoperative visit: (1) vitamin D-deficient group, serum 25-hydroxyvitamin D<sub>3</sub> (25(OH)D) levels <12 ng/mL; (2) vitamin D non-deficient group, serum 25(OH)D levels ≥12 ng/mL. American Knee Society Score (KSS) and four other performance tests including the alternative step test (AST), six-metre walk test (SMT), sit-to-stand test (STS), and timed up and go test (TUGT) were used for assessment of post-operative function. All assessments were performed one day before and three months after TKA.

**RESULTS:**

Of the 92 patients included in the study, 87 patients performed all required assessments. The mean post-operative functional KSS was significantly lesser in the vitamin D-deficient group than in the vitamin D non-deficient group (67.2 vs. 73.4,  $p = 0.031$ ). The mean values of time taken for post-operative AST (16.6 vs. 14.6 s,  $p = 0.033$ ) and SMT (8.8 vs. 7.7 s,  $p = 0.012$ ) were significantly longer in the vitamin D-deficient group than in the vitamin D non-deficient group. Post-operative STS and TUGT demonstrated higher values for mean time taken in the vitamin D-deficient group than in the vitamin D non-deficient group, but these were not statistically significant (13.6 vs. 12.4 s, not significant (n.s.); 12.7 vs. 11.7 s, n.s., respectively).

**CONCLUSION:**

Early post-operative functional outcomes following TKA appear to be adversely affected by vitamin D deficiency.

**LEVEL OF EVIDENCE:** Prospective cohort study, Level II.

**Infections****Preoperative Hip Injections Increase the Rate of Periprosthetic Infection After Total Hip Arthroplasty.**

Schairer WW<sup>1</sup>, Nwachukwu BU<sup>1</sup>, Mayman DJ<sup>1</sup>, Lyman S<sup>1</sup>, Jerabek SA<sup>1</sup>.

**BACKGROUND:**

Intraarticular injections are both diagnostic and therapeutic for patients with osteoarthritis. A potential risk of periprosthetic joint infection (PJI) after total hip arthroplasty (THA) may occur from direct inoculation and/or immune suppression by corticosteroids. Large population-level databases were used to evaluate hip injection on the 1-year rate of PJI in patients undergoing primary THA.

**METHODS:**

State-level ambulatory surgery and inpatient databases for Florida and California (2005-2012) were used to identify primary THA patients with 1-year preoperative and postoperative windows to evaluate possible injections or PJI, respectively. Patients were grouped as no injection or as THA performed 6-12 months, 3-6 months, or 0-3 months after injection. Risk adjustment was performed with multivariable regression.

**RESULTS:**

A total of 173,958 patients were included; 5421 (3.1%) underwent THA after an injection: 1395 (1.1%) of patients after 6-12 months, 1863 patients after 3-6 months, and 2163 (1.2%) after 0-3 months. In the 0-3 month group, PJI was significantly increased at 3 months (1.58%,  $P = .015$ ), 6 months (1.76%,  $P = .022$ ), and 1 year (2.04%,  $P = .031$ ) compared with the noninjection control group (1.04%, 1.21%, and 1.47%, respectively). There were no differences in the 3- to 6-month and 6- to 12-month injection groups.

**CONCLUSION:**

There is an increased risk of PJI when THA is performed within 3 months of hip injection. We recommend that patients and their surgeons consider delaying elective THA until 3 months after an injection to avoid this elevated risk of infection.

**30 A. IMPINGEMENT****Post-surgical osteoarthritic changes****Osteoarthritic changes rather than age predict outcome following arthroscopic treatment of femoroacetabular impingement in middle-aged patients.**

Herrmann SJ<sup>1</sup>, Bernauer M<sup>2</sup>, Erdle B<sup>2</sup>, Südkamp NP<sup>2</sup>, Helwig P<sup>2</sup>, Hauschild O<sup>2</sup>.

**BACKGROUND:**

Our purpose was to evaluate outcome following arthroscopic treatment of femoroacetabular impingement (FAI) in middle-aged patients and to define risk factors for conversion to total hip arthroplasty (THA).

**METHODS:**

This was a retrospective case series of 79 consecutive patients (40 to 65 years) undergoing arthroscopic treatment of FAI (follow-up  $\geq 12$  months). Outcome at follow-up was assessed using Hip outcome score (HOS). Alpha angle, Kellgren Lawrence grade (K-L grade), joint space width (JS), lateral center edge (LCE) angle, caput-collum-diaphysis (CCD) angle and acetabular index (AI) were analysed retrospectively. THA group and Non-THA group were compared.

**RESULTS:**

Seventy-nine patients (mean age 48.6 years, mean follow-up 32 months) were included. 18 patients (22.8 %) were converted to THA. Mean HOS score in the Non-THA group at time point of follow-up was 80.2. Non-THA group and THA group showed no significant differences for mean age (48.2 years vs. 49.9 years,  $p = 0.278$ ), alpha angle ( $p = 0.541$ ), LCE ( $p = 0.294$ ), CCD ( $p = 0.101$ ) and AI ( $p = 0.661$ ) in contrast to differences for JS ( $p = <0.001$ ) and K-L grade ( $p = <0.001$ ). Risk of conversion to THA was higher for patients with K-L grade 3 ( $p = 0.003$ ) or joint space less or equal 2 mm ( $p = 0.001$ ).

**CONCLUSIONS:**

One fifth of the middle-aged patients required early conversion to THA. Advanced JS narrowing and K-L grade rather than age alone can be considered as risk factor for conversion to THA.



**32 A. KNEE/ACL****OA changes****Changes in Knee Osteoarthritis, Symptoms, and Function After Anterior Cruciate Ligament Reconstruction: A 20-Year Prospective Follow-up Study.**

Risberg MA<sup>1</sup>, Oiestad BE<sup>2</sup>, Gunderson R<sup>3</sup>, Aune AK<sup>4</sup>, Engebretsen L<sup>5</sup>, Culvenor A<sup>6</sup>, Holm I<sup>7</sup>.

**BACKGROUND:**

Progression of tibiofemoral (TF) and patellofemoral (PF) osteoarthritis (OA) and changes in knee function more than 15 years after anterior cruciate ligament reconstruction (ACLR) are not well understood.

**PURPOSE:**

To examine the progression of knee OA and changes in symptoms and function in isolated and combined injuries from 15 to 20 years after ACLR.

**STUDY DESIGN:** Cohort study

**METHODS:**

A total of 210 subjects with ACLR were prospectively followed. At the 15- and 20-year follow-ups, radiographs were obtained and classified by the Kellgren and Lawrence (K-L) grading system. Symptoms and function were evaluated with the Knee injury and Osteoarthritis Outcome Score (KOOS) as well as isokinetic quadriceps and hamstring muscle strength tests.

**RESULTS:**

There were 168 subjects (80%) who returned for the 20-year follow-up, with a mean ( $\pm$ SD) age of  $45 \pm 9$  years, mean body mass index of  $27 \pm 4$ , and median Tegner activity level of 4 (range, 0-9). The prevalence of radiographic TF and PF OA at the 20-year follow-up was 42% and 21%, respectively. Patients with ACL injuries and other combined injuries had significantly higher prevalence of radiographic TF OA compared with those who had isolated ACL injury ( $P < .0001$ ). There was a 13% increase in radiographic TF OA ( $P = .001$ ) and an 8% increase in PF OA ( $P = .015$ ) from the 15- to the 20-year follow-up. A significant deterioration in knee symptoms and function was observed on the KOOS subscales ( $P \leq .01$ ), with the exception of quality of life ( $P = .14$ ), as well as a decrease in quadriceps muscle strength and hamstring muscle strength ( $P < .0001$ ).

**CONCLUSION:**

The prevalence of radiographic TF and PF OA was 42% and 21%, respectively. A significantly higher prevalence of TF OA was found for subjects with combined injuries compared with those who had isolated ACL injury. The majority of the subjects were stable radiographically over the 5 years between follow-ups. A statistically significant deterioration in symptoms and function was noted, but the mean changes were of questionable clinical importance.

*Level of evidence:* 2.

