

## ABSTRACTS

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## LBP

## LBP and depression and QOL

Acta Ortop Bras. 2013 Jan-Feb; 21(1): 27–29.

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PMCID: PMC3862015

**Pain, kinesiophobia and quality of life in chronic low back pain and depression**

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## Abstract

**OBJECTIVE:** To describe the characteristics of pain, kinesiophobia and quality of life in patients with chronic low back pain and depression.

**METHODS:** Cross-sectional study in which 193 individuals with chronic low back pain were included. The presence of depression was measured by the Beck Depression Inventory, using a cutoff validated by the Mini International Neuropsychiatric Interview. The intensity and quality of pain in the groups with and without depression were assessed by the McGill Questionnaire. The Tampa Scale for Kinesiophobia was applied to assess fear of movement. With respect to quality of life, the Medical Outcomes Study 36 was used. The statistical significance level was set at  $p < 0.05$ .

**RESULTS:** The prevalence of depression was 32.1%. The group with depression had worse scores in relation to pain, kinesiophobia and quality of life (physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health).

**CONCLUSION:** Patients with low back pain and depression had higher pain intensity, greater fear of movement and poorer quality of life. *Level of Evidence III, Cross-sectional*

**Keywords:** Low back pain, Depression, Quality of life

# ABSTRACTS

## SURGERY

## Adjacent degeneration of fusion segment

Spine (Phila Pa 1976). 2016 Jul 15;41(14):1167-72. doi: 10.1097/BRS.0000000000001493.

**Predisposing Characteristics of Adjacent Segment Disease After Lumbar Fusion.**

Alentado VJ1, Lubelski D, Healy AT, Orr RD, Steinmetz MP, Benzel EC, Mroz TE.

Author information

Abstract

**STUDY DESIGN:**

Retrospective Review.

**OBJECTIVE:**

The aim of this study was to determine medical, radiographic, and surgical risk factors for the development of adjacent segment disease (ASD) after lumbar fusion.

**SUMMARY OF BACKGROUND DATA:**

ASD is a recognized outcome of spinal fusion that leads to increased costs and debilitating symptoms for patients. However, a comprehensive understanding of risk factors for the development of this surgical outcome does not exist.

**METHODS:**

The medical records of patients who received their first lumbar fusion for any indication were retrospectively examined for preoperative medical comorbidities and medications, as well as surgical approach and perioperative complications. A blinded reviewer assessed radiographs for each patient to examine sagittal alignment after fusion. Multivariable logistic regression was used to model the risk of developing ASD on the basis of one or more predictors.

**RESULTS:**

A total of 137 patients fit the inclusion criteria; 9% required a follow-up operation for degeneration at segments adjacent to the fusion. The ASD group had a mean follow-up of 21.1 months prior to revision surgery and an overall follow-up of 41.0 months. The average follow-up in the control group was 14.0 months. Statistically significant independent predictors of developing ASD included antidepressant use [odds ratio (OR)=5.4], diagnosis of degenerative scoliosis (OR=34.2), fusion of L4-S1 (OR=56.5), having no decompressions adjacent to the fusion, and low sacral slope (OR=0.9). No patient who developed ASD received a decompression adjacent to the fusion such that an OR could not be generated for this independent predictor.

**CONCLUSION:**

This study is the first to use a combination of medical, surgical, and postoperative sagittal balance as risk factors for the development of adjacent segment disease after lumbar fusion. The awareness of these risk factors may allow for better patient selection and surgical technique to decrease the probability of acquiring this adverse outcome.

**LEVEL OF EVIDENCE:** 4.

## PELVIC ORGANS/WOMAN'S HEALTH

## Antibiotic use

JAMA Pediatr. 2016 Aug 1;170(8):750-7. doi: 10.1001/jamapediatrics.2016.0585.

**Association of Early-Life Antibiotic Use and Protective Effects of Breastfeeding: Role of the Intestinal Microbiota.**

Korpela K<sup>1</sup>, Salonen A<sup>1</sup>, Virta LJ<sup>2</sup>, Kekkonen RA<sup>3</sup>, de Vos WM<sup>4</sup>.

Author information

## Abstract

**IMPORTANCE:** Long duration of breastfeeding is known to reduce the frequency of infections and the risk of overweight, both of which are prevalent health problems among children, but the mechanisms are unclear.

**OBJECTIVES:** To test whether early-life antibiotic use in children prevents the beneficial long-term effects of breastfeeding on weight development and lifetime antibiotic use, and to investigate whether the duration of breastfeeding is associated with long-term microbiota development.

**DESIGN, SETTING, AND PARTICIPANTS:** Retrospective cohort study, conducted from June 2015 to December 2015, of the association between the duration of breastfeeding and lifetime antibiotic use by children as well as body mass index (BMI; calculated as weight in kilograms divided by height in meters squared) z score in a cohort of 226 healthy children aged 2 to 6 years attending day care at the study area in northern Finland and participating in a probiotic trial from October 1, 2009, through April 30, 2010. Fecal microbiota composition analysis was performed in a subcohort of 42 of these children.

**EXPOSURES:** Duration of breastfeeding and the number of different antibiotic courses purchased for the child.

**MAIN OUTCOMES AND MEASURES:** The BMI z score, lifetime antibiotic use after weaning, and fecal microbiota composition.

**RESULTS:** A total of 226 children (mean [SD] age, 55 [1.4] months; 54% male) were included in the study. Among the 113 children with no antibiotics before weaning, each month of breastfeeding decreased the mean number of postweaning antibiotic courses by 5% (95% CI, 2% to 8%; P = .001) and mean BMI z scores by 0.08 unit (95% CI, 0.04 to 0.11; P < .001). Among the 113 early-life antibiotic users, the effect of breastfeeding on postweaning antibiotic use was borderline significant (estimated 4% decrease per month; 95% CI, 0% to 7%; P = .04) and the effect on BMI z score disappeared (estimated 1% increase; 95% CI, -3% to 5%; P = .50). In the subcohort of 42 children with fecal microbiota composition analysis, the children with short breastfeeding duration (0-6 months) and no early-life antibiotic use or with long breastfeeding duration (8-16 months) and early-life use of antibiotics had a significantly lower abundance of Bifidobacterium (by 55%; 95% CI, 43% to 87%; P = .006; and 39%, 95% CI, 30% to 68%; P < .001, respectively) and Akkermansia (by 71%; 95% CI, 28% to 87%; P = .008; and 69%; 95% CI, 22% to 90%; P = .02, respectively) compared with those with long duration of breastfeeding and no early-life antibiotics.

**CONCLUSIONS AND RELEVANCE:** Antibiotic use in a child during breastfeeding may weaken the beneficial effects of long breastfeeding duration. The results suggest that particularly the long-term metabolic benefits of breastfeeding are conveyed by the intestinal microbiota.

### Yoga and pregnancy

Clin Obstet Gynecol. 2016 Sep;59(3):600-12. doi: 10.1097/GRF.0000000000000210.

Yoga in Pregnancy.

Babbar S<sup>1</sup>, Shyken J.  
Author information

#### Abstract

Yoga is a mind-body practice that encompasses a system of postures (asana), deep breathing (pranayama), and meditation. Over 36 million Americans practice yoga of which the majority are reproductive-aged women. Literature to support this practice is limited, albeit on the rise. A prenatal yoga practice has been shown to benefit women who suffer from anxiety, depression, stress, low back pain, and sleep disturbances. A small number of studies have been performed in high-risk pregnancies that also demonstrate an improvement in outcomes. The safety of performing yoga for the first time in pregnancy and fetal tolerance has been demonstrated.

PMID: 27152528

## VISCERA

## Vit. D and UC

Clin Gastroenterol Hepatol. 2016 Jun 4. pii: S1542-3565(16)30270-1. doi: 10.1016/j.cgh.2016.05.035.

**Low Serum Vitamin D During Remission Increases Risk of Clinical Relapse in Patients With Ulcerative Colitis.**

Gubatan J<sup>1</sup>, Mitsuhashi S<sup>2</sup>, Zenlea T<sup>2</sup>, Rosenberg L<sup>2</sup>, Robson S<sup>2</sup>, Moss AC<sup>2</sup>.  
Author information

Abstract

**BACKGROUND & AIMS:**

Vitamin D levels have been associated with disease activity in patients with ulcerative colitis (UC), but it is unclear whether they affect the risk of disease relapse. We sought to determine the association between baseline vitamin D levels during a period of clinical remission and risk of subsequent UC relapse.

**METHODS:**

We performed a physician-blinded prospective study of 70 patients with UC in clinical remission followed up after a surveillance colonoscopy at a tertiary academic medical center. Serum samples were collected at the time of colonoscopy and baseline endoscopic and histologic activity were determined. Levels of 25-hydroxy-vitamin D were measured using an enzyme-linked immunosorbent assay. The primary outcome was rate of clinical relapse, determined over 12 months.

**RESULTS:**

The mean baseline vitamin D level was lower among patients with relapse (29.5 ng/mL) than without (50.3 ng/mL) ( $P = .001$ ). Remission vitamin D level ( $\leq 35$  ng/mL) was associated with a risk of clinical relapse (odds ratio, 1.25; 95% confidence interval [CI], 1.01-1.56;  $P = .044$ ) over 12 months, independent of endoscopic or histologic grade at enrollment. A receiver operating characteristic curve of vitamin D levels for the outcome of relapse had an area under the curve of 0.72; and a serum level of 35 ng/mL or less had a sensitivity of 70% (95% CI, 46%-88%) and a specificity of 74% (95% CI 57%-83%) for predicting risk of clinical relapse.

**CONCLUSIONS:**

Serum levels of vitamin D of 35 ng/mL or less during periods of clinical remission increase the risk of UC relapse. Clinical trials to obtain vitamin D levels higher than this threshold should be considered.

**KEYWORDS:** Biomarker; IBD; Relapse Prevention  
PMID: 27266980

**Proton pump inhibitors and dementia**

JAMA Neurol. 2016 Apr 1;73(4):410-6. doi: 10.1001/jamaneurol.2015.4791.

**Association of Proton Pump Inhibitors With Risk of Dementia: A Pharmacoepidemiological Claims Data Analysis.**

Gomm W<sup>1</sup>, von Holt K<sup>1</sup>, Thomé F<sup>1</sup>, Broich K<sup>2</sup>, Maier W<sup>3</sup>, Fink A<sup>4</sup>, Doblhammer G<sup>5</sup>, Haenisch B<sup>1</sup>.

[Author information](#)

**Abstract****IMPORTANCE:**

Medications that influence the risk of dementia in the elderly can be relevant for dementia prevention. Proton pump inhibitors (PPIs) are widely used for the treatment of gastrointestinal diseases but have also been shown to be potentially involved in cognitive decline.

