

## ABSTRACTS

|                                     |                              |
|-------------------------------------|------------------------------|
| Table of Contents                   |                              |
| <b>LUMBAR SPINE</b> .....           | 3                            |
| <b>LBP</b> .....                    | 3                            |
| <b>DISC</b> .....                   | Error! Bookmark not defined. |
| <b>INJECTIONS</b> .....             | Error! Bookmark not defined. |
| <b>SURGERY</b> .....                | Error! Bookmark not defined. |
| <b>PELVIC GIRDLE</b> .....          | Error! Bookmark not defined. |
| <b>PELVIC ORGANS</b> .....          | 8                            |
| <b>VISCERA</b> .....                | 11                           |
| <b>THORACIC SPINE</b> .....         | Error! Bookmark not defined. |
| <b>CERVICAL SPINE</b> .....         | 16                           |
| <b>UPPER C SPINE</b> .....          | Error! Bookmark not defined. |
| <b>WHIPLASH</b> .....               | Error! Bookmark not defined. |
| <b>CRANIUM/TMJ</b> .....            | 17                           |
| <b>HEADACHES</b> .....              | 19                           |
| <b>VESTIBULAR</b> .....             | Error! Bookmark not defined. |
| <b>CONCUSSIONS</b> .....            | 22                           |
| <b>SHOULDER GIRDLE</b> .....        | 26                           |
| <b>CLAVICLE</b> .....               | Error! Bookmark not defined. |
| <b>GLENOHUMERAL/SHOULDER</b> .....  | 27                           |
| <b>ROTATOR CUFF</b> .....           | 27                           |
| <b>ADHESIVE CAPSULITIS</b> .....    | Error! Bookmark not defined. |
| <b>IMPINGMENT</b> .....             | Error! Bookmark not defined. |
| <b>SURGERY</b> .....                | Error! Bookmark not defined. |
| <b>ELBOW</b> .....                  | Error! Bookmark not defined. |
| <b>WRIST AND HAND</b> .....         | Error! Bookmark not defined. |
| <b>CARPAL TUNNEL SYNDROME</b> ..... | Error! Bookmark not defined. |
| <b>HIP</b> .....                    | 28                           |
| <b>REPLACEMENTS</b> .....           | Error! Bookmark not defined. |
| <b>OA</b> .....                     | Error! Bookmark not defined. |
| <b>IMPINGEMENT</b> .....            | 29                           |
| <b>KNEE</b> .....                   | 30                           |
| <b>KNEE/ACL</b> .....               | 30                           |
| <b>MENISCUS</b> .....               | 30                           |
| <b>PATELLA</b> .....                | 31                           |
| <b>KNEE/TOTAL</b> .....             | Error! Bookmark not defined. |

## ABSTRACTS

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| <b>KNEE/EXERCISE</b> .....           | <b>Error! Bookmark not defined.</b> |
| <b>OSTEOARTHRITIS/KNEE</b> .....     | 33                                  |
| <b>FOOT AND ANKLE</b> .....          | 35                                  |
| <b>ORTHOTICS</b> .....               | 35                                  |
| <b>ANKLE/INSTABILITY</b> .....       | <b>Error! Bookmark not defined.</b> |
| <b>ACHILLES TENDON</b> .....         | <b>Error! Bookmark not defined.</b> |
| <b>PLANTAR SURFACE</b> .....         | <b>Error! Bookmark not defined.</b> |
| <b>HALLUX VALGUS</b> .....           | 36                                  |
| <b>RHUMATOID ARTHRITIS</b> .....     | <b>Error! Bookmark not defined.</b> |
| <b>MANUAL THERAPY</b> .....          | <b>Error! Bookmark not defined.</b> |
| <b>NEUROMOBILIZATION</b> .....       | <b>Error! Bookmark not defined.</b> |
| <b>STRETCHING/MUSCLES</b> .....      | <b>Error! Bookmark not defined.</b> |
| <b>STM</b> .....                     | 37                                  |
| <b>MUSCLES</b> .....                 | <b>Error! Bookmark not defined.</b> |
| <b>STRETCHING</b> .....              | <b>Error! Bookmark not defined.</b> |
| <b>MOTOR CONTROL</b> .....           | <b>Error! Bookmark not defined.</b> |
| <b>CFS/BET</b> .....                 | <b>Error! Bookmark not defined.</b> |
| <b>EXERCISE</b> .....                | <b>Error! Bookmark not defined.</b> |
| <b>CORE</b> .....                    | <b>Error! Bookmark not defined.</b> |
| <b>POSTURE</b> .....                 | <b>Error! Bookmark not defined.</b> |
| <b>SCOLIOSIS</b> .....               | <b>Error! Bookmark not defined.</b> |
| <b>ATHLETICS</b> .....               | 39                                  |
| <b>GAIT</b> .....                    | 39                                  |
| <b>RUNNING</b> .....                 | 41                                  |
| <b>PAIN</b> .....                    | <b>Error! Bookmark not defined.</b> |
| <b>COMPLEX REGIONAL PAIN</b> .....   | <b>Error! Bookmark not defined.</b> |
| <b>FIBROMYALGIA</b> .....            | <b>Error! Bookmark not defined.</b> |
| <b>NUTRITION/VITAMINS</b> .....      | 43                                  |
| <b>PHARMACOLOGY</b> .....            | 45                                  |
| <b>ELECTROTHERAPY</b> .....          | 46                                  |
| <b>NEUROLOGICAL CONDITIONS</b> ..... | <b>Error! Bookmark not defined.</b> |