**Youth ACL rx*****Trends in Pediatric and Adolescent Anterior Cruciate Ligament Injury and Reconstruction.***

Werner BC<sup>1</sup>, Yang S, Looney AM, Gwathmey FW Jr.

***BACKGROUND:***

With the increasing involvement in organized athletics among children and adolescents, more anterior cruciate ligament (ACL) injuries are being recognized in the skeletally immature population. The goal of the present study is to utilize a national database to characterize the recent epidemiologic trends of ACL injuries, ACL reconstruction, and treatment of associated meniscal and chondral pathology in the pediatric and adolescent populations.

***METHODS:***

A national database was queried for ACL tear (ICD-9 844.2) and arthroscopic reconstruction of an ACL tear (CPT 29888) from 2007 to 2011. Searches were limited by age group to identify pediatric and adolescent cohorts: (1) ages 5 to 9 years old, (2) ages 10 to 14 years old, and (3) ages 15 to 19 years old. A comparative cohort of adult patients from ages 20 to 45 was also created. The database was also queried for concomitant procedures at the same time as ACL reconstruction for each age group, including partial meniscectomy, meniscus repair, microfracture, osteochondral autograft or allograft transfer, and shaving chondroplasty. The  $\chi$  analysis was used to determine statistical significance.

***RESULTS:***

A total of 44,815 unique pediatric or adolescent patients with a diagnosis of an ACL tear and 19,053 pediatric or adolescent patients who underwent arthroscopic ACL reconstruction were identified. Significant increases in pediatric and adolescent ACL tear diagnosis and reconstruction compared with adult patients were noted. Significant increases in many concomitant meniscus and cartilage procedures in pediatric and adolescent patients compared with adult patients were also noted.

***CONCLUSIONS:***

The present study demonstrates a significant increase in the overall diagnosis of ACL injury and ACL reconstruction in both pediatric and adolescent patients, rising at a rate significantly higher than adults. In addition, pediatric and adolescent patients who undergo ACL reconstruction had significant increases in incidences of concomitant meniscal and cartilage procedures.

***LEVEL OF EVIDENCE:*** Level III-retrospective cohort study.

**33. MENISCUS****Accuracy of findings testing and MRI****Association of MRI findings and expert diagnosis of symptomatic meniscal tear among middle-aged and older adults with knee pain.**

Deshpande BR<sup>1</sup>, Losina E<sup>1,2,3,4</sup>, Smith SR<sup>1</sup>, Martin SD<sup>3,5</sup>, Wright RJ<sup>3,5</sup>, Katz JN<sup>6,7,8,9</sup>.

**BACKGROUND:**

Our aim was to examine the association between an expert clinician's impression of symptomatic meniscal tears and subsequent MRI in the context of middle-aged and older adults with knee pain.

**METHODS:**

Patients older than 45 were eligible for this IRB-approved substudy if they had knee pain, had not undergone MRI and saw one of two orthopaedic surgeons experienced in the diagnosis of meniscal tear. The surgeon rated their confidence that the patient's symptoms were due to meniscal tear. The patient subsequently had a 1.5 or 3.0 T MRI within 6 months. We examined the association between presence of meniscal tear on MRI and the surgeon's confidence that the knee pain was due to meniscal tear using a  $\chi^2$  test for trend.

**RESULTS:**

Of 84 eligible patients, 63 % were female, with a mean age of 64 years and a mean BMI of 27. The surgeon was confident that symptoms emanated from a tear among 39 %. The prevalence of meniscal tear on MRI overall was 74 %. Among subjects whose surgeon indicated high confidence that symptoms were due to meniscal tear, the prevalence was 80 % (95 % CI 63-90 %). Similarly, the prevalence was 87 % (95 % CI 62-96 %) among those whose surgeon had medium confidence and 64 % (95 % CI 48-77 %) among those whose surgeon had low confidence ( $p = 0.12$ ).

**CONCLUSION:**

Meniscal tears were frequently found on MRI even when an expert clinician was confident that a patient's knee symptoms were not due to a meniscal tear, indicating that providers should use MRI sparingly and cautiously to confirm or rule out the attribution of knee pain to meniscal tear.

**34. PATELLA****Cycling increase CM patella**

Arthroscopy. 2016 Jun 8. pii: S0749-8063(16)30158-X. doi: 10.1016/j.arthro.2016.04.014

**Cyclists Have Greater Chondromalacia Index Than Age-Matched Controls at the Time of Hip Arthroscopy.**

Stone AV<sup>1</sup>, Howse EA<sup>2</sup>, Mannava S<sup>1</sup>, Stubbs AJ<sup>3</sup>.

**PURPOSE:**

To evaluate the clinical symptoms and intraoperative pathology associated with hip pain in the cyclist compared with a matched hip arthroscopy surgical group.

**METHODS:**

In an institutional review board-approved study, we retrospectively reviewed a prospective database of 1,200 consecutive hip arthroscopy patients from 2008 to 2015. Adult patients were identified who reported cycling as a major component of their activity. Patients were age, gender, and body mass index matched to a control, noncycling group. Pain symptoms, preoperative examinations, radiographic and operative findings were compared. Primary outcome variables included the femoral and acetabular Outerbridge chondromalacia grade. Additional outcome measurements included the involved area and the chondromalacia index (CMI; the product of the Outerbridge chondromalacia grade and surface area [ $\text{mm}^2 \times \text{severity}$ ]).

**RESULTS:**

A total of 167 noncyclists were matched to the cycling group ( $n = 16$ ). Cyclists had significantly greater femoral head chondromalacia grade (2.0 [95% confidence interval (CI), 1.5-2.5] v 1.4 [95% CI, 1.3-1.6],  $P = .043$ ), femoral head chondromalacia area ( $242 \text{ mm}^2$  [95% CI, 191-293  $\text{mm}^2$ ] v  $128 \text{ mm}^2$  [95% CI, 113-141  $\text{mm}^2$ ],  $P < .001$ ), and femoral head CMI (486 [95% CI, 358-615] v 247 [95% CI, 208-286],  $P = .001$ ) assessed intraoperatively. Hip pain in cyclists positively correlated with an increased acetabular center-edge angle ( $R = 0.261$ ,  $P < .001$ ) and an increased Tonnis grade ( $R = 0.305$ ,  $P < .001$ ). Cyclists were also more likely to have a coxalgic gait on physical examination ( $R = 0.250$ ,  $P = .006$ ).

**CONCLUSIONS:**

Cyclists had a greater degree of femoral chondromalacia than a matched group of noncyclists. Cycling activity positively correlated with the presence of femoral chondromalacia with clinically significant gait alterations. These data support the hypothesis that cyclists with hip pain have more chondral pathology than a similar group of other patients with hip pain. Ultimately, cyclists with hip pain should be identified as higher risk for more advanced chondral damage.

**LEVEL OF EVIDENCE:**

Level III, case-control study, therapeutic.

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PMID: [27289277](#)

**Hip ex and PF pain****The outcome of Hip exercise in Patellofemoral Pain: A Systematic Review**

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**Abstract**

Patellofemoral pain (PFP) is one of the most common lower extremity conditions seen in clinical practice. Current evidence shows that there are hip strength deficits, delayed onset and shorter activation of gluteus medius in people with PFP. The aim of this review was to systematically review the literature to investigate the outcome of hip exercise in people with PFP.

**Method**

AMED, CINAHL, Cochrane, EMBASE, PEDro, Pubmed, Science direct and SPORTDiscus databases were searched from inception to November 2014 for RCTs, non-randomised studies and case studies. Two independent reviewers assessed each paper for inclusion and quality.

**Results**

Twenty one papers were identified; eighteen investigating strengthening exercise, two investigating the effect of neuromuscular exercise and one study investigated the effect of hip exercise for the prevention of PFP.

Hip and knee strengthening programmes were shown to be equally effective. Limited evidence indicates that the addition of hip exercise to an exercise programme is beneficial. Limited evidence demonstrates that motor skill retraining in a participant group who displayed abnormal hip alignment in running improves pain.