**OBJECTIVE:**

To examine the association between the use of PPIs and the risk of incident dementia in the elderly.

**DESIGN, SETTING, AND PARTICIPANTS:**

We conducted a prospective cohort study using observational data from 2004 to 2011, derived from the largest German statutory health insurer, Allgemeine Ortskrankenkassen (AOK). Data on inpatient and outpatient diagnoses (coded by the German modification of the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision) and drug prescriptions (categorized according to the Anatomical Therapeutic Chemical Classification System) were available on a quarterly basis. Data analysis was performed from August to November 2015.

**EXPOSURES:**

Prescription of omeprazole, pantoprazole, lansoprazole, esomeprazole, or rabeprazole.

**MAIN OUTCOMES AND MEASURES:**

The main outcome was a diagnosis of incident dementia coded by the German modification of the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision. The association between PPI use and dementia was analyzed using time-dependent Cox regression. The model was adjusted for potential confounding factors, including age, sex, comorbidities, and polypharmacy.

**RESULTS:**

A total of 73 679 participants 75 years of age or older and free of dementia at baseline were analyzed. The patients receiving regular PPI medication (n = 2950; mean [SD] age, 83.8 [5.4] years; 77.9% female) had a significantly increased risk of incident dementia compared with the patients not receiving PPI medication (n = 70 729; mean [SD] age, 83.0 [5.6] years; 73.6% female) (hazard ratio, 1.44 [95% CI, 1.36-1.52]; P < .001).

**CONCLUSIONS AND RELEVANCE:**

The avoidance of PPI medication may prevent the development of dementia. This finding is supported by recent pharmacoepidemiological analyses on primary data and is in line with mouse models in which the use of PPIs increased the levels of  $\beta$ -amyloid in the brains of mice. Randomized, prospective clinical trials are needed to examine this connection in more detail.

## A. CERVICAL SPINE

## Characters of neck pain

Spine (Phila Pa 1976). 2016 Aug 1;41(15):E908-14. doi: 10.1097/BRS.0000000000001500.

**Three-dimensional Cervical Movement Characteristics in Healthy Subjects and Subgroups of Chronic Neck Pain Patients Based on Their Pain Location.**

Waeyaert P<sup>1</sup>, Jansen D, Bastiaansen M, Scafoglieri A, Buyl R, Schmitt M, Cattrysse E.  
Author information

Abstract

**STUDY DESIGN:**

A cross-sectional observational study of three-dimensional (3D) cervical kinematics in 41 chronic neck pain (CNPs) patients and 156 asymptomatic controls.

**OBJECTIVE:**

The objective was to investigate 3D cervical kinematics by analyzing and comparing quantitative and qualitative parameters in healthy subjects and CNPs. Furthermore, subgroups were formed to explore the influence of pain-location on cervical kinematics. The possible correlation of kinematic parameters with the degree of functional disability was examined as well.

**SUMMARY OF BACKGROUND DATA:**

In patients with chronic neck pain, a clear pathological cause is frequently not identifiable. Therefore, the need to assess neck pain with a broader view than structure or anatomical-based divergences is desirable.

**METHODS:**

Movements of the cervical spine were registered using an electromagnetic tracking system. Quantitative and qualitative kinematics were analyzed for active axial rotation, lateral bending, and flexion-extension motion components.

**RESULTS:**

During lateral bending, the range of the main motion demonstrated significant higher values ( $P=0.001$ ) in the controls (mean:  $68.67^{\circ} \pm 15.17^{\circ}$ ) than patients (mean:  $59.28^{\circ} \pm 15.41^{\circ}$ ). Significant differences were demonstrated between subgroups for several kinematic parameters ( $P<0.05$ ). Although differences were predominantly recorded between the "symmetrical" and "asymmetrical" pain group, some parameters also distinguished subgroups from controls. On average, the symmetrical group showed significant less harmonic movement patterns, expressed by qualitative parameters, in comparison with the "asymmetrical" group and controls. Furthermore, the "asymmetrical" group showed significant lower scores on quantitative parameters than the "symmetrical" group and controls. The degree of functional disability correlated moderately with changes in qualitative parameters.

**CONCLUSION:**

In this study, chronic neck pain patients with a symmetrical pain pattern showed significant poorer quality of movement, while those with asymmetrical pain showed a significant reduction in quantitative measures. Subgrouping of neck patients based on pain location may be of help for further research and clinics.

LEVEL OF EVIDENCE: 4.

## B. CERVICAL EXERCISES

### Patient selection for fusion

Spine (Phila Pa 1976). 2016 Jul 15;41(14):1160-6. doi: 10.1097/BRS.0000000000001444.

### **Return to Work Rates After Single-level Cervical Fusion for Degenerative Disc Disease Compared With Fusion for Radiculopathy in a Workers' Compensation Setting.**

Faour M1, Anderson JT, Haas AR, Percy R, Woods ST, Ahn UM, Ahn NU.

Author information

#### Abstract

##### STUDY DESIGN:

A retrospective comparative cohort study.

##### OBJECTIVE:

To compare return to work (RTW) rates for patients who underwent single-level cervical fusion for radiculopathy compared with fusion for degenerative disc disease (DDD) as an indication for surgery.

##### SUMMARY OF BACKGROUND DATA:

Studies have shown that workers' compensation subjects have less favorable surgical and functional outcomes compared with the general population. Cervical decompression and fusion have provided great results with relieving radicular symptoms. Fusion for DDD, however, remains controversial.

##### METHODS:

We retrospectively collected data of 21 169 subjects with cervical comorbidities who filed their claims for work-related injuries with Ohio Bureau of Workers' Compensation (BWC) between 1993 and 2011. The primary outcome was whether subjects met RTW criteria within 3-year follow-up after fusion. The secondary outcome measures and data on presurgical characteristics and secondary outcomes of each cohort were also collected.

##### RESULTS:

Successful RTW status was affected by a number of presurgical risk factors: DDD as an indication for surgery, age of more than 50 years, out of work for more than 6 months, psychological evaluation, opioid use, legal litigation, and permanent disability. The DDD group had lower rate of successful RTW status (50.9%) and was less likely to have a sustained RTW status (odds ratio=0.61, 95% confidence interval: 0.48-0.79, P=0.0001) compared with the radiculopathy group (successful RTW rate 62.9%). RTW rate within 1 year after surgery was lower in the DDD group (39.9%) compared with the radiculopathy group (53.1%; P=0.0001). DDD patients were absent 112 days more on average after surgery compared with radiculopathy patients (P=0.0003).

##### CONCLUSION:

Cervical fusion for DDD is associated with lower rate of successful RTW status when compared with fusion for radiculopathy in a worker's compensation setting. The decision to include surgical intervention in the management plan of cervical DDD should be approached with caution as the surgical outcome might not necessarily lead to improved postsurgical functionality and achieve sustained early RTW.

## CRANIUM/TMJ

## Swallowing

Dysphagia. 2016 Jul 26.

**A Pilot Study of the Head Extension Swallowing Exercise: New Method for Strengthening Swallowing-Related Muscle Activity.**

Oh JC<sup>1</sup>.

Author information

**Abstract**

This pilot study examined the effect of a new head extension swallowing exercise (HESE) on submental muscle activity and tongue strength in healthy volunteers. Fifteen young adults (10 females and 5 males) were instructed to extend their head backwards as much as possible, and while watching the ceiling, swallowed their saliva every 10 s for a duration of 20 min. Twenty-four treatments were performed over 8 weeks. The outcome variables evaluated at baseline, 4 and 8 weeks of training, and 12-week follow-up included mean and peak submental muscle activation amplitudes during normal and effortful swallowing measured via surface electromyography, and anterior and posterior isometric tongue pressures were measured with the Iowa Oral Performance Instrument. Results indicated that the muscle activation amplitudes during effortful swallowing increased significantly at 4 and 8 weeks compared to baseline ( $p < 0.025$ ). However, the increases in amplitudes during normal swallowing were minor (nonsignificant) after 8 weeks compared to baseline. The isometric pressures of the tongue tip and the posterior part of the oral tongue were significantly higher at 8 weeks compared to baseline ( $p < 0.025$ ). Thus, the 8-week HESE protocol significantly improved suprahyoid muscle activity during effortful swallowing as well as the isometric tongue pressures. The HESE appears effective in exercising and strengthening the suprahyoid muscles and tongue muscles in healthy participants. Although encouraging, these results need to be replicated in clinical trials for testing the therapeutic effects of the HESE in older adults and patients with dysphagia who present with decreased hyolaryngeal elevation.

**KEYWORDS:** Deglutition; Deglutition disorders; Dysphagia; Electromyography; Posture; Swallowing

PMID: [27461480](#)

**Tinnitus**

Prevalence, Severity of Tinnitus in the U.S.

**JAMA Otolaryngology–Head & Neck Surgery**

Original Investigation

Approximately one in 10 adults in the U.S. have tinnitus, and durations of occupational and leisure time noise exposures are correlated with rates of tinnitus and are likely targetable risk factors, according to a study published online by *JAMA Otolaryngology-Head & Neck Surgery*.

Tinnitus is a symptom characterized by the perception of sound in the absence of an external stimulus. If persistent and intolerable or sufficiently bothersome, tinnitus can cause functional impairment in thought processing, emotions, hearing, sleep, and concentration, all of which can substantially and negatively affect quality of life. Tinnitus is a common problem for millions of people. A large epidemiologic study of tinnitus and its management patterns in the U.S. adult population is lacking.

Harrison W. Lin, M.D., of the University of California, Irvine, and colleagues conducted an analysis of the representative 2007 National Health Interview Survey (raw data, 75,764 respondents) to identify a weighted national sample of adults (age,  $\geq 18$  years) who reported tinnitus in the preceding 12 months to quantify the epidemiologic features and effect of tinnitus and analyze the management of tinnitus in the United States relative to the 2014 American Academy of Otolaryngology-Head and Neck Surgery Foundation (AAO-HNSF) clinical practice guidelines.

Among an estimated (SE) 222.1 (3.4) million U.S. adults, 21.4 (3.4) million (9.6 percent) experienced tinnitus in the past 12 months. Among those who reported tinnitus, 27 percent had symptoms for longer than 15 years, and 36 percent had nearly constant symptoms. Higher rates of tinnitus were reported in those with consistent exposure to loud noises at work and during recreational time. Years of work-related noise exposure correlated with increasing prevalence of tinnitus.