## LUMBAR SPINE

## LBP

## Cognitive functional approach

Br J Sports Med. 2015 Jan 24. pii: bjsports-2014-093984. doi: 10.1136/bjsports-2014-093984.

**Cognitive functional approach to manage low back pain in male adolescent rowers: a randomised controlled trial.**

Ng L<sup>1</sup>, Cañeiro JP<sup>2</sup>, Campbell A<sup>1</sup>, Smith A<sup>1</sup>, Burnett A<sup>3</sup>, O'Sullivan P<sup>2</sup>.

Author information

Abstract

**BACKGROUND:**

Low back pain (LBP) is prevalent among adolescent rowers. This study evaluated the efficacy of a cognitive functional approach to reduce LBP in this population.

**METHODS:**

Thirty-six adolescent male rowers reporting LBP participated. Nineteen were randomly allocated to the intervention group to receive a cognitive functional approach targeting cognitions, movement patterns, conditioning and lifestyle factors relevant to each rower for 8 weeks. The active control group (n=17) received usual care from their coaches (rowing skills and conditioning exercises). The primary outcome of the study was pain intensity as measured by the Numeric Pain Rating Scale during a 15 min ergometer trial preintervention and postintervention. Disability (Patient Specific Functional Scale and Roland Morris Disability Questionnaire) was measured preintervention/postintervention and at 12 weeks follow-up. Isometric muscle endurance of the back extensors and lower limb muscles, usual sitting posture and regional lumbar kinematic data during a 15 min ergometer row were measured preintervention/postintervention.

**RESULTS:**

Compared with the control group, the intervention group reported significantly less pain during ergometer rowing (Numeric Pain Rating Scale -2.4, p=0.008) and reduced disability (Patient Specific Functional Scale (4.1, p=0.01); Roland Morris Disability Questionnaire (-1.7, p=0.003)) following the intervention, and at 12 weeks follow-up. They also demonstrated greater lower limb muscle endurance (20.9 s, p=0.03) and postured their lower lumbar spine in greater extension during static sitting (-9.6°, p=0.007). No significant differences were reported in back muscle endurance and regional lumbar kinematics during ergometer rowing.

**CONCLUSION:**

Cognitive functional approach was more effective than usual care in reducing pain and disability in adolescent male rowers.

**CLINICAL TRIAL REGISTRY NUMBER:**

Australian and New Zealand Clinical Trial Registry Number 12609000565246.

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**KEYWORDS:** Adolescent; Lumbar spine; Physiotherapy; Randomised controlled trial; Rowing  
PMID: 25618890

### Aortic Aneurysm and LBP

Rheumatol Int. 2015 Feb;35(2):367-70. doi: 10.1007/s00296-014-3077-0. Epub 2014 Jun 25.