**Conclusion**

The evidence consistently demonstrated that both hip strengthening and neuromuscular exercise has a beneficial effect on pain and function in people with PFP. Strengthening exercise predominantly addressed abductor and external rotator muscle groups. A consensus from PFP researchers for standardisation of methodology is recommended to enable meaningful comparison between trials.

**37. OSTEOARTHRITIS/KNEE****Quadriceps massage**

**Clinical Study** Journal of Acupuncture and Tuina Science  
June 2016, Volume 14, Issue 3, pp 216-219

**Clinical research on the short-term efficacy of massaging quadriceps for knee osteoarthritis**

- Yu-jiang Qu屈玉疆, Zhi-jin Xuan玄志金

**Abstract****Objective**

To observe the short-term efficacy of massaging quadriceps on knee osteoarthritis (KOA).

**Methods**

Totally 30 KOA patients were enrolled and treated mainly with massaging quadriceps, 20 min for each session, once a day, 2 weeks as a treatment course, and for 2 courses in total. After treatment, the changes of visual analogue scale (VAS) and Western Ontario and McMaster Universities osteoarthritis index (WOMAC) were observed.

**Results**

The VAS and WOMAC scores dropped after treatment, with a statistically significant difference ( $P < 0.01$ ). After a course of treatment, the recovery rate was 33.3% and the total effective rate was 86.7%; after 2 courses, the recovery rate was 60.0% and the total effect rate was 96.7%.

**Conclusion**

Massaging quadriceps can alleviate pain, improve the function of knee joint, and produce a significant short-term efficacy in treating KOA.

**Central sensitization**

Phys Ther. 2016 Mar 3.

**Expanded Distribution of Pain as a Sign of Central Sensitization in Individuals With Symptomatic Knee Osteoarthritis.**

Lluch Girbés E1, Dueñas L2, Barbero M3, Falla D4, Baert IA5, Meeus M6, Sánchez-Frutos J7, Aguilera L8, Nijs J9.

**BACKGROUND:**

Expanded distribution of pain is considered a sign of central sensitization (CS). The relationship between recording of symptoms and CS in people with knee osteoarthritis (OA) has been poorly investigated.

**OBJECTIVE:**

The aim of this study was to examine whether the area of pain assessed using pain drawings relates to CS and clinical symptoms in people with knee OA.

**DESIGN:**

This was a cross-sectional study.

**METHODS:**

Fifty-three people with knee OA scheduled to undergo primary total knee arthroplasty were studied. All participants completed pain drawings using a novel digital device, completed self-administration questionnaires, and were assessed by quantitative sensory testing. Pain frequency maps were generated separately for women and men. Spearman correlation coefficients were computed to reveal possible correlations between the area of pain and quantitative sensory testing and clinical symptoms.

**RESULTS:**

Pain frequency maps revealed enlarged areas of pain, especially in women. Enlarged areas of pain were associated with higher knee pain severity ( $r_s=.325$ ,  $P<.05$ ) and stiffness ( $r_s=.341$ ,  $P<.05$ ), lower pressure pain thresholds at the knee ( $r_s=-.306$ ,  $P<.05$ ) and epicondyle ( $r_s=-.308$ ,  $P<.05$ ), and higher scores with the Central Sensitization Inventory ( $r_s=.456$ ,  $P<.01$ ). No significant associations were observed between the area of pain and the remaining clinical symptoms and measures of CS.

**LIMITATIONS:**

Firm conclusions about the predictive role of pain drawings cannot be drawn. Further evaluation of the reliability and validity of pain area extracted from pain drawings in people with knee OA is needed.

**CONCLUSION:**

Expanded distribution of pain was correlated with some measures of CS in individuals with knee OA. Pain drawings may constitute an easy way for the early identification of CS in people with knee OA, but further research is needed.

**41 A. ACHILLES TENDON AND CALF****LE injury and calf tightness****Association between Achilles tightness and lower extremity injury in children**

Raymond W. Liu, Katherine K. Xie

Abstract

**Background**

It is unclear whether isolated gastroc/soleus tightness can increase the risk of lower extremity injury in an otherwise healthy child.

**Questions/Purposes**

(1) Is there a difference in gastroc/soleus tightness, as represented by ankle dorsiflexion with the knee extended, in children presenting with upper versus lower extremity complaints? (2) Is there a difference in gastroc/soleus tightness in children presenting with atraumatic versus traumatic lower extremity complaints?

**Methods**

We performed a cross-sectional study of 206 consecutive walking age children presenting to a county orthopedic clinic with new upper or lower extremity complaints. Passive ankle dorsiflexion was measured based on the lateral border of the foot versus the anterior lower leg with the knee fully extended and the foot in inversion.

**Results**

Average age was  $10.0 \pm 4.5$  years. In the 117 patients presenting with upper extremity complaints, ankle dorsiflexion was  $15.0^\circ \pm 11.6^\circ$ . Of the lower extremity patients, 40 presented without trauma, with dorsiflexion of  $11.8^\circ \pm 14.5^\circ$ , while 49 presented with trauma, with dorsiflexion of  $6.5^\circ \pm 12.0^\circ$ . Multiple regression analysis found significantly decreased ankle dorsiflexion with increasing age and in the lower extremity trauma group. Twelve percent of upper extremity patients had  $0^\circ$  or less of dorsiflexion, as compared to 25% of lower extremity nontrauma patients and 41% of lower extremity trauma patients.

**Conclusions**

Patients presenting with lower extremity trauma had significantly more gastroc/soleus tightness in their well leg than patients presenting with upper extremity complaints. Gastroc/soleus tightness may present a simple target for reducing lower extremity injury rates in children.



**LE weakness and balance****Lower limb muscle strength is associated with poor balance in middle-aged women: linear and nonlinear analyses.**

Wu F<sup>1</sup>, Callisaya M<sup>1</sup>, Laslett LL<sup>1</sup>, Wills K<sup>1</sup>, Zhou Y<sup>1</sup>, Jones G<sup>1</sup>, Winzenberg T<sup>2,3</sup>.

This was the first study investigating both linear associations between lower limb muscle strength and balance in middle-aged women and the potential for thresholds for the associations. There was strong evidence that even in middle-aged women, poorer LMS was associated with reduced balance. However, no evidence was found for thresholds.

**INTRODUCTION:**

Decline in balance begins in middle age, yet, the role of muscle strength in balance is rarely examined in this age group. We aimed to determine the association between lower limb muscle strength (LMS) and balance in middle-aged women and investigate whether cut-points of LMS exist that might identify women at risk of poorer balance.

**METHODS:**

Cross-sectional analysis of 345 women aged 36-57 years was done. Associations between LMS and balance tests (timed up and go (TUG), step test (ST), functional reach test (FRT), and lateral reach test (LRT)) were assessed using linear regression. Nonlinear associations were explored using locally weighted regression smoothing (LOWESS) and potential cut-points identified using nonlinear least-squares estimation. Segmented regression was used to estimate associations above and below the identified cut-points.

**RESULTS:**

Weaker LMS was associated with poorer performance on the TUG ( $\beta$  -0.008 (95 % CI: -0.010, -0.005) second/kg), ST ( $\beta$  0.031 (0.011, 0.051) step/kg), FRT ( $\beta$  0.071 (0.047, 0.096) cm/kg), and LRT ( $\beta$  0.028 (0.011, 0.044) cm/kg), independent of confounders. Potential nonlinear associations were evident from LOWESS results; significant cut-points of LMS were identified for all balance tests (29-50 kg). However, excepting ST, cut-points did not persist after excluding potentially influential data points.

**CONCLUSIONS:**

In middle-aged women, poorer LMS is associated with reduced balance. Therefore, improving muscle strength in middle-age may be a useful strategy to improve balance and reduce falls risk in later life. Middle-aged women with low muscle strength may be an effective target group for future randomized controlled trials.

### Achilles surgery

#### **Surgical treatment for achilles tendinopathy - a systematic review.**

Lohrer H<sup>1,2</sup>, David S<sup>3</sup>, Nauck T<sup>4</sup>.

#### ***BACKGROUND:***

The purpose of this systematic review is to analyse the results of operative treatment for midportion Achilles tendinopathy and to provide evidence based recommendation for the indication of the individual published techniques.