In terms of subjective severity, 7.2 percent reported their tinnitus as a big or a very big problem compared with 42 percent who reported it as a small problem. Only 49 percent had discussed their tinnitus with a physician, and medications were the most frequently discussed recommendation (45 percent). Other interventions, such as hearing aids (9.2 percent), wearable (2.6 percent) and nonwearable (2.3 percent) masking devices, and cognitive behavioral therapy (0.2 percent), were less frequently discussed.

“The recent guidelines published by the AAOHNSF provide a logical framework for clinicians treating these patients, but the current results indicate that most patients may not be offered management recommendations consistent with the suggested protocol. With the newly published guidelines from the AAO-HNSF, otolaryngologists may play a greater role in addressing this issue, not only with treating their patients accordingly, but also in educating other physicians and health care professionals. Future work can be directed to show changing patterns in tinnitus management before and after the implementation of these guidelines,” the authors write.

**Airways in athlete's**

Respirology. 2016 Jul 26. doi: 10.1111/resp.12859.

**Environmental influence on the prevalence and pattern of airway dysfunction in elite athletes.**

Levai IK<sup>1</sup>, Hull JH<sup>2</sup>, Loosemore M<sup>3</sup>, Greenwell J<sup>4</sup>, Whyte G<sup>5</sup>, Dickinson JW<sup>1</sup>.

Author information

Abstract

**BACKGROUND AND OBJECTIVE:**

Elite swimming and boxing require athletes to achieve relatively high minute ventilation. The combination of a sustained high ventilation and provocative training environment may impact the susceptibility of athletes to exercise-induced bronchoconstriction (EIB). The purpose of this study was to evaluate the prevalence of EIB in elite Great British (GB) boxers and swimmers.

**METHODS:**

Boxers (n = 38, mean age: 22.1 ± 3.1 years) and swimmers (n = 44, mean age: 21.1 ± 2.6 years) volunteered for the study. Athletes completed an exercise-induced respiratory symptom questionnaire, baseline assessment of fraction of exhaled nitric oxide (FeNO), maximal spirometry manoeuvres and a eucapnic voluntary hyperpnoea (EVH) challenge. EIB was confirmed if forced expiratory volume in 1 s (FEV<sub>1</sub>) reduced by ≥10% from baseline at two time points post-EVH challenge.

**RESULTS:**

The prevalence of EIB was greater in elite swimmers (30 of 44; 68%) than in boxers (3 of 38; 8%) (P < 0.001). Twenty-two out of the 33 (67%) EVH-positive athletes had no prior diagnosis of asthma/EIB. Moreover, 12% (6 of 49) of the EVH-negative athletes had a previous diagnosis of asthma/EIB. We found a correlation between FeNO and FEV<sub>1</sub> change in lung function post-EVH challenge in swimmers (r = 0.32; P = 0.04) but not in boxers (r = 0.24; P = 0.15).

**CONCLUSION:**

The prevalence of EIB was ninefold greater in swimmers when compared with boxers. Athletes who train and compete in provocative environments at sustained high ventilation may have an increased susceptibility to EIB. It is not entirely clear whether increased susceptibility to EIB affects elite sporting performance and long-term airway health in elite athletes.

**KEYWORDS:** asthma; athlete's care; exercise-induced bronchoconstriction; sport; training environment

PMID: 27460127

## HEADACHES

## Muscle triggers of tension HA

Clin J Pain. 2016 Aug;32(8):711-8. doi: 10.1097/AJP.0000000000000318.

**Muscle Triggers as a Possible Source of Pain in a Subgroup of Tension-type Headache Patients?**

Arendt-Nielsen L<sup>1</sup>, Castaldo M, Mechelli F, Fernández-de-Las-Peñas C.  
Author information

Abstract

**OBJECTIVES:**

Tension-type headache (TTH) is a common condition but the underlying etiology is not understood. Episodic TTH may develop into chronic TTH, and some possible triggers may be involved in generation and maintenance. Nociceptive generators and hyperexcitable spots in neck and shoulder regions may to some degree contribute to TTH. The current paper highlights some of the possible triggers and associated pain mechanisms involved in TTH and discusses whether inhibition of these possible triggers may provide new treatment options.

**RESULTS:**

This paper presents possible pathophysiological factors in TTH, the role of muscle pain, and how referred pain from triggers can contribute to development, maintenance of sensitization, or both. Referred pain patterns from trigger points and associated muscle hyperalgesia seem to be clinically important factors. Damping the nociceptive peripheral drive may not only reduce the number of TTH attacks but may also prevent, delay the transition from episodic into more chronic TTH, or both. The role of muscle triggers in driving TTH is debated as the pathogenesis of such triggers is not fully understood. Furthermore, inhibiting the drive from the triggers does not consistently modulate TTH.

**DISCUSSION:**

Understanding the possible triggers in TTH, muscle hyperalgesia, and widespread pain sensitization, may help to develop better management regimes and possibly prevent TTH from developing into more chronic conditions. Currently, there is a striking difference between the clinical observational studies favoring the role of muscle triggers in TTH and the intervention studies generally not supporting the role of muscle triggers in TTH.

PMID: [26550960](#)

## CONCUSSIONS

### Factors of concussions

#### **Sport-Related Concussion: Optimizing Treatment Through Evidence-Informed Practice**

**Authors:** Kathryn J. Schneider, PT, PhD<sup>1-3</sup>

**Published:** *Journal of Orthopaedic & Sports Physical Therapy*,  
2016 **Volume:**46 **Issue:**8 **Pages:**613–616 **DOI:**10.2519/jospt.2016.0607

Concussion is one of the most common injuries in sport and recreation today. Reports of concussion have increased in recent years, likely due to increased societal awareness and the risk of longer-term sequelae. Presently, treatment includes a period of prescribed rest in the acute period following injury, followed by a protocol of graded exertion. Despite an initial period of rest and attempts at a gradual return to play, up to 30% of individuals may have ongoing symptoms past the acute period. The goal of this viewpoint is to introduce the reader to the most common symptoms of concussion and the need for a new, more active paradigm during treatment.

*J Orthop Sports Phys Ther* 2016;46(8):613–616. doi:10.2519/jospt.2016.0607

## GLENOHUMERAL/SHOULDER

CT manip for shoulder pain

## RESEARCH REPORT

**Cervicothoracic Manual Therapy Plus Exercise Therapy Versus Exercise Therapy Alone in the Management of Individuals With Shoulder Pain: A Multicenter Randomized Controlled Trial**

**Authors:** Paul E. Mintken, DPT<sup>1,2</sup>, Amy W. McDevitt, DPT<sup>1,3</sup>, Joshua A. Cleland, PT, PhD<sup>4</sup>, Robert E. Boyles, PT, DSc<sup>5</sup>, Amber R. Beardslee, DPT<sup>6</sup>, Scott A. Burns, DPT<sup>7,8</sup>, Matthew D. Haberl, DPT<sup>9</sup>, Lauren A. Hinrichs, DPT<sup>10</sup>, Lori A. Michener, PT, PhD<sup>11</sup>

**Published:** *Journal of Orthopaedic & Sports Physical Therapy*, 2016 **Volume:**46 **Issue:**8 **Pages:**617–628 **DOI:**10.2519/jospt.2016.6319

**Study Design** Multicenter randomized controlled trial.

**Background** Cervicothoracic manual therapy has been shown to improve pain and disability in individuals with shoulder pain, but the incremental effects of manual therapy in addition to exercise therapy have not been investigated in a randomized controlled trial.

**Objectives** To compare the effects of cervicothoracic manual therapy and exercise therapy to those of exercise therapy alone in individuals with shoulder pain.

**Methods** Individuals (n = 140) with shoulder pain were randomly assigned to receive 2 sessions of cervicothoracic range-of-motion exercises plus 6 sessions of exercise therapy, or 2 sessions of high-dose cervicothoracic manual therapy and range-of-motion exercises plus 6 sessions of exercise therapy (manual therapy plus exercise). Pain and disability were assessed at baseline, 1 week, 4 weeks, and 6 months. The primary aim (treatment group by time) was examined using linear mixed-model analyses and the repeated measure of time for the Shoulder Pain and Disability Index (SPADI), the numeric pain-rating scale, and the shortened version of the Disabilities of the Arm, Shoulder and Hand questionnaire (QuickDASH). Patient-perceived success was assessed and analyzed using the global rating of change (GROC) and the Patient Acceptable Symptom State (PASS), using chi-square tests of independence.

**Results** There were no significant 2-way interactions of group by time or main effects by group for pain or disability. Both groups improved significantly on the SPADI, numeric pain-rating scale, and QuickDASH. Secondary outcomes of success on the GROC and PASS significantly favored the manual therapy-plus-exercise group at 4 weeks ( $P = .03$  and  $P < .01$ , respectively) and on the GROC at 6 months ( $P = .04$ ).

**Conclusion** Adding 2 sessions of high-dose cervicothoracic manual therapy to an exercise program did not improve pain or disability in patients with shoulder pain, but did improve patient-perceived success at 4 weeks and 6 months and acceptability of symptoms at 4 weeks. More research is needed on the use of cervicothoracic manual therapy for treating shoulder pain.

## B. LABRUM

## 3 pack evaluation

Arthroscopy. 2016 Jul 20. pii: S0749-8063(16)30249-3. doi: 10.1016/j.arthro.2016.05.015.

**The "3-Pack" Examination Is Critical for Comprehensive Evaluation of the Biceps-Labrum Complex and the Bicipital Tunnel: A Prospective Study.**

Taylor SA<sup>1</sup>, Newman AM<sup>2</sup>, Dawson C<sup>3</sup>, Gallagher KA<sup>4</sup>, Bowers A<sup>5</sup>, Nguyen J<sup>4</sup>, Fabricant PD<sup>4</sup>, O'Brien SJ<sup>4</sup>.

Author information

Abstract

**PURPOSE:**

To determine the diagnostic value of the 3-Pack examination for biceps-labrum complex (BLC) disease, assess interobserver reliability, and generate an evidence-based diagnostic and therapeutic algorithm.

**METHODS:**

A total of 145 consecutive patients were enrolled in this prospective comparative study. The study included 116 chronically symptomatic patients indicated for arthroscopic subdeltoid transfer of the long head of the biceps tendon to the conjoint tendon and 29 asymptomatic comparison subjects. Each patient underwent examination that included the 3-Pack (active compression test [O'Brien sign], throwing test, and bicipital tunnel palpation) and traditional examination (Speed test; Yergason test; full can test; empty can test) in a blinded, randomized fashion by 3 investigators. Intraoperative BLC disease was prospectively categorized by location (inside, junctional, or bicipital tunnel).