#### **Abdominal aortic aneurysm causing lumbar vertebral erosion in Behçet's disease presenting by low back pain.**

Örücü M<sup>1</sup>, Keleş D, Peker E, Çakıcı M, Shimbori N, Erden İ, Yazıcıoğlu L, Sonel Tur B.  
Author information

#### **Abstract**

Behçet's disease (BD) is a chronic multi-system disorder commonly seen in Mediterranean, middle east and far eastern populations. In this report, we describe a case of a 55-year-old male with Behçet's disease who presented with a low back pain and sciatica. Imaging studies showed that he had a destruction of the third lumbar vertebra because of abdominal aortic aneurysm-related Behçet's disease. Aortic aneurysms with vertebral body erosion have been rarely reported, but this vascular complication is a life-threatening clinical picture.

Therefore, among the causes of chronic lumbar pain in a BD patient, abdominal aortic aneurysm should be remembered.

PMID: 24957970

**LBP's impact on the brain**

Hum Brain Mapp. 2015 Feb 3. doi: 10.1002/hbm.22757.

**Partial recovery of abnormal insula and dorsolateral prefrontal connectivity to cognitive networks in chronic low back pain after treatment.**

Čeko M<sup>1</sup>, Shir Y, Ouellet JA, Ware MA, Stone LS, Seminowicz DA.  
Author information

**Abstract**

We previously reported that effective treatment of chronic low back pain (CLBP) reversed abnormal brain structure and functional MRI (fMRI) activity during cognitive task performance, particularly in the left dorsolateral prefrontal cortex (DLPFC). Here, we used resting-state fMRI to examine how chronic pain affects connectivity of brain networks supporting cognitive functioning and the effect of treatment in 14 CLBP patients and 16 healthy, pain-free controls (scans were acquired at baseline for all subjects and at 6-months post-treatment for patients and a matched time-point for 10 controls). The main networks activated during cognitive task performance, task-positive network (TPN) and task-negative network (TNN) (aka default mode) network, were identified in subjects' task fMRI data and used to define matching networks in resting-state data. The connectivity of these cognitive resting-state networks was compared between groups, and before and after treatment. Our findings converged on the bilateral insula (INS) as the region of aberrant cognitive resting-state connectivity in patients pretreatment versus controls.

These findings were complemented by an independent, data-driven approach showing altered global connectivity of the INS. Detailed investigation of the INS confirmed reduced connectivity to widespread TPN and TNN areas, which was partially restored post-treatment. Furthermore, analysis of diffusion-tensor imaging (DTI) data revealed structural changes in white matter supporting these findings. The left DLPFC also showed aberrant connectivity that was restored post-treatment. Altogether, our findings implicate the bilateral INS and left DLPFC as key nodes of disrupted cognition-related intrinsic connectivity in CLBP, and the resulting imbalance between TPN and TNN function is partially restored with treatment. Hum Brain Mapp, 2015. © 2014 Wiley Periodicals, Inc.

**KEYWORDS:** chronic pain; cognitive networks; functional MRI; intrinsic connectivity; longitudinal; resting state  
PMID: 25648842

## Exercise in children and LBP

Phys Ther. 2014 Dec 11.

### **Daily Exercises and Education for Preventing Low Back Pain in Children: Cluster Randomized Controlled Trial.**

Hill JJ<sup>1</sup>, Keating JL<sup>2</sup>.

Author information

#### Abstract

#### **BACKGROUND:**

Children report low back pain (LBP) as young as 8 years. Preventing LBP in children may prevent or delay adult incidence.

#### **OBJECTIVES:**

The purpose of this study was to determine whether education and daily exercise affect LBP episodes in children compared with education alone.

#### **DESIGN:**

This was a prospective, multicenter cluster randomized controlled trial.

#### **SETTING:**

The study was conducted at 7 New Zealand primary schools.

#### **PARTICIPANTS:**

Children (n=708), aged 8 to 11 years, from 7 schools stratified by sample size (36, 114, 151, 168, 113, 45, 83) were randomized and allocated to 2 masked groups: intervention (4 schools, n=469) or control (3 schools, n=239).