#### ***METHODS:***

MEDLINE, Cochrane Database, ISI Web of Knowledge and Google databases (1945 till September 2014) were electronically searched. The quality of the included articles was evaluated using the Coleman Methodology Score. Success rates, patient satisfaction, and the complication rates were determined.

#### ***RESULTS:***

Twenty studies met our inclusion criteria. A total of 801 tendons were treated in 714 patients with open or minimally invasive techniques. The mean success rate was 83.4 %. Complications were reported in 6.3 % of the cases. The articles on minimally invasive techniques and open procedures reported on an average success rate of 83.6 % and 78.9 (p = 0.987). Patient satisfaction rates for minimally invasive techniques and open procedures were 78.5 % and 78.1 % (p = 0.211). The complication rate was 5.3 % for the minimally invasive techniques and 10.5 % for the open procedures (p = 0.053).

#### ***CONCLUSION:***

We conclude that success rates of minimally invasive and open treatments are not different and that there is no difference in patient satisfaction but there is a tendency for more complications to occur in open procedures.

### Conservative management of rupture

#### **Prospective Use of a Standardized Nonoperative Early Weightbearing Protocol for Achilles Tendon Rupture: 17 Years of Experience.**

Ecker TM<sup>1</sup>, Bremer AK<sup>2</sup>, Krause FG<sup>1</sup>, Müller T<sup>1</sup>, Weber M<sup>3</sup>.

***BACKGROUND:***

Acute traumatic rupture of the Achilles tendon can be treated operatively or nonoperatively. Throughout the literature, there is no consensus regarding the optimal treatment protocol.

***PURPOSE:***

To report on 17 years of experience with treating this injury with a standardized nonoperative treatment protocol.

***STUDY DESIGN:***

Case Series

***METHODS:***

The treatment protocol was based on a combination of an equinus cast and rehabilitation boot, which promoted immediate full weightbearing and early functional rehabilitation. A total of 171 patients were consecutively treated and prospectively followed from 1996 to 2013. Assessed were subjective parameters such as pain, loss of strength, return to previous activity level, meteorosensitivity, and general satisfaction with the treatment outcome. Clinical assessment included testing of plantar flexion strength and endurance, calf circumference, and tendon length. Subjective and clinical parameters were then used to calculate a modified Thermann score. The correlation between tendon lengthening and function was calculated using the Pearson correlation coefficient.

***RESULTS:***

A total of 114 patients were followed for a minimum of 12 months (mean,  $27 \pm 20$  months; range, 12-88 months). The mean Thermann score was  $82 \pm 13$  (range, 41-100), and subjective satisfaction was rated "very good" and "good" in 90%. An inverse correlation was found between tendon length and muscle strength ( $R = -0.3$ ). There were 11 reruptures (8 with and 3 without an adequate trauma). General complications were 5 deep venous thromboses, 1 complex regional pain syndrome, and minor problems such as transient heel pain ( $n = 3$ ), heel numbness ( $n = 1$ ), and cast-associated skin abrasions ( $n = 4$ ).

***CONCLUSION:***

Seventeen years of experience with a nonoperative treatment protocol for acute rupture of the Achilles tendon confirmed good functional outcome and patient satisfaction. Reruptures mostly occurred with new traumatic events in the vulnerable phase from 6 to 12 weeks after the initial injury. Muscle strength correlated to tendon length, making its assessment a crucial follow-up parameter. The protective equinus cast and boot can protect against excessive tendon lengthening during the healing process.

***Level of evidence:*** 4.

**44. RHUMATOID ARTHRITIS****Smoking secession**

Arthritis Care Res (Hoboken). 2016 Jun 22. doi: 10.1002/acr.22960.

**Efficacy of a Rheumatoid Arthritis-Specific Smoking Cessation Programme; a Pilot Randomized Controlled Trial.**

Aimer P<sup>1</sup>, Treharne GJ<sup>2</sup>, Stebbings S<sup>3</sup>, Frampton C<sup>1</sup>, Cameron V<sup>1</sup>, Kirby S<sup>4</sup>, Stamp LK<sup>1</sup>.

**OBJECTIVES:**

Smoking adversely influences comorbidities in rheumatoid arthritis (RA). The aim of this pilot study was to investigate whether smoking cessation is increased following a 3-month smoking cessation intervention tailored for people with RA.

**METHODS:**

39 current smokers with RA were recruited. Participants were randomized to receive the current local standard of care for smoking cessation (ABC: brief advice and subsidised nicotine replacement therapy) (control), or ABC+ additional smoking cessation advice for 3 months including face-to-face, telephone and email contact (intervention). Advice was tailored to participants' specific needs from a range of intervention tools focused on education about smoking and RA, pain control, exercise, coping, and support. The primary outcome was smoking cessation at 6 months. The secondary outcome was sustained reduction in smoking at 6 months. Disease and psychosocial characteristics of quitters and non-quitters were examined.

**RESULTS:**

The overall smoking cessation rate was 24%. There was no significant difference in smoking cessation rates between the ABC and ABC+ groups (21% vs 26%; P=0.70). The mean number of cigarettes smoked daily reduced by 44% (P<0.001) but did not differ between ABC and ABC+ groups (mean reduction 47% vs 41%; P=0.72). Successful quitters had more years in education and had smoked less across their lifetime, but these differences were not statistically significant.

**CONCLUSIONS:**

Smoking cessation in RA may lead to a reduced comorbid burden. The lack of added benefit of the tailored intervention suggests brief advice and NRT currently the best practice supporting people with RA who wish to quit smoking. This article is protected by copyright. All rights reserved.

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PMID: 27333261

## 45 A. MANUAL THERAPY LUMBAR & GENERAL

### Directional preference

#### Effects of individualised directional preference management versus advice for reducible discogenic pain: A pre-planned secondary analysis of a randomised controlled trial

Manual Therapy ,

06/14/2016 Surkitt LD, et al.

The objective of this study is to find the usefulness of individualised directional preference management plus guideline-based advice versus advice alone in participants with reducible discogenic pain of 6-week to 6-month duration. They conclude, in people with reducible discogenic pain, individualised directional preference management plus guideline-based advice resulted in significant and rapid improvement in short-term back and leg pain compared with advice alone.

#### Methods

- The researchers performed a pre-planned secondary analysis of a multicentre, parallel group randomised controlled trial.
- The participants assigned randomly to receive a 10-week physiotherapy program of 10-sessions of individualised directional preference management plus guideline-based advice (n=40) or 2-sessions of advice alone (n=38).
- Primary outcomes were back pain, leg pain and activity limitation. Outcomes were taken at baseline and 5, 10, 26, and 52-weeks.

#### Results

- Between-group differences significantly favoured directional preference management compared with advice for back pain at 5-weeks (1.28; 95% CI 0.34 to 2.23) and 10-weeks (1.45; 95% CI 0.51 to 2.40), and leg pain at 10-weeks (1.21; 95% CI 0.04 to 2.39).
- These short-term differences were not maintained.
- There were no significant differences between-groups for activity limitation.
- Secondary outcomes and responder analyses favoured directional preference management suggesting between-group differences were clinically important.

**Directional preference**

J Pain. 2016 May 31. pii: S1526-5900(16)30066-9. doi: 10.1016/j.jpain.2016.05.005

**Neural correlates differ in high and low fear-avoidant chronic low back pain patients when imagining back-straining movements.**

Barke A1, Preis MA2, Schmidt-Samoa C3, Baudewig J4, Kröner-Herwig B2, Dechent P3.

**Objective:**

This current fMRI study aimed to investigate the neural correlates of imagining back–straining and neutral movements in CLBP patients with high (HFA) and low fear avoidance (LFA) and healthy pain–free participants. They conclude that imagining back–straining movements triggered pain–related evaluations in healthy controls and HFA participants, but not in LFA participants. Although heightened pain expectancy in HFA compared to LFA patients fits well with the fear–avoidance model, the difference between healthy controls and LFA patients was unexpected and contrary to the fear–avoidance model.