**RESULTS:**

3-Pack tests were highly sensitive (73% to 98%), but less specific (46% to 79%) for BLC in all 3 locations than some of the traditional tests, which were less sensitive (20% to 67%), but more specific (83% to 100%) for BLC disease in all 3 locations. With regard to hidden bicipital tunnel lesions, palpation and O'Brien sign were highly sensitive (97.8% and 95.7% respectively) and revealed high negative predictive value (NPV, 96.4% and 92.6% respectively). Speed and Yergason tests, conversely, were poorly sensitive but had high specificities (86.7% and 97.9%, respectively) and positive predictive value (76% and 92.3%, respectively). Inter-rater reliabilities were substantial to almost perfect for the 3-Pack examination (kappa 70% to 85%) and fair to moderate for the 4 traditional examinations (kappa 25% to 56%).

**CONCLUSIONS:**

The 3-Pack has excellent inter-rater reliability, sensitivity, and NPV and is a critical screening tool for BLC disease in all zones. Hidden extra-articular bicipital tunnel disease can reliably be excluded based on negative tenderness to palpation or a negative O'Brien sign (NPV 93% to 96%).

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

PMID: [27450901](#)

## OA

## Prevalence of OA

Osteoarthritis Cartilage. 2016 Apr 21. pii: S1063-4584(16)30031-0. doi: 10.1016/j.joca.2016.04.012.

**Annual incidence rates of hip symptoms and three hip OA outcomes from a U.S. population-based cohort study: the Johnston County Osteoarthritis Project.**

Moss AS<sup>1</sup>, Murphy LB<sup>2</sup>, Helmick CG<sup>3</sup>, Schwartz TA<sup>4</sup>, Barbour KE<sup>3</sup>, Renner JB<sup>5</sup>, Kalsbeek W<sup>6</sup>, Jordan JM<sup>7</sup>.

Author information

Abstract

**OBJECTIVE:**

Estimate annual incidence rates (IRs) of hip symptoms and three osteoarthritis (OA) outcomes (radiographic, symptomatic, and severe radiographic) overall and by race, sociodemographic characteristics, and hip OA risk factors.

**DESIGN:**

Analyze baseline (1991-1997) and first follow-up (1999-2003) data (n = 1446) from the Johnston County Osteoarthritis Project, a population-based, prospective study of adults  $\geq 45$  years in North Carolina. Hip symptoms were pain, aching, and/or stiffness on most days, or groin pain. Radiographic and severe radiographic OA were Kellgren-Lawrence (KL) grades  $\geq 2$  and  $\geq 3$ , respectively. Symptomatic OA was radiographic OA with symptoms in the same hip. Sociodemographics were age, gender, race, highest attained education, and annual household income. Hip OA risk factors were self-reported body mass index (BMI) at age 18 years, clinically measured BMI at baseline, and history of hip injury.

**RESULTS:**

Annual IRs (median = 5.5 years follow-up) were 37, 23, 13, and 2.9 per 1000 person-years for hip symptoms, and radiographic, symptomatic, and severe radiographic hip OA, respectively. We found low IRs of radiographic and symptomatic hip OA among African Americans and high IRs of hip symptoms among the obese and the very poor. Across outcomes, IRs were highest for those with hip injury.

**CONCLUSION:**

No prior studies have reported IRs of hip symptoms; IRs of radiographic and severe radiographic hip OA were similar to, and the IR of symptomatic hip OA was higher than, previous estimates. Prevention efforts should target low socioeconomic status (SES) populations and obese adults; interventions for hip OA and hip symptoms are imperative for those with hip injuries.

Published by Elsevier Ltd.

**KEYWORDS:** Hip osteoarthritis; Hip symptoms; Incidence rates; Race; Socioeconomic status  
PMID: 27109873

## A. IMPINGEMENT

## Surgical options

Arthroscopy. 2016 Jul 27. pii: S0749-8063(16)30283-3. doi: 10.1016/j.arthro.2016.04.035.

**Acetabular Labral Debridement/Segmental Resection Versus Reconstruction in the Comprehensive Treatment of Symptomatic Femoroacetabular Impingement: A Systematic Review.**

Forster-Horvath C<sup>1</sup>, von Rotz N<sup>2</sup>, Giordano BD<sup>3</sup>, Domb BG<sup>4</sup>.

Author information

Abstract

**PURPOSE:**

To perform a systematic review comparing outcomes of labral debridement/segmental resection with labral reconstruction as part of a comprehensive treatment strategy for femoroacetabular impingement.

**METHODS:**

A systematic review was conducted according to established PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) guidelines using defined inclusion and exclusion criteria. The study groups were divided into labral debridement/segmental resection (group 1) and labral reconstruction (group 2). Multiple search engines were queried (PubMed, Medline) for this analysis.

**RESULTS:**

After an exhaustive search of the available literature, 20 publications were included. Twelve studies explored outcomes after labral debridement/resection in a total of 400 hips, whereas 7 studies reported on outcomes after labral reconstruction in a total of 275 hips. One additional matched-pair control study compared labral resection (22 hips) with reconstruction (11 hips). The surgical intervention was a revision in 0% to 100% for group 1 versus 5% to 55% for group 2. A direct anterior approach was not performed in group 2, and cam-type impingement appeared to make up a larger percentage of group 1. The Tönnis grade ranged from 0 to 1 for group 1 versus 0.3 to 1.1 for group 2. Joint replacements were performed in 0% to 30% and 0% to 25%, respectively. The modified Harris Hip Score was the most widely used patient-reported outcome measure and suggested that labral reconstruction was not inferior to labral debridement/segmental resection.

**CONCLUSIONS:**

Clinical outcomes after labral debridement/segmental resection versus labral reconstruction were found to be comparable. In the setting of unsalvageable labral pathology, labral reconstruction was used more frequently as a revision option whereas debridement may be more commonly used in the index setting.

**LEVEL OF EVIDENCE:**

Level IV, systematic review of Level I, III, and IV studies.

PMID:[27475898](#)

## KNEE

Balance and risk of injury

## RESEARCH REPORT

**Postural Stability During Single-Leg Stance: A Preliminary Evaluation of Noncontact Lower Extremity Injury Risk**

Authors: Bart Dingenen, PT, PhD<sup>1</sup>, Bart Malfait, PT, PhD<sup>1</sup>, Stefaan Nijs, MD, PhD<sup>2</sup>, Koen H.E. Peers, MD, PhD<sup>3</sup>, Styn Vereecken, PT, MSc<sup>3</sup>, Sabine M.P. Verschueren, PT, PhD<sup>1</sup>, Luc Janssens, Eng<sup>1,4</sup>, Filip F. Staes, PT, PhD<sup>1</sup>

**Published:** *Journal of Orthopaedic & Sports Physical Therapy*,  
2016 **Volume:**46 **Issue:**8 **Pages:**650–657 **DOI:**10.2519/jospt.2016.6278

**Study Design**

Controlled laboratory study with a prospective cohort design.

**Background**

Postural stability deficits during single-leg stance have been reported in persons with anterior cruciate ligament (ACL) injury, ACL reconstruction, and chronic ankle instability. It remains unclear whether impaired postural stability is a consequence or cause of these injuries.

**Objectives**

To prospectively investigate whether postural stability deficits during single-leg stance predict noncontact lower extremity injuries.

**Methods**

Fifty injury-free female athletes performed a transition task from double-leg stance to single-leg stance with eyes closed. Center-of-pressure displacement, the main outcome variable, was measured during the first 3 seconds after the time to a new stability point was reached during single-leg stance. Noncontact lower extremity injuries were recorded at a 1-year follow-up.

**Results**

Six participants sustained a noncontact ACL injury or ankle sprain. Center-of-pressure displacement during the first 3 seconds after the time to a new stability point was significantly increased in the injured ( $P = .030$ ) and noninjured legs ( $P = .009$ ) of the injured group compared to the respective matched legs of the noninjured group. The area under the receiver operating characteristic curve (AUC) analysis revealed significant discriminative accuracy between groups for the center-of-pressure displacement during the first 3 seconds after the time to a new stability point of the injured (AUC = 0.814,  $P = .015$ ) and noninjured legs (AUC = 0.897,  $P = .004$ ) of the injured group compared to the matched legs of the noninjured group.

**Conclusion**

This preliminary study suggests that postural stability measurements during the single-leg stance phase of the double- to single-leg stance transition task may be a useful predictor of increased risk of noncontact lower extremity injury. Further research is indicated.

## MENISCUS

## Exercise as effective as surgery

Research

**Exercise therapy versus arthroscopic partial meniscectomy for degenerative meniscal tear in middle aged patients: randomised controlled trial with two year follow-up**

*BMJ* 2016; 354 doi: <http://dx.doi.org/10.1136/bmj.i3740> (Published 20 July 2016) *Nina Jullum Kise, orthopaedic surgeon*<sup>1</sup>, *Arna Risberg, physiotherapist and professor* *Silje Stensrud, physiotherapist*<sup>2</sup>, *Jonas Ranstam, independent statistician and professor*<sup>5</sup>, *Lars Engebretsen, orthopaedic surgeon and professor* *Ewa M Roos, physiotherapist and professor*<sup>8</sup>

Abstract

**Objective** To determine if exercise therapy is superior to arthroscopic partial meniscectomy for knee function in middle aged patients with degenerative meniscal tears.

**Design** Randomised controlled superiority trial.

**Setting** Orthopaedic departments at two public hospitals and two physiotherapy clinics in Norway.

**Participants** 140 adults, mean age 49.5 years (range 35.7-59.9), with degenerative medial meniscal tear verified by magnetic resonance imaging. 96% had no definitive radiographic evidence of osteoarthritis.

**Interventions** 12 week supervised exercise therapy alone or arthroscopic partial meniscectomy alone.

**Main outcome measures** Intention to treat analysis of between group difference in change in knee injury and osteoarthritis outcome score (KOOS<sub>4</sub>), defined a priori as the mean score for four of five KOOS subscale scores (pain, other symptoms, function in sport and recreation, and knee related quality of life) from baseline to two year follow-up and change in thigh muscle strength from baseline to three months.

**Results** No clinically relevant difference was found between the two groups in change in KOOS<sub>4</sub> at two years (0.9 points, 95% confidence interval -4.3 to 6.1; P=0.72). At three months, muscle strength had improved in the exercise group (P≤0.004). No serious adverse events occurred in either group during the two year follow-up. 19% of the participants allocated to exercise therapy crossed over to surgery during the two year follow-up, with no additional benefit.

**Conclusion** The observed difference in treatment effect was minute after two years of follow-up, and the trial's inferential uncertainty was sufficiently small to exclude clinically relevant differences. Exercise therapy showed positive effects over surgery in improving thigh muscle strength, at least in the short term. Our results should encourage clinicians and middle aged patients with degenerative meniscal tear and no definitive radiographic evidence of osteoarthritis to consider supervised exercise therapy as a treatment option.