#### **INTERVENTIONS:**

Participants in the intervention group were taught 4 spinal movements for daily practice. Both groups participated in education that emphasized "back awareness."

#### **MEASUREMENTS:**

Low back pain history at baseline was assessed. Children reported episodes of LBP during the previous week on trial days 7, 21, 49, 105, 161, and 270. Analysis was at the individual participant level, with adjustment for school clusters.

#### **RESULTS:**

There were no significant differences between groups in the odds of reporting no LBP in the previous week during the study period (odds ratio [OR]=0.72; 95% confidence interval [95% CI]=0.46, 1.14; P=.16). The intervention group reported significantly fewer episodes of LBP (OR=0.54; 95% CI=0.39, 0.74; P<.001) and significantly fewer lifetime first episodes of LBP (n=86 [34%]) compared with the control group (n=58 [47%]) (OR=0.60; 95% CI=0.39, 0.91; P=.02). The odds of an episode of LBP were greater in participants with a history of LBP (OR=4.21; 95% CI=3.07, 5.78; P<.001). Low back pain episodes decreased across the trial period for both groups (OR=0.89; 95% CI=0.84, 0.95; P<.001). Adherence to exercise was poor.

#### **LIMITATIONS:**

Replication in other settings is needed.

#### **CONCLUSIONS:**

Regular exercise and education appear to reduce LBP episodes in children aged 8 to 11 years compared with education alone.

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PMID:25504487

**Taping and LBP**

Phys Ther. 2014 Nov 20.

**Effect of Taping on Spinal Pain and Disability: Systematic Review and Meta-Analysis of Randomized Trials.**

Vanti C<sup>1</sup>, Bertozzi L<sup>2</sup>, Gardenghi I<sup>3</sup>, Turoni F<sup>4</sup>, Guccione AA<sup>5</sup>, Pillastrini P<sup>6</sup>.

Author information

Abstract

**BACKGROUND:**

Taping is a widely used therapeutic tool for the treatment of musculoskeletal disorders, nevertheless its effectiveness is still uncertain.

**PURPOSE:**

The purpose of this study was to conduct a current review of randomized controlled trials (RCTs) concerning the effects of elastic and nonelastic taping on spinal pain and disability.

**DATA SOURCES:**

MEDLINE, CINAHL, EMBASE, PEDro, Cochrane Central Register of Controlled Trials (CENTRAL), Scopus, ISI Web of Knowledge, and SPORTDiscus databases were searched.

**STUDY SELECTION:**

All published RCTs on symptomatic adults with a diagnosis of specific or nonspecific spinal pain, myofascial pain syndrome, or whiplash-associated disorders (WAD) were considered.

**DATA EXTRACTION:**

Two reviewers independently selected the studies and extracted the results. The quality of individual studies was assessed using the PEDro scale, and the evidence was assessed using GRADE criteria.

**DATA SYNTHESIS:**

Eight RCTs were included. Meta-analysis of 4 RCTs on low back pain demonstrated that elastic taping does not significantly reduce pain or disability immediately posttreatment, with a standardized mean difference of -0.31 (95% confidence interval=-0.64, 0.02) and -0.23 (95% confidence interval=-0.49, 0.03), respectively. Results from single trials indicated that both elastic and nonelastic taping are not better than placebo or no treatment on spinal disability. Positive results were found only for elastic taping and only for short-term pain reduction in WAD or specific neck pain. Generally, the effect sizes were very small or not clinically relevant, and all results were supported by low-quality evidence.

**LIMITATIONS:**

The paucity of studies does not permit us to draw any final conclusions.

**CONCLUSION:**

Although different types of taping were investigated, the results of this systematic review did not show any firm support for their effectiveness.

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PMID: 25413622

**PELVIC ORGANS****Sleep positions and still births**

Obstet Gynecol. 2015 Feb;125(2):347-55. doi: 10.1097/AOG.0000000000000627.

**Sleep position, fetal growth restriction, and late-pregnancy stillbirth: the sydney stillbirth study.**

Gordon A<sup>1</sup>, Raynes-Greenow C, Bond D, Morris J, Rawlinson W, Jeffery H.  
Author information

Abstract

**OBJECTIVE:**

To identify potentially modifiable risk factors for late-pregnancy stillbirth.