**Methods:**

A total of 93 persons (62 CLBP patients, 31 healthy controls; age  $49.7 \pm 9.2$  years) included in this study. The CLBP patients were divided into an HFA and an LFA group using the Tampa Scale of Kinesiophobia.

**Results:**

The participants viewed pictures of back–straining and neutral movements and were instructed to imagine that they themselves were executing the activity shown. When imagining back–straining movements, HFA patients as well as healthy controls showed stronger anterior hippocampus activity than LFA patients. The neural activations of HFA patients did not differ from those of healthy controls.

**Perspective:**

It appears that low fear-avoidant back pain patients utilize some kind of strategy or underlying mechanism, which enables them to react with less fear in the face of potentially painful movements. This warrants further investigation since countering fear and avoidance provide an important advantage with respect to disability.

**Exercise and pain tolerance**

Eur J Pain. 2016 Jun 5. doi: 10.1002/ejp.901.

**Exercise increases pressure pain tolerance but not pressure and heat pain thresholds in healthy young men.**

Vaegter HB1,2, Hoeger Bement M3, Madsen AB4, Fridriksson J4, Dasa M4, Graven-Nielsen T5.

**Abstract****BACKGROUND:**

Exercise causes an acute decrease in the pain sensitivity known as exercise-induced hypoalgesia (EIH), but the specificity to certain pain modalities remains unknown. This study aimed to compare the effect of isometric exercise on the heat and pressure pain sensitivity.

**METHODS:**

On three different days, 20 healthy young men performed two submaximal isometric knee extensions (30% maximal voluntary contraction in 3 min) and a control condition (quiet rest). Before and immediately after exercise and rest, the sensitivity to heat pain and pressure pain was assessed in randomized and counterbalanced order. Cuff pressure pain threshold (cPPT) and pain tolerance (cPTT) were assessed on the ipsilateral lower leg by computer-controlled cuff algometry. Heat pain threshold (HPT) was recorded on the ipsilateral foot by a computer-controlled thermal stimulator.

**RESULTS:**

Cuff pressure pain tolerance was significantly increased after exercise compared with baseline and rest ( $p < 0.05$ ). Compared with rest, cPPT and HPT were not significantly increased by exercise. No significant correlation between exercise-induced changes in HPT and cPPT was found. Test-retest reliability before and after the rest condition was better for cPPT and CPTT (intraclass correlation  $> 0.77$ ) compared with HPT (intraclass correlation = 0.54).

**CONCLUSIONS:**

The results indicate that hypoalgesia after submaximal isometric exercise is primarily affecting tolerance of pressure pain compared with the pain threshold. These data contribute to the understanding of how isometric exercise influences pain perception, which is necessary to optimize the clinical utility of exercise in management of chronic pain.

**SIGNIFICANCE:**

The effect of isometric exercise on pain tolerance may be relevant for patients in chronic musculoskeletal pain as a pain-coping strategy. The results indicate that hypoalgesia after submaximal isometric exercise is primarily affecting tolerance of pressure pain compared with the heat and pressure pain threshold. These data contribute to the understanding of how isometric exercise influences pain perception, which is necessary to optimize the clinical utility of exercise in management of chronic pain.

**45 B. MANUAL THERAPY CERVICAL****Cervical manipulation and ex cost effective****Cost-effectiveness of spinal manipulative therapy, supervised exercise, and home exercise for older adults with chronic neck pain.**

Brent Leininger, DC, MS Christine McDonough, PT, PhD Roni Evans, DC, MS, PhD,  
Tor Tosteson, ScD Anna N.A. Tosteson, ScD Gert Bronfort, DC, PhD

DOI: <http://dx.doi.org/10.1016/j.spinee.2016.06.014>

**Background Context** Chronic neck pain is a prevalent and disabling condition among older adults. Despite the large burden of neck pain, little is known regarding the cost-effectiveness of commonly used treatments.

**Purpose** To estimate the cost-effectiveness of home exercise and advice (HEA), spinal manipulative therapy (SMT) plus HEA, and supervised rehabilitative exercise (SRE) plus HEA.

**Study Design/Setting** Cost-effectiveness analysis conducted alongside a randomized clinical trial (RCT).

**Patient Sample** 241 older adults ( $\geq 65$  years) with chronic mechanical neck pain.

**Outcome Measures** Direct and indirect costs, neck pain, neck disability, SF-6D-derived quality-adjusted life years (QALYs), and incremental cost-effectiveness ratios over a one-year time horizon.

**Methods** This work was supported by grants from the National Center for Complementary and Integrative Health (#F32AT007507), National Institute of Arthritis and Musculoskeletal and Skin Diseases (#P60AR062799), and Health Resources and Services Administration (#R18HP01425). The RCT is registered at [ClinicalTrials.gov/#NCT00269308](http://ClinicalTrials.gov/#NCT00269308). The primary analysis adopted a societal perspective, a healthcare perspective was adopted as a sensitivity analysis. Cost-effectiveness was a secondary aim of the RCT which was not powered for differences in costs or QALYs. Differences in costs and clinical outcomes were estimated using generalized estimating equations and linear mixed models, respectively. Cost-effectiveness acceptability curves were calculated to assess the uncertainty surrounding cost-effectiveness estimates.

**Results** Total costs for SMT+HEA were 5% lower than HEA (mean difference: -\$111; 95%CI -\$1,354 to \$899) and 47% lower than SRE+HEA (mean difference: -\$1,932; 95%CI -\$2,796 to -\$1,097). SMT+HEA also resulted in a greater reduction of neck pain over the year relative to HEA (0.57; 95%CI 0.23 to 0.92) and SRE+HEA (0.41; 95%CI 0.05 to 0.76). Differences in disability and QALYs favored SMT+HEA. The probability that adding SMT to HEA is cost-effective at willingness to pay thresholds of \$50,000 to \$200,000 per QALY gained ranges from 0.75 to 0.81. If adopting a healthcare perspective, costs for SMT+HEA were 66% higher than HEA (mean difference: \$515; 95%CI \$225 to \$1,094), resulting in an ICER of \$55,975 per QALY gained.

**Conclusions** On average, SMT+HEA resulted in better clinical outcomes and lower total societal costs relative to SRE+HEA and HEA alone, with a 0.75 to 0.81 probability of cost-effectiveness for willingness to pay thresholds of \$50,000 to \$200,000 per QALY.



**48 A. STM****Massage of quadriceps in knee OA**

**Clinical Study** Journal of Acupuncture and Tuina Science  
June 2016, Volume 14, Issue 3, pp 216-219

**Clinical research on the short-term efficacy of massaging quadriceps for knee osteoarthritis**

- Yu-jiang Qu 屈玉疆
- , Zhi-jin Xuan 玄志金

[Buy now](#)**Abstract****Objective**

To observe the short-term efficacy of massaging quadriceps on knee osteoarthritis (KOA).

**Methods**

Totally 30 KOA patients were enrolled and treated mainly with massaging quadriceps, 20 min for each session, once a day, 2 weeks as a treatment course, and for 2 courses in total. After treatment, the changes of visual analogue scale (VAS) and Western Ontario and McMaster Universities osteoarthritis index (WOMAC) were observed.

**Results**

The VAS and WOMAC scores dropped after treatment, with a statistically significant difference ( $P < 0.01$ ). After a course of treatment, the recovery rate was 33.3% and the total effective rate was 86.7%; after 2 courses, the recovery rate was 60.0% and the total effect rate was 96.7%.

**Conclusion**

Massaging quadriceps can alleviate pain, improve the function of knee joint, and produce a significant short-term efficacy in treating KOA.

**52. EXERCISE****Exercise fatigue improved with laser**

Lasers Med Sci. 2016 Jun 6.

**Effect of pre-exercise phototherapy applied with different cluster probe sizes on elbow flexor muscle fatigue.**

Rossato M<sup>1,2</sup>, Dellagrana RA<sup>1</sup>, Lanferdini FJ<sup>3,4</sup>, Sakugawa RL<sup>1</sup>, Lazzari CD<sup>1</sup>, Baroni BM<sup>5</sup>, Diefenthaler F<sup>6</sup>.