**Allographic transplant**

Arthroscopy. 2016 Jun 10. pii: S0749-8063(16)30197-9. doi: 10.1016/j.arthro.2016.04.023.

**Risk Factors for Radiographic Progression of Osteoarthritis After Meniscus Allograft Transplantation.**

Ahn JH<sup>1</sup>, Kang HW<sup>2</sup>, Yang TY<sup>2</sup>, Lee JY<sup>2</sup>.

Author information

## Abstract

**PURPOSE:**

To identify risk factors that predict radiographic progression of osteoarthritis after meniscus allograft transplantation (MAT) using multivariate logistic regression.

**METHODS:**

Inclusion criteria were consecutive patients who underwent medial or lateral MATs from January 2005 to September 2012 by one surgeon. Exclusion criteria were lack of postoperative magnetic resonance image, loss to follow-up for a minimum of 3 years, and simultaneous surgery on articular cartilage or the anterior cruciate ligament. According to the change of Kellgren-Lawrence (KL) grade at the mean final follow-up of 56.2 months, the enrolled MATs were sorted into the no progression of osteoarthritis (NOA) and progression of osteoarthritis (POA) groups. Multivariate logistic regression was used to analyze risk factors, including age, sex, body mass index, time from previous meniscectomy to MAT, extent of previous meniscectomy, previous anterior cruciate ligament reconstruction, knee alignment angle, KL grade, side of transplanted meniscus, Outerbridge grade, posterior repair technique, and relative percentage of extrusion.

**RESULTS:**

In comparison between the NOA (n = 38) and the POA (n = 31) groups, a significant risk factor for radiographic progression of osteoarthritis after MAT was medial MAT compared with lateral MAT. Medial MAT compared with lateral MAT was also a significant risk factor (adjusted odds ratio, 3.763; 95% confidence interval, 1.212-11.683).

**CONCLUSIONS:**

Patients need to be counseled about the increased risk of osteoarthritis progression after MAT over time, particularly for medial MAT.

**LEVEL OF EVIDENCE:**

Level III, retrospective case control study.

**Meniscectomy**

Arthroscopy. 2016 Jul 27. pii: S0749-8063(16)30323-1. doi: 10.1016/j.arthro.2016.05.036.

**Arthroscopic Partial Meniscectomy or Conservative Treatment for Nonobstructive Meniscal Tears: A Systematic Review and Meta-analysis of Randomized Controlled Trials.**

van de Graaf VA<sup>1</sup>, Wolterbeek N<sup>2</sup>, Mutsaerts EL<sup>3</sup>, Scholtes VA<sup>3</sup>, Saris DB<sup>4</sup>, de Gast A<sup>5</sup>, Poolman RW<sup>3</sup>.

Author information

Abstract

**PURPOSE:**

To conduct a meta-analysis of randomized controlled trials comparing the outcome of arthroscopic partial meniscectomy (APM) with conservative treatment in adults with nonobstructive meniscal tears and to recommend a treatment of choice.

**METHODS:**

We systematically searched the databases of MEDLINE, Excerpta Medica Database, Cochrane, the National Health Service Centre for Reviews and Dissemination, and Physiotherapy Evidence Database from inception to May 2, 2016. Two authors independently searched the literature and selected eligible studies. The meta-analyses used a random-effects model. The primary outcome was physical function, measured by knee-specific patient-reported outcomes. Secondary outcomes included knee pain, activity level, the progression of osteoarthritis, adverse events, general health, and quality of life.

**RESULTS:**

We included 6 randomized controlled trials, with a total of 773 patients, of whom 378 were randomized to APM and 395 were randomized to the control treatment. After pooling the data of 5 studies, we found small significant differences in favor of the APM group for physical function at 2 to 3 months (mean difference [MD] = 3.31; 95% confidence interval [CI] = 0.69-5.93; P = .01; I<sup>2</sup> = 0% [Lysholm knee score]), and at 6 months (MD = 3.56; 95% CI = 0.24-6.88; P = .04; I<sup>2</sup> = 0% (Knee injury and Osteoarthritis Outcome Score [KOOS] and Western Ontario and McMaster Universities Osteoarthritis Index); standardized MD = 0.17; 95% CI = 0.01-0.32; P = .03; I<sup>2</sup> = 0% [Lysholm knee score, KOOS, and Western Ontario and McMaster Universities Osteoarthritis Index]). We also found small significant differences for pain at 6 months (MD = 3.56; 95% CI = 0.18-6.95; P = .04; I<sup>2</sup> = 0% [KOOS] and MD = 0.56; 95% CI = 0.28-0.83; P ≤ .0001; I<sup>2</sup> = 0% [visual analog scale and numeric rating scale]). We found no significant differences after 12 and 24 months.

**CONCLUSIONS:**

We found small, although statistically significant, favorable results of APM up to 6 months for physical function and pain. However, we found no differences at longer follow-up.

**LEVEL OF EVIDENCE:** Level I, systematic review and meta-analysis of Level I studies.

PMID: 27474105

## OSTEOARTHRITIS/KNEE

## Mortality

Semin Arthritis Rheum. 2016 Apr 13. pii: S0049-0172(16)30008-7. doi: 10.1016/j.semarthrit.2016.04.002.

**Osteoarthritis and mortality: A prospective cohort study and systematic review with meta-analysis.**

Veronese N<sup>1</sup>, Cereda E<sup>2</sup>, Maggi S<sup>3</sup>, Luchini C<sup>4</sup>, Solmi M<sup>5</sup>, Smith T<sup>6</sup>, Denkinger M<sup>7</sup>, Hurley M<sup>8</sup>, Thompson T<sup>9</sup>, Manzano E<sup>10</sup>, Sergi G<sup>1</sup>, Stubbs B<sup>11</sup>.

Author information

Abstract

**OBJECTIVES:**

Osteoarthritis (OA) is a leading cause of disability, but the relationship with premature mortality remains uncertain. We aimed to investigate the relationship between OA and mortality from any cause and from cardiovascular disease (CVD).

**METHODS:**

Electronic literature databases searches were conducted to identify prospective studies comparing mortality in a sample of people with and without OA. Risk of all-cause and CVD mortality were summarized using adjusted hazard ratios (HRs) for joint specific (hand, hip, and knee) and joint non-specific OA. New data from the Progetto Veneto Anziani (PRO.V.A.) study were also included.

**RESULTS:**

From the PRO.V.A. study (N = 2927), there was no significant increase in mortality risk for participants with any joint OA (N = 1858) compared to non-OA (all-cause, HR = 0.95, 95% CI: 0.77-1.15 and CVD, HR = 1.12, 95% CI: 0.82-1.54). On meta-analysis, seven studies (OA = 10,018/non-OA = 18,541), with a median 12-year follow-up, reported no increased risk of any-cause mortality in those with OA (HR = 1.10, 95% CI: 0.97-1.25). After removing data on hand OA, a significant association between OA and mortality was observed (HR = 1.18, 95% CI: 1.08-1.28). There was a significant higher risk of overall mortality for (1) studies conducted in Europe, (2) patients with multi-joint OA; and (3) a radiological diagnosis of OA. OA was associated with significantly higher CVD mortality (HR = 1.21, 95% CI: 1.10-1.34).

**CONCLUSIONS:**

People with OA are at increased risk of death due to CVD. The relationship with overall mortality is less clear and may be moderated by the presence of hand OA.

**KEYWORDS:** Cardiovascular disease; Mortality; Osteoarthritis

PMID: [27179749](https://pubmed.ncbi.nlm.nih.gov/27179749/)

**Knee brace**

Osteoarthritis Cartilage. 2016 Jul 16. pii: S1063-4584(16)30178-9. doi: 10.1016/j.joca.2016.07.003.

**A knee brace alters patella position in patellofemoral osteoarthritis: a study using weight bearing magnetic resonance imaging.**

Callaghan MJ<sup>1</sup>, Guney H<sup>2</sup>, Reeves N<sup>3</sup>, Bailey D<sup>4</sup>, Doslikova K<sup>5</sup>, Maganaris C<sup>6</sup>, Hodgson R<sup>7</sup>, Felson DT<sup>8</sup>.

Author information

Abstract

**OBJECTIVE:**

To assess using weight bearing magnetic resonance imaging (MRIs), whether a patellar brace altered patellar position and alignment in patellofemoral joint (PFJ) osteoarthritis (OA).

**DESIGN:**

Subjects age 40-70 years old with symptomatic and a radiographic Kellgren-Lawrence (K-L) evidence of PFJOA. Weight bearing knee MRIs with and without a patellar brace were obtained using an upright open 0.25 T scanner (G-Scan, Easote Biomedica, Italy). Five aspects of patellar position were measured: mediolateral alignment by the bisect offset index, angulation by patellar tilt, patellar height by patellar height ratio (patellar length/patellar tendon length), lateral patellofemoral (PF) contact area and finally a measurement of PF bony separation of the lateral patellar facet and the adjacent surface on the femoral trochlea (Fig. 1).

**RESULTS:**

Thirty participants were recruited (mean age 57 SD 27.8; body mass index (BMI) 27.8 SD 4.2); 17 were females. Four patients had non-usable data. Main analysis used paired t tests comparing within subject patellar position with and without brace. For bisect offset index, patellar tilt and patellar height ratio there were no significant differences between the brace and no brace conditions. However, the brace increased lateral facet contact area (P = .04) and decreased lateral PF separation (P = .03).

**CONCLUSION:**

A patellar brace alters patellar position and increases contact area between the patella and femoral trochlea. These changes would lower contact stress at the PFJ. Such changes in patella position in weight bearing provide a possible biomechanical explanation for the success of the PFJ brace in clinical trials on PFJOA.

**KEYWORDS:** Arthritis; Knee braces; Patellofemoral joint; Weight bearing MRI  
PMID: [27432215](https://pubmed.ncbi.nlm.nih.gov/27432215/)

**Prevalence**

Osteoarthritis Cartilage. 2016 May 14. pii: S1063-4584(16)30091-7. doi: 10.1016/j.joca.2016.05.011.

**The prevalence of patellofemoral osteoarthritis: a systematic review and meta-analysis.**

Kobayashi S<sup>1</sup>, Pappas E<sup>2</sup>, Fransen M<sup>3</sup>, Refshauge K<sup>4</sup>, Simic M<sup>5</sup>.

Author information

Abstract

**OBJECTIVE:**

To determine the prevalence of radiographic patellofemoral osteoarthritis (OA) from population- and symptom-based cohorts and to evaluate if knee pain, physical function and quality of life (QOL) differ between people with isolated patellofemoral OA, isolated tibiofemoral OA and combined patellofemoral and tibiofemoral OA.