**METHODS:**

This was a population-based matched case-control study of pregnant women at 32 weeks of gestation or greater booked into tertiary maternity hospitals in metropolitan Sydney between January 2006 and December 2011. The case group consisted of women with singleton pregnancies with antepartum fetal death in utero. Women in the control group were matched for booking hospital and expected delivery date with women in the case group. Data collection was performed using a semistructured interview and included validated questionnaires for specific risk factors. Adjusted odds ratios (ORs) were calculated for a priori-specified risk factors using conditional logistic regression.

**RESULTS:**

There were 103 women in the case group and 192 women in the control group. Mean gestation was 36 weeks. Supine sleeping was reported by 10 of 103 (9.7%) of women who experienced late-pregnancy stillbirth and by 4 of 192 (2.1%) of women in the control group (adjusted OR 6.26, 95% confidence interval [CI] 1.2-34). Women who experienced stillbirth were more likely to: have been followed during pregnancy for suspected fetal growth restriction, 11.7% compared with 1.6% (adjusted OR 5.5, 95% CI 1.36-22.5); not be in paid work, 25.2% compared with 9.4% (adjusted OR 2.9, 95% CI 1.1-7.6); and to have not received further education beyond high school, 41.7% compared with 25.5% (adjusted OR 1.9, 95% CI 1.1-3.5). None of the deaths to women who reported supine sleeping were classified as unexplained.

**CONCLUSION:**

This study suggests that supine sleep position may be an additional risk for late-pregnancy stillbirth in an already compromised fetus. The clinical management of suspected fetal growth restriction should be investigated further as a means of reducing late stillbirth.

**LEVEL OF EVIDENCE: II**

PMID: 25568999



**Caffeine and menopausal symptoms**

Menopause. 2015 Feb;22(2):155-8. doi: 10.1097/GME.0000000000000301.

**Caffeine and menopausal symptoms: what is the association?**

Faubion SS1, Sood R, Thielen JM, Shuster LT.  
Author information

Abstract

**OBJECTIVE:**

We assessed the association between caffeine intake and menopausal symptom bother, particularly vasomotor symptoms.

**METHODS:**

A cross-sectional survey was conducted using the Menopause Health Questionnaire, which is a comprehensive survey of menopause-related health information. Questionnaires were completed by 2,507 consecutive women who presented with menopausal concerns at the Women's Health Clinic at Mayo Clinic (Rochester, MN) between July 25, 2005 and July 25, 2011. Data from 1,806 women who met all inclusion criteria were analyzed. Menopausal symptom ratings were compared between women who used caffeine and women who did not use caffeine using two-sample t test and analysis of covariance, with smoking and menopause status included as covariates. In all cases, two-tailed  $P < 0.05$  was considered statistically significant.

**RESULTS:**

Caffeine use was positively associated with mean (SD) vasomotor symptom scores (2.30 [0.91] vs 2.15 [0.94],  $P = 0.011$ ). This finding remained significant after adjustment for menopause status and cigarette smoking ( $P = 0.027$ ).

**CONCLUSIONS:**

Caffeine use is associated with greater vasomotor symptom bother in postmenopausal women.

**Alcohol consumption and breast cancer****Alcohol intake and breast cancer in the European Prospective investigation into Cancer and Nutrition**

International Journal of Cancer, 02/10/2015

**Clinical Article**

Romieu I, et al. – The authors investigated the relation between alcohol intake and the risk of breast cancer using prospective observational data from the European Prospective Investigation into Cancer and Nutrition (EPIC). The results confirm the association between alcohol intake and both hormone receptor positive and hormone receptor negative breast tumors, suggesting that timing of exposure to alcohol drinking may affect the risk. Therefore, women should be advised to control their alcohol consumption.

**Methods**

- Up to 334,850 women, aged 35-70 years at baseline, were recruited in ten European countries and followed up an average of 11 years.
- Alcohol intake at baseline and average lifetime alcohol intake were calculated from country-specific dietary and lifestyle questionnaires.
- The study outcomes were the Hazard ratios (HR) of developing breast cancer according to hormonal receptor status.