Phototherapy has been used for reducing muscle fatigue. In view of the various types of phototherapy cluster probes available in the market, the purpose of this study was to compare the effects of a similar phototherapy dosage with two different cluster probes on elbow flexor muscle fatigue: small cluster probe (SC = 9 diodes; 7.5 cm<sup>2</sup>) vs. large cluster probe (LC = 33 diodes; 30.2 cm<sup>2</sup>).

Ten physically active male aged 18-35 years participate in a randomized, crossover, double-blind, placebo-controlled trial, which each participant was submitted to the same testing protocol in four sessions (separated by at least 48 h) with different treatments: LC-phototherapy, SC-phototherapy, LC-placebo, and SC-placebo. The elbow flexion maximal isometric voluntary contraction (MIVC) was performed before and after a fatigue protocol (60 % of MIVC until exhaustion). Electromyography (EMG) of the biceps brachii muscle was collected during all testing procedure. Phototherapy with dose of 60 J per muscle [LC: 33 diodes = 5 lasers (850 nm), 12 LEDs (670 nm), 8 LEDs (880 nm), and 8 LEDs (950 nm); SC: 9 diodes = 5 lasers (850 nm) and 4 LEDs (670 nm)] or placebo applications occurred before fatigue protocol. Two-way ANOVA (treatment and time factors) and one-way ANOVA were used, followed by LSD post hoc. Time to exhaustion was significantly higher in active LC (15 %;  $p = 0.031$ ) and SC (14 %;  $p = 0.038$ ) in comparison with their respective placebo treatments, without differences between LC and SC ( $p > 0.05$ ) or between placebo conditions ( $p > 0.05$ ).

This larger exercise tolerance in phototherapy conditions was not accompanied by a higher decrement in the volunteers' maximal strength capacity (11-15 %;  $p > 0.05$  for all). EMG signals presented no difference between the four condition tested here. In both large and small cluster probes (according parameters tested in this study) led to reduced fatigue in elbow flexor muscles, without difference between them.

**KEYWORDS:**

Ergogenic effect and electromyography; Light-emitting diodes therapy; Low-level laser therapy; Neuromuscular economy

PMID: 27272518

**56. ATHLETICS****Mouthguard helps**

Dent Traumatol. 2016 May 20. doi: 10.1111/edt.12283.

**Effect of mouthguards on impact to the craniomandibular complex.**

Tanaka Y1, Tsugawa T1, Maeda Y1.

**BACKGROUND:**

The aim of this study was to investigate the effect of wearing a mouthguard and teeth-clenching on impact to the head and temporomandibular joint (TMJ) during a blow to the jaw.

**MATERIAL AND METHODS:**

A custom-made mouthguard was fabricated for five participants. A 4.1-N impact load was applied to the chin with a pendulum. Two acceleration sensors were attached to the forehead and left TMJ. The amplitudes and durations of the accelerations were obtained under five conditions: mouth-open without mouthguard; light teeth-clenching without mouthguard; maximum voluntary clenching (MVC) without mouthguard; mouth-open with mouthguard and MVC with mouthguard.

**RESULTS:**

Wearing a mouthguard led to significant decreases in the amplitude (mouth-open with mouthguard vs mouth-open without mouthguard,  $P = 0.035$  at forehead,  $P = 0.022$  at TMJ) and duration (mouth-open with mouthguard vs mouth-open without mouthguard,  $P = 0.043$  at forehead, not significant at TMJ). Similarly, teeth-clenching caused significant decreases in the amplitude (mouth-open without mouthguard vs MVC without mouthguard,  $P = 0.024$  at forehead,  $P = 0.025$  at TMJ) and duration (mouth-open without mouthguard vs MVC without mouthguard,  $P = 0.033$  at forehead, not significant at TMJ). Furthermore, wearing a mouthguard in itself provided an impact reduction effect similar to the combination of teeth-clenching and wearing a mouthguard.

**CONCLUSIONS:**

Wearing a mouthguard and/or teeth-clenching reduced the impact to the head and TMJ during a blow to the jaw. However, it should be noted that the findings are the results from a small impact load to the jaw.

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**KEYWORDS:**

concussion; craniomandibular complex; mouthguard; teeth-clenching; temporomandibular joint

**57. GAIT****Pelvic and foot acceleration**

Gait Posture. 2016 Jun 8;49:25-29. doi: 10.1016/j.gaitpost.2016.06.001.

**Relationship between trunk and foot accelerations during walking in healthy adults.**

Craig JJ<sup>1</sup>, Bruetsch A<sup>2</sup>, Huisinga JM<sup>3</sup>.

Understanding upper body and lower body segment relationships may be an important step in assessing stability during gait. This study explored the relationship between acceleration patterns at the trunk and at the foot during treadmill walking at self-selected pace in healthy adults. Forty healthy subjects walked on a treadmill for 3 minutes at self-selected speed. Root mean square (RMS) and approximate entropy (ApEn) were derived from the acceleration time series at the trunk and at the foot in the frontal and sagittal plane. RMS of accelerations at the trunk were strongly correlated with RMS values at the foot in the sagittal plane ( $r=0.883$ ,  $p<0.01$ ) and in the frontal plane ( $r=0.811$ ,  $p<0.01$ ). ApEn values at the trunk were moderately correlated with ApEn values at the foot in the sagittal plane ( $r=0.603$ ,  $p<0.01$ ) only.

These results show that acceleration variability at the foot is related to acceleration variability at the trunk, specifically that increased variability at the foot is tied to increased variability at the trunk in healthy adults. Portable inertial sensors can potentially be used in any environment including a laboratory, clinic, or at home to measure lower and upper body segment motion, and assessing relationships between upper and lower body motion may provide a more comprehensive evaluation of overall stability.

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**KEYWORDS:**

Accelerations; Inertial sensors; Segment coordination; Variability

PMID: [27344450](#)

**59. PAIN****Tobacco and pain**

*Pain*. 2016 Jul;157(7):1373-81. doi: 10.1097/j.pain.0000000000000572.

**Acute analgesic effects of nicotine and tobacco in humans: a meta-analysis.**

Ditre JW<sup>1</sup>, Heckman BW, Zale EL, Kosiba JD, Maisto SA.

Although animal models have consistently demonstrated acute pain inhibitory effects of nicotine and tobacco, human experimental studies have yielded mixed results.

The main goal of this meta-analysis was to quantify the effects of nicotine/tobacco administration on human experimental pain threshold and tolerance ratings. A search of PubMed and PsycINFO online databases identified 13 eligible articles, including  $k = 21$  tests of pain tolerance ( $N = 393$ ) and  $k = 15$  tests of pain threshold ( $N = 339$ ). Meta-analytic integration for both threshold and tolerance outcomes revealed that nicotine administered through tobacco smoke and other delivery systems (eg, patch, nasal spray) produced acute analgesic effects that may be characterized as small to medium in magnitude (Hedges  $g = 0.35$ , 95% confidence interval = 0.21-0.50).

Publication bias-corrected estimates remained significant and indicated that these effects may be closer to small. Sex composition was observed to be a significant moderator, such that pain threshold effects were more robust among samples that included more men than women.

These results help to clarify a mixed literature and may ultimately help to inform the treatment of both pain and nicotine dependence. Pain and tobacco smoking are both highly prevalent and comorbid conditions. Current smoking has been associated with more severe chronic pain and physical impairment. Acute nicotine-induced analgesia could make smoking more rewarding and harder to give up. Future research should use dynamic measures of experimental pain reactivity and further explore biopsychosocial mechanisms of action.

PMID: [27023418](#)

### Central pain receptors

Pain. 2016 Jun;157(6):1279-86. doi: 10.1097/j.pain.0000000000000517.

#### **Brain activations during pain: a neuroimaging meta-analysis of patients with pain and healthy controls.**

Jensen KB1, Regenbogen C, Ohse MC, Frasnelli J, Freiherr J, Lundström JN.

In response to recent publications from pain neuroimaging experiments, there has been a debate about the existence of a primary pain region in the brain.