**METHOD:**

Terms associated with "patellofemoral OA", "prevalence" and "clinical features" were used to search Medline, EMBASE, CINAHL, SCOPUS, AMED and Web of Science databases with no language restriction' from inception to August 2014. Two independent reviewers screened papers for eligibility. Studies were included if they reported prevalence of compartmental patterns of radiographic knee OA in population- or symptom-based cohorts. Studies were excluded if they evaluated a targeted sample (e.g., occupation-specific participants) or repeated already reported data from the same cohorts. Point prevalence estimates of patellofemoral OA were extracted from eligible studies, pooled and quantitatively analysed. A critical appraisal tool was used to evaluate methodological quality.

**RESULTS:**

The search yielded 1891 records. The inclusion criteria were met by 32 studies. The crude prevalence of patellofemoral OA was 25% in the population-based cohorts (aged >20 years) and 39% in the symptom-based cohorts (aged >30 years). Eight studies reported knee pain, physical function and QOL in people with different compartmental disease; however no significant differences were found.

**CONCLUSION:**

These findings confirm the substantial prevalence of patellofemoral OA, demonstrating the need to specifically consider the patellofemoral joint in knee OA research and clinical settings.

**KEYWORDS:** Knee; Meta-analysis; Osteoarthritis; Patellofemoral; Prevalence

PMID: [27188684](#)

### Hyaluronic acid helps

Semin Arthritis Rheum. 2016 Aug;46(1):34-48. doi: 10.1016/j.semarthrit.2016.02.010. Epub 2016 Mar 8.

#### **Exploring reasons for the observed inconsistent trial reports on intra-articular injections with hyaluronic acid in the treatment of osteoarthritis: Meta-regression analyses of randomized trials.**

Johansen M<sup>1</sup>, Bahrt H<sup>1</sup>, Altman RD<sup>2</sup>, Bartels EM<sup>1</sup>, Juhl CB<sup>3</sup>, Bliddal H<sup>1</sup>, Lund H<sup>4</sup>, Christensen R<sup>5</sup>.

Author information

Abstract

#### **OBJECTIVE:**

The aim was to identify factors explaining inconsistent observations concerning the efficacy of intra-articular hyaluronic acid compared to intra-articular sham/control, or non-intervention control, in patients with symptomatic osteoarthritis, based on randomized clinical trials (RCTs).

#### **METHODS:**

A systematic review and meta-regression analyses of available randomized trials were conducted. The outcome, pain, was assessed according to a pre-specified hierarchy of potentially available outcomes. Hedges's standardized mean difference [SMD (95% CI)] served as effect size. REstricted Maximum Likelihood (REML) mixed-effects models were used to combine study results, and heterogeneity was calculated and interpreted as Tau-squared and I-squared, respectively.

#### **RESULTS:**

Overall, 99 studies (14,804 patients) met the inclusion criteria: Of these, only 71 studies (72%), including 85 comparisons (11,216 patients), had adequate data available for inclusion in the primary meta-analysis. Overall, compared with placebo, intra-articular hyaluronic acid reduced pain with an effect size of -0.39 [-0.47 to -0.31;  $P < 0.001$ ], combining very heterogeneous trial findings ( $I(2) = 73\%$ ). The three most important covariates in reducing heterogeneity were overall risk of bias, blinding of personnel and trial size, reducing heterogeneity with 26%, 26%, and 25%, respectively (Interaction:  $P \leq 0.001$ ). Adjusting for publication/selective outcome reporting bias (by imputing "null effects") in 24 of the comparisons with no data available reduced the combined estimate to -0.30 [-0.36 to -0.23;  $P < 0.001$ ] still in favor of hyaluronic acid.

#### **CONCLUSION:**

Based on available trial data, intra-articular hyaluronic acid showed a better effect than intra-articular saline on pain reduction in osteoarthritis. Publication bias and the risk of selective outcome reporting suggest only small clinical effect compared to saline.

**KEYWORDS:** Bias; Efficacy; Hyaluronic acid; Inconsistency; Osteoarthritis; Pain  
PMID: [27139169](#)

## Hips strength

## RESEARCH REPORT

**Hip Strength Deficits in People With Symptomatic Knee Osteoarthritis: A Systematic Review With Meta-analysis**

**Authors:** Margaret Deasy, PT, MPhty<sup>1,2</sup>, Edmund Leahy, PT, MPhty (Musc)<sup>2,3</sup>, Adam Ivan Semciw, PT, PhD<sup>3-7</sup>

**Published:** *Journal of Orthopaedic & Sports Physical Therapy*, 2016 **Volume:**46 **Issue:**8 **Pages:**629–639 **DOI:**10.2519/jospt.2016.6618

**Study Design**

Systematic review with meta-analysis.

**Background**

A complete understanding of impairments associated with knee osteoarthritis would optimize exercise interventions for people with knee osteoarthritis. Our current understanding of hip strength deficits in this population is based on studies with conflicting findings and small samples. There is a need to systematically review and pool current evidence.

**Objectives**

To determine whether hip strength deficits exist in people with symptomatic knee osteoarthritis.

**Methods**

Electronic databases (MEDLINE, CINAHL, Embase, the Cochrane Library, and PsycINFO) were searched through February 2016. Studies comparing hip strength in people diagnosed with symptomatic knee osteoarthritis to healthy control participants were included in the review. A meta-analysis with random effects was applied to relevant data from included studies and a modified Grading of Recommendations Assessment, Development and Evaluation approach was used to evaluate the quality of evidence for each pooled analysis.

**Results**

Five studies were included in the review. Meta-analysis revealed moderate-quality evidence of weaker isometric and isokinetic hip abduction strength in people with knee osteoarthritis (moderate difference: 7% to 24% weaker) and very low-quality evidence of no difference in isometric hip adduction strength. There was very low- to moderate-quality evidence of weaker isokinetic hip strength in the remaining planes of motion (moderate to large differences: 14% to 55% weaker).

**Conclusion**

Significant hip strength deficits exist in people with knee osteoarthritis. Hip strength assessment should be considered in clinical practice and may assist with directing targeted management strategies.

**Level of Evidence**

Symptom prevalence, level 1a–. *J Orthop Sports Phys Ther* 2016;46(8):629–639. Epub 3 Jul 2016. doi:10.2519/jospt.2016.6618

Keyword: dynamometer, muscle strength, muscle weakness

## ANKLE SPRAINS AND INSTABILITY

## Gait

**Feedback and Feedforward Control During Walking in Individuals With Chronic Ankle Instability**

**Authors:** Sheng-Che Yen, PT, PhD<sup>1</sup>, Marie B. Corkery, PT, DPT<sup>1</sup>, Amy Donohoe, BS<sup>1</sup>, Maddison Grogan, BS<sup>1</sup>, Yi-Ning Wu, PhD<sup>2</sup>

**Study Design**

Controlled laboratory study.

**Background**

Recurrent ankle sprains associated with chronic ankle instability (CAI) occur not only in challenging sports but also in daily walking. Understanding whether and how CAI alters feedback and feedforward controls during walking may be important for developing interventions for CAI prevention or treatment.

**Objective**

To understand whether CAI is associated with changes in feedback and feedforward control when subjected to experimental perturbation during walking.

**Methods**

Twelve subjects with CAI and 12 control subjects walked on a treadmill while adapting to external loading generating inversion perturbation at the ankle joint. Ankle kinematics around heel contact during and after the adaptation were compared between the two groups.

**Results**

Both healthy and CAI groups showed an increase in eversion around heel contact in early adaptation to the external loading. However, the CAI group adapted back towards the baseline while the healthy controls showed further increase in eversion in late adaptation. When the external loading was removed in the post adaptation period, healthy controls showed an aftereffect consisting of an increase in eversion around heel contact but the CAI group showed no aftereffect.

**Conclusion**

The results provide preliminary evidence that CAI may alter individuals' feedback and feedforward control during walking. *J Orthop Sports Phys Ther*, Epub 5 Aug 2016.

doi:10.2519/jospt.2016.6403

Keyword: adaptation, ankle instability, feedback, feedforward, gait

## ACHILLES TENDON AND CALF

## Ruptured metabolic function

Eur J Nucl Med Mol Imaging. 2016 Sep;43(10):1868-77. doi: 10.1007/s00259-016-3379-4. Epub 2016 Apr 13.

**Ruptured human Achilles tendon has elevated metabolic activity up to 1 year after repair.**

Eliasson P<sup>1</sup>, Couppé C<sup>2,3,4</sup>, Lonsdale M<sup>5</sup>, Svensson RB<sup>2,3</sup>, Neergaard C<sup>6</sup>, Kjær M<sup>2,3</sup>, Friberg L<sup>5</sup>, Magnusson SP<sup>2,3,4</sup>.

Author information

Abstract

**PURPOSE:**

Following Achilles tendon rupture, running is often allowed after 6 months. However, tendon healing is slow and the metabolic status of the tendon at this point is unknown. The purpose of this study was to investigate tendon metabolism (glucose uptake) and vascularization at 3, 6 and 12 months after Achilles tendon rupture as measured using PET and power Doppler ultrasonography (PDUS).

**METHODS:**

The study group comprised 23 patients with surgically repaired Achilles tendon rupture who were investigated at 3 months (n = 7), 6 months (n = 7) and 12 months (n = 9) after surgery. The triceps surae complex was loaded over 20 min of slow treadmill walking while a radioactive tracer ((18)F-FDG) was administered prior to PET. Vascularization was measured in terms of PDUS flow activity, and patient-reported outcomes were scored using the Achilles tendon rupture score (ATRS) and sports assessment (VISA-A) questionnaire.

**RESULTS:**

Relative glucose uptake ((18)F-FDG) was higher in repaired tendons than in intact tendons at all time-points (6, 3 and 1.6 times higher at 3, 6 and 12 months, respectively;  $P \leq 0.001$ ), and was also higher in the tendon core than in the periphery at 3 and 6 months ( $P \leq 0.02$ ), but lower at 12 months ( $P = 0.06$ ). Relative glucose uptake was negatively related to ATRS at 6 months after repair ( $r = -0.89$ ,  $P \leq 0.01$ ). PDUS flow activity was higher in repaired tendons than in intact tendons at 3 and 6 months ( $P < 0.05$  for both), but had normalized by 12 months.

**CONCLUSION:**

These data demonstrate that the healing process as determined by metabolic activity and vascularization continues for 6 months after injury when large loads are typically allowed on the tendon. Indeed, metabolic activity remained elevated for more than 1 year after injury despite normalized vascularization. The robust negative correlation between tendon metabolism and patient-reported outcome suggests that a high metabolic activity 6 months after the injury may be related to a poor clinical healing outcome.