**Results**

- During 3,670,439 person-years, 11,576 incident breast cancer cases were diagnosed.
- Alcohol intake was significantly related to breast cancer risk, for each 10g/day increase in alcohol intake the HR increased by 4.2% (95% CI: 2.7%-5.8%).
- Taking 0 to 5g/day as reference, alcohol intake of >5 to 15g/day was related to a 5.9% increase in breast cancer risk (95% CI: 1%-11%).
- Significant increasing trends were observed between alcohol intake and ER+/PR+, ER-/PR-, HER2- and ER-/PR-/HER2- tumors.
- Breast cancer risk was stronger among women who started drinking prior to first full-time pregnancy.

## VISCERA

## Diarrhea and yogurt

BMJ Open. 2015 Jan 14;5(1):e006474. doi: 10.1136/bmjopen-2014-006474.

**Can probiotic yogurt prevent diarrhoea in children on antibiotics? A double-blind, randomised, placebo-controlled study.**

Fox MJ<sup>1</sup>, Ahuja KD<sup>1</sup>, Robertson IK<sup>1</sup>, Ball MJ<sup>1</sup>, Eri RD<sup>1</sup>.

Author information

Abstract

**OBJECTIVE:**

To estimate the efficacy of a probiotic yogurt compared to a pasteurised yogurt for the prevention of antibiotic-associated diarrhoea in children.

**DESIGN AND SETTING:**

This was a multisite, randomised, double-blind, placebo-controlled clinical trial conducted between September 2009 and 2012. The study was conducted through general practices and pharmacies in Launceston, Tasmania, Australia.

**PARTICIPANTS AND INTERVENTIONS:**

Children (aged 1-12 years) prescribed antibiotics, were randomised to receive 200 g/day of either yogurt (probiotic) containing *Lactobacillus rhamnosus* GG (LGG), *Bifidobacterium lactis* (Bb-12) and *Lactobacillus acidophilus* (La-5) or a pasteurised yogurt (placebo) for the same duration as their antibiotic treatment.

**OUTCOMES:**

Stool frequency and consistency were recorded for the duration of treatment plus 1 week. Primary outcome was stool frequency and consistency, classified at different levels of diarrhoea severity. Due to the small number of cases of diarrhoea, comparisons between groups were made using Fisher's exact analysis.

**RESULTS:**

72 children commenced and 70 children (36 placebo and 34 probiotic) completed the trial. There were no incidents of severe diarrhoea (stool consistency  $\geq 6$ ,  $\geq 3$  stools/day for  $\geq 2$  consecutive days) in the probiotic group and six in the placebo group (Fisher's exact  $p=0.025$ ). There was also only one episode of minor diarrhoea (stool consistency  $\geq 5$ ,  $\geq 2$  stools/day for  $\geq 2$  days in the probiotic group compared to 21 in the placebo group (Fisher's exact  $p<0.001$ ). The probiotic group reported fewer adverse events (1 had abdominal pain, 1 vomited and 1 had headache) than the placebo group (6 had abdominal pain, 4 had loss of appetite and 1 had nausea).

**CONCLUSIONS:**

A yogurt combination of LGG, La-5 and Bb-12 is an effective method for reducing the incidence of antibiotic-associated diarrhoea in children.

**TRIAL REGISTRATION NUMBER:**

Australian New Zealand Clinical Trials Registry ACTRN12609000281291.

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**KEYWORDS:** NUTRITION & DIETETICS

PMID: 25588782

## IBS and genetics

BMC Gastroenterol. 2015 Feb 5;15(1):9.

**Co-occurrence of IBS and symptoms of anxiety or depression, among Norwegian twins, is influenced by both heredity and intrauterine growth.**

Bengtson MB, Aamodt G, Vatn MH, Harris JR.

Abstract

**Background** Environmental and genetic factors contribute to variation in irritable bowel syndrome (IBS), anxiety and depression. Comorbidity between these disorders is high. A previous investigation of our population-based twin cohort revealed that low birth weight increased the risk for development of IBS, with environmental influences in utero as the most relevant contributing factor. We hypothesise that both intrauterine and genetic factors influence the co-occurrence of IBS and symptoms of anxiety and depression.