Yet, there are few meta-analyses providing assessments of the minimum cerebral denominators of pain. Here, we used a statistical meta-analysis method, called activation likelihood estimation, to define (1) core brain regions activated by pain per se, irrelevant of pain modality, paradigm, or participants and (2) activation likelihood estimation commonalities and differences between patients with chronic pain and healthy individuals. A subtraction analysis of 138 independent data sets revealed that the minimum denominator for activation across pain modalities and paradigms included the right insula, secondary sensory cortex, and right anterior cingulate cortex (ACC). Common activations for healthy subjects and patients with pain alike included the thalamus, ACC, insula, and cerebellum. A comparative analysis revealed that healthy individuals were more likely to activate the cingulum, thalamus, and insula.

Our results point toward the central role of the insular cortex and ACC in pain processing, irrelevant of modality, body part, or clinical experience; thus, furthering the importance of ACC and insular activation as key regions for the human experience of pain.

**Neuropathic pain post spinal cord injury**

Eur J Pain. 2016 Jun 24. doi: 10.1002/ejp.905.

**Neuropathic pain prevalence following spinal cord injury: A systematic review and meta-analysis.**

Burke D<sup>1</sup>, Fullen BM<sup>1,2</sup>, Stokes D<sup>3</sup>, Lennon O<sup>1</sup>.

Following spinal cord injury (SCI), chronic pain is a common secondary complication with neuropathic pain (NP) cited as one of the most distressing and debilitating conditions leading to poor quality of life, depression and sleep disturbances.

Neuropathic pain presenting at or below the level of injury is largely refractory to current pharmacological and physical treatments. No consensus on the prevalence of NP post SCI currently exists, hence this systematic review was undertaken. The review comprised three phases: a methodological assessment of databases [PubMed, Embase, Web of Knowledge, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Cochrane Library and Physiotherapy Evidence Database (PEDro)] identifying potential papers and screening for inclusion criteria by two independent reviewers; data extraction; and finally rating of internal validity and strength of the evidence, using a published valid and reliable scale. Meta-analysis estimated pooled point prevalence rates using a random effects model. In total, 17 studies involving 2529 patients were included in the review. Overall point prevalence rates for NP were established at 53% (38.58-67.47); 19% (13.26-26.39) for at-level NP and 27% (19.89-34.61) for below-level NP, with high heterogeneity noted ( $I^2 = 84-93\%$ ). Prevalence rates for NP following SCI are high. Future studies should include established definitions, classification systems and assessment tools for NP at defined time points post SCI to follow the trajectory of this problem across the lifespan and include indices of sleep, mood and interference to allow for appropriate, optimal and timely NP management for each patient.

**WHAT DOES THIS REVIEW ADD?:** This is the first systematic review and meta-analysis to record pooled point prevalence of neuropathic pain post spinal cord injury at 53%. Additional pooled analysis shows that neuropathic pain is more common below the level of lesion, in patients with tetraplegia, older patients and at 1 year post injury.

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PMID: 27341614

**62 A. NUTRITION/VITAMINS****Coffee consumption and cognitive disorders**

Clin Nutr. 2016 May 30. pii: S0261-5614(16)30111-X. doi: 10.1016/j.clnu.2016.05.015.

**Coffee intake and the incident risk of cognitive disorders: A dose-response meta-analysis of nine prospective cohort studies.**

Wu L1, Sun D2, He Y3.

**BACKGROUND & AIMS:**

Previous epidemiological studies have provided inconsistent conclusions on the impact of coffee consumption in the developing of cognitive disorders. However, no previous meta-analysis has pooled the evidence from the prospective cohort studies to assess the influence of coffee drinking and its potential dose-response patterns on the risk of developing cognitive disorders specifically.

**METHODS:**

Two databases (PubMed and Embase) were searched for evidence of cohort studies from inception to February 2016. We used a generic inverse-variance method with a random-effects model to pool the fully adjusted relative risks (RRs) and the corresponding 95% confidence intervals (CIs). In the dose-response analyses, a generalized least-squares trend estimation model was applied to computing the study-specific slopes.

**RESULTS:**

Nine prospective cohort studies involving 34,282 participants were included in our study. The duration of follow-up years ranged from 1.3 to 28. Compared with <1 cup, daily drinking of 1-2 cups of coffee was inversely linked with the occurrence of cognitive disorders (i.e., Alzheimer's disease, dementia, cognitive decline, and cognitive impairment), and the pooled RR (95% CI) was 0.82 (0.71, 0.94) with evidence of non-significant heterogeneity ( $I^2 = 25\%$ ). Non-significant differences were presented for the association between coffee consumption (>3 vs. <1 cup/d) and incident cognitive disorders. The dose-response analysis showed a "J-shaped" curve relationship of the risk of developing cognitive disorders with coffee consumption.

**CONCLUSIONS:**

A "J-shaped" association was presented between coffee intake and incident cognitive disorders, with the lowest risk of incident cognitive disorders at a daily consumption level of 1-2 cups of coffee.

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**63. PHARMACOLOGY****Cannabis and pain**

Journal of pain **June 2016** Volume 17, Issue 6, Pages 739–744

Abstract:

Opioids are commonly used to treat patients with chronic pain (CP), though there is little evidence that they are effective for long term CP treatment.

Previous studies reported strong associations between passage of medical cannabis laws and decrease in opioid overdose statewide. Our aim was to examine whether using medical cannabis for CP changed individual patterns of opioid use. Using an online questionnaire, we conducted a cross-sectional retrospective survey of 244 medical cannabis patients with CP who patronized a medical cannabis dispensary in Michigan between November 2013 and February 2015. Data collected included demographic information, changes in opioid use, quality of life, medication classes used, and medication side effects before and after initiation of cannabis usage. Among study participants, medical cannabis use was associated with a 64% decrease in opioid use (n = 118), decreased number and side effects of medications, and an improved quality of life (45%). This study suggests that many CP patients are essentially substituting medical cannabis for opioids and other medications for CP treatment, and finding the benefit and side effect profile of cannabis to be greater than these other classes of medications. More research is needed to validate this finding. Perspective:

This article suggests that using medical cannabis for CP treatment may benefit some CP patients. The reported improvement in quality of life, better side effect profile, and decreased opioid use should be confirmed by rigorous, longitudinal studies that also assess how CP patients use medical cannabis for pain management.

<sup>a</sup> 2016 by the American Pain Society Key words: Medical cannabis, opioids, chronic pain, side effects.

### Acetaminophen not effective in pain

#### **Acetaminophen in the management of acute and subacute low back and neck pain**

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American Journal of Medicine,

06/28/2016 Sands Lincoln M, et al. –

**A**cetaminophen recommended in most clinical practice guidelines and is usually the first-line analgesic. However, there is credible evidence that acetaminophen may not be an optimal first choice and that its role in treating acute and subacute low back pain needs to be reevaluated.

**NSAID'S and neck pain**

Eur Spine J. 2016 Jan;25(1):34-61. doi: 10.1007/s00586-015-3891-4. Epub 2015 Apr 1.

**Are non-steroidal anti-inflammatory drugs effective for the management of neck pain and associated disorders, whiplash-associated disorders, or non-specific low back pain? A systematic review of systematic reviews by the Ontario Protocol for Traffic Injury Management (OPTIMa) Collaboration.**

Wong JJ<sup>1,2,3</sup>, Côté P<sup>4,5</sup>, Ameis A<sup>6</sup>, Varatharajan S<sup>4,7</sup>, Varatharajan T<sup>4,8</sup>, Shearer HM<sup>4,7</sup>, Brison RJ<sup>9,10</sup>, Sutton D<sup>4,7</sup>, Randhawa K<sup>4,7</sup>, Yu H<sup>4,7</sup>, Southerst D<sup>4,11</sup>, Goldgrub R<sup>5</sup>, Mior S<sup>5,7</sup>, Stupar M<sup>4</sup>, Carroll LJ<sup>12</sup>, Taylor-Vaisey A<sup>4</sup>.

**PURPOSE:**

To evaluate the effectiveness of non-steroidal anti-inflammatory drugs (NSAIDs) for the management of neck pain and associated disorders (NAD), whiplash-associated disorders, and non-specific low back pain (LBP) with or without radiculopathy.