**KEYWORDS:** 18F-FDG; ATRS; Healing; Loading; Positron emission tomography; Power Doppler ultrasonography

PMID: [27072812](#)

## PLANTAR SURFACE

Pain and orthotic use

## RESEARCH REPORT

**Impaired Foot Plantar Flexor Muscle Performance in Individuals With Plantar Heel Pain and Association With Foot Orthosis Use**

**Authors:** Shane McClinton, DPT, OCS, FAAOMPT<sup>1</sup>, Christopher Collazo, DPM<sup>2</sup>, Ebonie Vincent, DPM<sup>3</sup>, Vassilios Vardaxis, PhD<sup>1,4</sup>

**Published:** *Journal of Orthopaedic & Sports Physical Therapy*, 2016 **Volume:**46 **Issue:**8 **Pages:**681–688 **DOI:**10.2519/jospt.2016.6482

**Study Design**

Controlled laboratory study.

**Background**

Plantar heel pain is one of the most common foot and ankle conditions seen in clinical practice, and many individuals continue to have persisting or recurrent pain after treatment. Impaired foot plantar flexor muscle performance is a factor that may contribute to limited treatment success, but reliable methods to identify impairments in individuals with plantar heel pain are needed. In addition, foot orthoses are commonly used to treat this condition, but the implications of orthosis use on muscle performance have not been assessed.

**Objectives**

To assess ankle plantar flexor and toe flexor muscle performance in individuals with plantar heel pain using clinically feasible measures and to examine the relationship between muscle performance and duration of foot orthosis use.

**Methods**

The rocker-board plantar flexion test (RBPFT) and modified paper grip test for the great toe (mPGT<sub>GT</sub>) and lesser toes (mPGT<sub>LT</sub>) were used to assess foot plantar flexor muscle performance in 27 individuals with plantar heel pain and compared to 27 individuals without foot pain who were matched according to age, sex, and body mass. Pain ratings were obtained before and during testing, and self-reported duration of foot orthosis use was recorded.

**Results**

Compared to the control group, individuals with plantar heel pain demonstrated lower performance on the RBPFT ( $P = .001$ ), the mPGT<sub>GT</sub> ( $P = .022$ ), and the mPGT<sub>LT</sub> ( $P = .037$ ). Longer duration of foot orthosis use was moderately correlated to lower performance on the RBPFT ( $r = -0.52$ ,  $P = .02$ ), the mPGT<sub>GT</sub> ( $r = -0.54$ ,  $P = .01$ ), and the mPGT<sub>LT</sub> ( $r = -0.43$ ,  $P = .03$ ).

**Conclusion**

Ankle plantar flexor and toe flexor muscle performance was impaired in individuals with plantar heel pain and associated with longer duration of self-reported foot orthosis use. *J Orthop Sports Phys Ther* 2016;46(8):681–688. Epub 3 Jul 2016. doi:10.2519/jospt.2016.6482

## RHUMATOID ARTHRITIS

## RA and nicotine

Rheumatology (Oxford). 2016 Jul 31. pii: kew285.

**Increased inflammation and disease activity among current cigarette smokers with rheumatoid arthritis: a cross-sectional analysis of US veterans.**

Sokolove J<sup>1</sup>, Wagner CA<sup>2</sup>, Lahey LJ<sup>2</sup>, Sayles H<sup>3</sup>, Duryee MJ<sup>3</sup>, Reimold AM<sup>4</sup>, Kerr G<sup>5</sup>, Robinson WH<sup>2</sup>, Cannon GW<sup>6</sup>, Thiele GM<sup>3</sup>, Mikuls TR<sup>3</sup>.

Author information

Abstract

**OBJECTIVES:**

Cigarette smoking is a major risk factor for RA and has been associated with increased disease severity and lower rates of disease remission. We hypothesized that inflammation and disease activity would be associated with smoking status and this would be related to levels of ACPA.

**METHODS:**

RA patients from the Veterans Affairs RA registry were studied (n = 1466): 76.9% anti-CCP2 positive, 89% male, median age 63 years (interquartile range 57-72), median disease duration 8.45 years (interquartile range 2.8-18). Baseline serum samples were evaluated for levels of anti-CCP2, RF, 19 distinct ACPAs and 17 cytokines. Smoking status at baseline was recorded as current, former or never. The association of smoking status with cytokines, autoantibodies and disease activity (DAS28) was evaluated.

**RESULTS:**

Among anti-CCP-positive RA patients, RA-associated cytokines (false-discovery rates  $q < 0.1\%$ ) and DAS28 ( $P < 0.01$ ) were higher in current smokers compared with former or never smokers. DAS28 and cytokine levels were similar between former and never smokers. In contrast, ACPA concentrations were higher among both current and former smokers compared with never smokers, and levels of ACPA were not associated with DAS28 or cytokine levels.

**CONCLUSION:**

Among anti-CCP2-positive RA patients, current smoking status is associated with elevations in pro-inflammatory cytokines and increased RA disease activity. Similar levels of inflammation and disease activity among former and never smokers suggests that the detrimental effects of smoking could be ameliorated through tobacco cessation. The effect of tobacco cessation on RA disease activity should be evaluated prospectively.

**KEYWORDS:** disease activity; inflammation; rheumatoid arthritis; smoking

PMID: [27477806](https://pubmed.ncbi.nlm.nih.gov/27477806/)

**What precedes RA**

Semin Arthritis Rheum. 2016 May 18. pii: S0049-0172(16)30049-X. doi: 10.1016/j.semarthrit.2016.05.002.

**High prevalence of tenosynovial inflammation before onset of rheumatoid arthritis and its link to progression to RA-A combined MRI/CT study.**

Kleyer A<sup>1</sup>, Krieter M<sup>1</sup>, Oliveira I<sup>1</sup>, Faustini F<sup>1</sup>, Simon D<sup>1</sup>, Kaemmerer N<sup>2</sup>, Cavalcante A<sup>3</sup>, Tabosa T<sup>3</sup>, Rech J<sup>1</sup>, Hueber A<sup>1</sup>, Schett G<sup>4</sup>.

Author information

**Abstract****OBJECTIVE:**

To define the anatomic distribution of the earliest inflammatory and structural changes in individuals with anti-citrullinated protein antibody (ACPA+) positivity but no signs of arthritis.

**METHODS:**

ACPA+ individuals (N = 20) and healthy controls (N = 13) received simultaneous gadolinium-enhanced magnetic resonance imaging (MRI) and high-resolution peripheral quantitative computed tomography (HR-pQCT) of the hands. MRI sequences were scored for synovitis, osteitis, and bone erosions according to the RAMRIS method as well as for presence, localization, and extent of tenosynovitis. Bone erosions were validated by HR-pQCT scanning and related to the inflammatory changes found in the MRI.

**RESULTS:**

Tenosynovitis was the most prevalent inflammatory pathology, affecting 80% of ACPA+ individuals but none of the controls. Tenosynovitis at two or more anatomical sites was associated with later development of RA. Synovitis (65%) and osteitis (35%) were present in ACPA+ individuals as well, but at a lower frequency than tenosynovitis. MRI bone erosions were found in 65% of the individuals and additionally confirmed by HR-pQCT. Presence of MRI osteitis was the inflammatory pathology most strongly associated with bone erosions.

**CONCLUSION:**

Tenosynovitis is highly prevalent in ACPA+ individuals without arthritis and associated with later development of RA. Small erosions, often linked to osteitis, are also found in ACPA+ individuals without arthritis.

**KEYWORDS:** ACPA; CT; Imaging; MRI; Tenosynovitis; pre-RA

PMID: 27342772

## MANUAL THERAPY CERVICAL

CT manip for shoulder pain

## RESEARCH REPORT

**Cervicothoracic Manual Therapy Plus Exercise Therapy Versus Exercise Therapy Alone in the Management of Individuals With Shoulder Pain: A Multicenter Randomized Controlled Trial**

**Authors:** Paul E. Mintken, DPT<sup>1,2</sup>, Amy W. McDevitt, DPT<sup>1,3</sup>, Joshua A. Cleland, PT, PhD<sup>4</sup>, Robert E. Boyles, PT, DSc<sup>5</sup>, Amber R. Beardslee, DPT<sup>6</sup>, Scott A. Burns, DPT<sup>7,8</sup>, Matthew D. Haberl, DPT<sup>9</sup>, Lauren A. Hinrichs, DPT<sup>10</sup>, Lori A. Michener, PT, PhD<sup>11</sup>

**Published:** *Journal of Orthopaedic & Sports Physical Therapy*, 2016 **Volume:**46 **Issue:**8 **Pages:**617–628 **DOI:**10.2519/jospt.2016.6319

**Study Design**

Multicenter randomized controlled trial.

**Background**

Cervicothoracic manual therapy has been shown to improve pain and disability in individuals with shoulder pain, but the incremental effects of manual therapy in addition to exercise therapy have not been investigated in a randomized controlled trial.

**Objectives**

To compare the effects of cervicothoracic manual therapy and exercise therapy to those of exercise therapy alone in individuals with shoulder pain.

**Methods**

Individuals (n = 140) with shoulder pain were randomly assigned to receive 2 sessions of cervicothoracic range-of-motion exercises plus 6 sessions of exercise therapy, or 2 sessions of high-dose cervicothoracic manual therapy and range-of-motion exercises plus 6 sessions of exercise therapy (manual therapy plus exercise). Pain and disability were assessed at baseline, 1 week, 4 weeks, and 6 months. The primary aim (treatment group by time) was examined using linear mixed-model analyses and the repeated measure of time for the Shoulder Pain and Disability Index (SPADI), the numeric pain-rating scale, and the shortened version of the Disabilities of the Arm, Shoulder and Hand questionnaire (QuickDASH). Patient-perceived success was assessed and analyzed using the global rating of change (GROC) and the Patient Acceptable Symptom State (PASS), using chi-square tests of independence.

**Results**

There were no significant 2-way interactions of group by time or main effects by group for pain or disability. Both groups improved significantly on the SPADI, numeric pain-rating scale, and QuickDASH. Secondary outcomes of success on the GROC and PASS significantly favored the manual therapy-plus-exercise group at 4 weeks ( $P = .03$  and  $P < .01$ , respectively) and on the GROC at 6 months ( $P = .04$ ).

**Conclusion**

Adding 2 sessions of high-dose cervicothoracic manual therapy to an exercise program did not improve pain or disability in patients with shoulder pain, but did improve patient-perceived success at 4 weeks and 6 months and acceptability of symptoms at 4 weeks. More research is needed on the use of cervicothoracic manual therapy for treating shoulder pain.

**Level of Evidence**

Therapy, level 1b. Prospectively registered March 30, 2012  
at [www.ClinicalTrials.gov](http://www.ClinicalTrials.gov) (NCT01571674). J Orthop Sports Phys Ther 2016;46(8):617–628.  
doi:10.2519/jospt.2016.6319

## UPPER LIMB NEUROMOBILIZATION

### Median nerve assessment

#### **Differential Diagnosis and Intervention of Proximal Median Nerve Entrapment: A Resident's Case Problem**

**Authors:** Marcus R. Bair, PT, DPT<sup>1</sup>, Michael T. Gross, PT, PhD, FAPTA<sup>2</sup>, Jennifer R. Cooke, PT, DPT<sup>2</sup>, Carla H. Hill, PT, DPT, OCS, Cert MDT<sup>2</sup>

#### **Study Design**

Resident's Case Problem.

#### **Background**

Entrapment neuropathies represent a diagnostic challenge and require a comprehensive understanding of the nerve's path and the anatomical structures that may cause compression of the nerve. This resident's case problem details the evaluation and differential diagnosis process for median nerve entrapment resulting from forceful and repetitive pronation-supination motions.

#### **Diagnosis**

Median nerve compression syndromes include pronator syndrome, anterior interosseous nerve syndrome, and carpal tunnel syndrome. A cluster of clinical special tests were performed to determine the anatomical site of median nerve entrapment. Based on the patient's history and clinical test results, a diagnosis of pronator syndrome was determined. Provocation testing specific to pronator syndrome assisted with further localizing the site of entrapment to the pronator teres muscle, which guided effective management strategies.

#### **Discussion**

This resident's case problem illustrates the importance of detailed anatomical knowledge and a differential diagnostic process when evaluating a patient with signs and symptoms of an entrapment neuropathy of the median nerve. Electrodiagnostic studies are more useful in ruling out carpal tunnel and anterior interosseous nerve syndromes, but are often inconclusive in cases of pronator syndrome. Therefore, a diagnosis of pronator syndrome in this case problem was based on a detailed understanding of median nerve anatomy, potential sites of compression, and unique clinical features associated with this condition.

#### **Level of Evidence**

Differential Diagnosis, Level 4. J Orthop Sports Phys Ther, Epub 5 Aug 2016.  
doi:10.2519/jospt.2016.6723

## STM

## Trigger points and radicular symptoms

Clin J Pain. 2016 Aug;32(8):666-72. doi: 10.1097/AJP.0000000000000311.

**The Diagnostic Accuracy of Gluteal Trigger Points to Differentiate Radicular From Nonradicular Low Back Pain.**

Adelmanesh F<sup>1</sup>, Jalali A, Shirvani A, Pakmanesh K, Pourafkari M, Raissi GR, Shir Y.  
Author information

## Abstract

**OBJECTIVES:**

Low back pain (LBP) is highly prevalent and costly to the society. Previous studies have shown an association between radicular LBP and trigger points (TrPs) in the superior-lateral quadrant of the gluteal area (GTrP). The objective of current study was to evaluate the diagnostic value of GTrP to predict nerve root involvement among patients with LBP.

**MATERIALS AND METHODS:**

In a prospective, diagnostic accuracy study 325 consecutive patients with LBP were recruited. At first step, patients were evaluated for the presence or absence of the GTrP. A different investigator, blinded to the GTrP findings, then performed history taking and physical examination. Subsequently, all patients underwent a lumbar spine magnetic resonance imaging and, when indicated, electrodiagnostic tests. On the basis of the clinical and ancillary tests findings, a multidisciplinary panel of experts (the "reference standard"), blinded to the GTrP evaluation, allocated patients to radicular versus nonradicular LBP groups. The agreement between the GTrP findings, as a diagnostic test and the reference standard allocation was evaluated in a 2 by 2 contingency table.

**RESULTS:**

The specificity of the GTrP test was 91.4% and its sensitivity was 74.1%. The area under the receiver operating characteristic curve was 0.827 (0.781 to 0.874). Positive likelihood ratio was 8.62 and negative likelihood ratio was 0.28. Positive and negative predictive values were 91.9% and 72.7%, respectively.

**DISCUSSION:**

As a clinical finding, TrPs in superior-lateral quadrant of gluteal area are highly specific indicators for radicular LBP. Incorporating these TrPs evaluation in routine physical examination of patients with LBP could decrease the need for more costly, time-consuming, and invasive diagnostic tests.

### Impact of Thai massage on LBP

Short-term effects of traditional Thai massage on electromyogram, muscle tension and pain among patients with upper back pain associated with myofascial trigger points

Complementary Therapies in Medicine, 08/01/2016

**B**uttagat V, et al. – In this study, the researchers examined the impacts of traditional Thai massage (TTM) on electromyographic (EMG) activity, muscle tension and pain intensity in patients with upper back pain associated with myofascial trigger points (MTrPs). It was found that TTM can improve physical relaxation and reduce pain in patients with upper back pain associated with MTrPs.

#### **Methods**

- The authors conducted a single-blind, randomized clinical trial.
- The Department of Physical Therapy, School of Health Science, Mae Fah Luang University, Thailand.
- Fifty patients were randomly assigned to receive a 30-min session of either TTM or control (sham microwave diathermy).
- Electromyogram (EMG), Muscle tension rating, and pain intensity rating

#### **Results**

- It was suggested that TTM were associated with significant decreases in EMG, muscle tension and pain intensity after the end of treatment session ( $p < 0.05$ ).
- For all results, similar changes were not observed in the control group ( $p > 0.05$ ) except for muscle tension ( $p < 0.05$ ).
- Despite, there was a significantly greater reduction in all parameters for the TTM group when compared with the control group.

### RUNNING

No increase risk of OA

#### **Runners at no higher risk for knee arthritis, says study**

U.S. Department of Veterans Affairs Research News, 08/04/2016

Is running bad for your knees? On the one hand, it would make sense that pounding the pavement for lots of miles each week could take a toll on the knees – namely in the form of osteoarthritis. On the other hand, runners tend to stay lean, and that could take pressure off the knees and ward off cartilage breakdown. A team of VA and university researchers has cut through the conundrum with hard data from a study of more than 2,000 people. The verdict? Runners are at no increased risk for symptomatic knee osteoarthritis. The findings appeared online June 22, 2016, in the journal *Arthritis Care and Research*. The researchers were led by Dr. Grace Lo of Baylor College of Medicine and the VA Center for Innovations in Quality, Effectiveness and Safety, in Houston. They analyzed data on 2,637 people who had taken part in a larger study called the Osteoarthritis Initiative, funded by the National Institutes of Health and partners from the pharmaceutical industry.

### NUTRITION/VITAMINS

#### Omega threes and the heart

Published in Cardiology  
Journal Scan / Research · August 04, 2016

#### **Benefits of Omega-3 Fatty Acids From Fish Oil After Acute MI**

##### **TAKE-HOME MESSAGE**

- In this multicenter, double-blind trial, patients who suffered an acute MI were randomly assigned to 6 months of high-dose omega-3 fatty acids (n = 180) or placebo (n = 178). Significant reductions in left ventricular systolic volume index (−5.8%; P = .017), non-infarct myocardial fibrosis (−5.6%; P = .026), and serum biomarkers of inflammation and myocardial fibrosis were observed in the omega-3 fatty acids group compared with the placebo group. In addition, increases in red blood cell omega-3 fatty acid correlated with decreases in left ventricular systolic volume index.
- Following acute MI, high-dose omega-3 fatty acids had a beneficial effect on left ventricular remodeling, non-infarct myocardial fibrosis, and biomarkers of inflammation beyond standard-of-care therapy.

## PHARMACOLOGY

**Opioids and HA**

Curr Pain Headache Rep. 2016 Sep;20(9):51. doi: 10.1007/s11916-016-0581-9.

**Opioid Treatment of Migraine: Risk Factors and Behavioral Issues.**

Stone MT<sup>1,2</sup>, Weed V<sup>3,4,5</sup>, Kulich RJ<sup>6,7</sup>.

Author information

## Abstract

Migraine can impact every aspect of a person's functioning. Psychological comorbidities, cognitive constructs, and behavioral responses to pain greatly impact the perception of migraine pain, treatment efficacy and outcome, and overall quality of life and functioning. Current considerations for migraine treatment emphasize the utility of the biopsychosocial model in understanding and treating migraine, noting both the importance of addressing psychological factors such as cognitive beliefs as well as psychiatric comorbidities. The guidelines for migraine treatment implicate opioid therapy as a second or third tier treatment. Guidelines and recommendations for the safe use of opioid medications among patients with chronic pain emphasize the importance of screening prior to prescribing opioid medications. Chronic opioid therapy has been shown to further levels of disability, decrease quality of life, and correlate to psychiatric comorbidities, concerns that are already present in migraine patients. While opioid treatment provides an alternative for persons with contraindications for alternative migraine treatments, it is critical that opioids be used sparingly and exclusively in conjunction with comprehensive assessment and integration of psychological treatment.

**KEYWORDS:** Addiction; Headache; Migraine; Opioids; Risk; Screening

## NEUROLOGICAL CONDITIONS

## Ankle spasticity

J Head Trauma Rehabil. 2016 Jul-Aug;31(4):E52-8. doi: 10.1097/HTR.000000000000166.

**Ankle Plantarflexor Spasticity Does Not Restrict the Recovery of Ankle Plantarflexor Strength or Ankle Power Generation for Push-Off During Walking Following Traumatic Brain Injury.**

Williams G<sup>1</sup>, Banky M, Olver J.

Author information

Abstract

**OBJECTIVE:**

The main aim of this project was to determine the impact of plantarflexor spasticity on muscle performance for ambulant people with traumatic brain injury (TBI).

**SETTING:**

A large metropolitan rehabilitation hospital.

**PARTICIPANTS:**

Seventy-two ambulant people with TBI who were attending physiotherapy for mobility limitations. Twenty-four participants returned for a 6-month follow-up reassessment.

**DESIGN:**

Cross-sectional cohort study.

**MAIN MEASURES:**

Self-selected walking speed, Tardieu scale, ankle plantarflexor strength, and ankle power generation (APG).

**RESULTS:**

Participants with ankle plantarflexor spasticity had significantly lower self-selected walking speed; however, there was no significant difference in ankle plantarflexor strength or APG. Participants with ankle plantarflexor spasticity were not restricted in the recovery of self-selected walking speed, ankle plantarflexor strength, or APG, indicating equivalent ability to improve their mobility over time despite the presence of spasticity.

**CONCLUSION:**

Following TBI, people with ankle plantarflexor spasticity have significantly greater mobility limitations than those without spasticity, yet retain the capacity for recovery of self-selected walking speed, ankle plantarflexor strength, and APG.

PMID: [26394293](#)