**METHODS:**

We systematically searched six databases from 2000 to 2014. Random pairs of independent reviewers critically appraised eligible systematic reviews using the Scottish Intercollegiate Guidelines Network criteria. We included systematic reviews with a low risk of bias in our best evidence synthesis.

**RESULTS:**

We screened 706 citations and 14 systematic reviews were eligible for critical appraisal. Eight systematic reviews had a low risk of bias. For recent-onset NAD, evidence suggests that intramuscular NSAIDs lead to similar outcomes as combined manipulation and soft tissue therapy. For NAD (duration not specified), oral NSAIDs may be more effective than placebo. For recent-onset LBP, evidence suggests that: (1) oral NSAIDs lead to similar outcomes to placebo or a muscle relaxant; and (2) oral NSAIDs with bed rest lead to similar outcomes as placebo with bed rest. For persistent LBP, evidence suggests that: (1) oral NSAIDs are more effective than placebo; and (2) oral NSAIDs may be more effective than acetaminophen. For recent-onset LBP with radiculopathy, there is inconsistent evidence on the effectiveness of oral NSAIDs versus placebo. Finally, different oral NSAIDs lead to similar outcomes for neck and LBP with or without radiculopathy.

**CONCLUSIONS:**

For NAD, oral NSAIDs may be more effective than placebo. Oral NSAIDs are more effective than placebo for persistent LBP, but not for recent-onset LBP. Different oral NSAIDs lead to similar outcomes for neck pain and LBP.

**KEYWORDS:**

Medication; Neck pain and associated disorders; Nonspecific low back pain; Nonsteroidal anti-inflammatory drugs; Systematic review; Whiplash-associated disorders

**NSAID's and subsequent fx****Non-steroidal anti-inflammatory drugs and the risk of a second hip fracture: a propensity-score matching study.**

Chuang PY<sup>1,2</sup>, Shen SH<sup>1,2</sup>, Yang TY<sup>1,2</sup>, Huang TW<sup>1,2</sup>, Huang KC<sup>3,4</sup>.

**BACKGROUND:**

Non-steroidal anti-inflammatory drugs (NSAIDs) are frequently prescribed for elderly patients, particularly after a hip fracture. However, we are not clear about the effect of NSAIDs on the risk of a second hip fracture because of confounding factors.

**METHODS:**

This was a Taiwan National Health Insurance Research Database-based study using propensity-score matching (PSM) to control for confounding. Enrollees were selected from patients with a hip fracture during 1996-2004 and followed longitudinally until December 2009. After PSM for comorbidities and bisphosphonate therapy, 94 patients with a second hip fracture were assigned to the Cases group and 461 without it to the Controls group. The target drugs are NSAIDs; paracetamol and dexamethasone are used for comparison.

**RESULTS:**

The correlation between the mean daily-dose (MDD) ratios of NSAIDs and the probability values of the current statistical tests were highly negative (Pearson's  $r = -0.920$ ,  $P = 0.003$ ), which indicated that the higher the MDD ratios, the greater the risks of a second hip fracture. A Kaplan-Meier survival analysis showed a time-dependent trend of increasing risk of a second hip fracture in patients taking NSAIDs ( $P < 0.001$ ). Moreover, patients  $\geq 60$  years old had a higher risk of a second hip fracture than did those  $< 60$  and taking the NSAIDs diclofenac ( $P = 0.016$ ) and celecoxib ( $P = 0.003$ ) and the corticosteroid dexamethasone ( $P = 0.018$ ), but not those taking analgesic paracetamol ( $P = 0.074$ ).

**CONCLUSIONS:**

We conclude that taking NSAIDs after a fragility hip fracture dose- and time-dependently significantly increases the risk of a second hip fracture, especially in elderly patients. To lower the risk of a second hip fracture, any underlying causes for excessively using NSAIDs should be treated and thus fewer NSAIDs prescribed after a first hip fracture.

**Medications and LBP****The Use of Analgesic and Other Pain-Relief Drugs to Manage Chronic Low Back Pain: Results from a National Survey.**

Gouveia N<sup>1,2</sup>, Rodrigues A<sup>2,3,4</sup>, Ramiro S<sup>2,5</sup>, Eusébio M<sup>2</sup>, Machado PM<sup>2,6,7</sup>, Canhão H<sup>1,2</sup>, Branco JC<sup>1,2,8</sup>.

**OBJECTIVES:**

To analyze and characterize the intake profile of pain-relief drugs in a population-based study of adults with chronic low back pain (CLBP).

**METHODS:**

EpiReumaPt was a cross-sectional Portuguese population-based study (10,661 subjects). Self-reported active CLBP was considered to be low back pain on the day of enrollment and for  $\geq 90$  days. Prevalence and profile of analgesic intake was characterized among those self-reporting active CLBP, taking into account the intensity of pain and the World Health Organization (WHO) analgesic ladder. We further investigated whether the presence of active CLBP was a factor independently associated with the intake of analgesics (adjusted for potential confounders).

**RESULTS:**

Among 1,487 subjects with active CLBP, only 18.7% were using analgesic/pain-relief drugs. Estimated prevalence was anxiolytics, 14.1%; nonsteroidal anti-inflammatory drugs (NSAIDs), 12.3%; antidepressants, 10.1%; analgesic, antipyretics, 6.6%; anticonvulsants, 3.4%; central muscle relaxants, 2.6%; and analgesic opioids, 1.6%. Most subjects with severe pain were in the first step of the WHO analgesic ladder: NSAIDs plus anxiolytics (4.6%), NSAIDs plus antidepressants (3.2%), or NSAIDs plus muscle relaxants (2.5%). The presence of active CLBP was significantly associated with the intake of all therapeutic groups: antidepressants (odds ratio [OR] = 12.56;  $P < 0.001$ ); centrally acting muscle relaxants (OR = 12.01;  $P < 0.001$ ); anticonvulsants (OR = 9.27;  $P < 0.001$ ); anxiolytics, sedatives, and hypnotics (OR = 8.86;  $P < 0.001$ ); NSAIDs (OR = 8.56;  $P < 0.001$ ); and analgesic opioids (OR = 8.13;  $P < 0.001$ ).

**CONCLUSION:**

Analgesic/pain-relief drug intake in patients with active CLBP was very low, even for those with severe pain. The WHO analgesic ladder was carefully followed, with an extremely conservative use of analgesic opioids even for those with severe pain.

**64. ELECTROTHERAPY****Radiofrequency improved knee pain from OA**

Reg Anesth Pain Med. 2016 Jul-Aug;41(4):501-10. doi: 10.1097/AAP.0000000000000414.

**Radiofrequency Procedures to Relieve Chronic Knee Pain: An Evidence-Based Narrative Review.**

Bhatia A<sup>1</sup>, Peng P, Cohen SP.

**BACKGROUND AND OBJECTIVES:**

Chronic knee pain from osteoarthritis or following arthroplasty is a common problem. A number of publications have reported analgesic success of radiofrequency (RF) procedures on nerves innervating the knee, but interpretation is hampered by lack of clarity regarding indications, clinical protocols, targets, and longevity of benefit from RF procedures.

**METHODS:**

We reviewed the following medical literature databases for publications on RF procedures on the knee joint for chronic pain: MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, and Google Scholar up to August 9, 2015. Data on scores for pain, validated scores for measuring physical disability, and adverse effects measured at any timepoint after 1 month following the interventions were collected, analyzed, and reported in this narrative review.

**RESULTS:**

Thirteen publications on ablative or pulsed RF treatments of innervation of the knee joint were identified. A high success rate of these procedures in relieving chronic pain of the knee joint was reported at 1 to 12 months after the procedures, but only 2 of the publications were randomized controlled trials. There was evidence for improvement in function and a lack of serious adverse events of RF treatments.

**CONCLUSIONS:**

Radiofrequency treatments on the knee joint (major or periarticular nerve supply or intra-articular branches) have the potential to reduce pain from osteoarthritis or persistent postarthroplasty pain. Ongoing concerns regarding the quality, procedural aspects, and monitoring of outcomes in publications on this topic remain. Randomized controlled trials of high methodological quality are required to further elaborate role of these interventions in this population.

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