**Methods** A postal questionnaire sent to 12700 Norwegian twins born between 1967 and 1979 comprised a checklist of 31 illnesses and symptoms, including IBS and symptoms of anxiety and depression. The influence of genetic factors and intrauterine growth on comorbidity between these disorders were analysed in the full sample and compared to those based on only monozygotic (MZ) twin pairs discordant for IBS (95 pairs) in birth weight group  $< 2500$  g and  $\geq 2500$  g.

**Results** In the co-twin analyses restricted growth (birth weight  $< 2500$  g) was significantly associated with anxiety and depression (average birth weight difference of 181.0 g ( $p < 0.0001$ ) and 249.9 g ( $p < 0.0001$ ), respectively).

The analysis of the full sample revealed that IBS was significantly associated with symptoms of anxiety (adjusted OR = 2.5, 95% CI: 1.9, 3.3) and depression (adjusted OR = 2.3, 95% CI: 1.8, 3.0). Analyses of MZ pairs discordant for IBS indicated significant associations between IBS and symptoms of anxiety (OR = 3.7, 95% CI: 1.3, 10.5) and between IBS and symptoms of depression (OR = 4.2, 95% CI: 1.7, 9.9) only in the birth weight group below 2500 g.

**Conclusion** Our findings suggest that genetic factors partly explain the association between IBS and symptoms of anxiety and depression. In the low range of birth weight ( $< 2500$  g), restricted fetal growth seems to be a common contributing factor to the co-occurrence between these disorders.

PMID: 25649866

**Risk factors for GERD**

Am J Gastroenterol. 2015 Feb 10. doi: 10.1038/ajg.2015.18.

**Risk Factors on the Development of New-Onset Gastroesophageal Reflux Symptoms. A Population-Based Prospective Cohort Study: The HUNT Study.**

Hallan A<sup>1</sup>, Bomme M<sup>2</sup>, Hveem K<sup>3</sup>, Møller-Hansen J<sup>2</sup>, Ness-Jensen E<sup>4</sup>.

Author information

**Abstract**

**Objectives:**Gastroesophageal reflux disease (GERD) is a highly prevalent disorder. This study assessed the risk factors of new-onset gastroesophageal reflux symptoms (GERS).**Methods:**The study was based on the HUNT study, a prospective population-based cohort study conducted in 1995-1997 and 2006-2009 in Nord-Trøndelag County, Norway. All inhabitants from 20 years of age were invited. Risk factors of new-onset heartburn or acid regurgitation were examined using logistic regression, providing odds ratios (OR) and 95% confidence intervals (CI).**Results:**A total of 29,610 individuals were included (61% response rate).

Participants reporting no GERS at baseline and severe GERS at follow-up (new-onset GERS; n=510) were compared with participants reporting no complaints at both times (n=14,406). Increasing age (OR 1.01 per year, 95% CI 1.00-1.02) was positively associated, whereas male sex (OR 0.81, 95% CI 0.66-0.98) and higher education (OR 0.69, 95% CI 0.56-0.86) were negatively associated with new-onset GERS. Gain in body mass index (BMI) was dose-dependently associated with new-onset GERS (OR 1.30 per unit increase in BMI, 95% CI 1.25-1.35), irrespective of baseline BMI.

Previous and current tobacco smoking were associated with new-onset GERS (OR 1.37, 95% CI 1.07-1.76 and OR 1.29, 95% CI 1.00-1.67, respectively). Tobacco smoking cessation was associated with new-onset GERS among those with gain in BMI upon quitting (OR 2.03, 95% CI 1.31-3.16, with >3.5 BMI units increase).**Conclusions:**New-onset GERS were associated with increasing age, female sex, lower education, gain in BMI, and ever tobacco smoking. Tobacco smoking cessation was associated with new-onset GERS among those who gained weight upon quitting.

Am J Gastroenterol advance online publication, 10 February 2015; doi:10.1038/ajg.2015.18.

PMID: 25665934

**Abdominal pain****Guideline for the diagnostic pathway in patients with acute abdominal pain**

Digestive Surgery, 02/10/2015 Review Article Clinical Guideline  
Gans SL, et al.

The authors aimed at developing an evidence-based guideline for the diagnostic pathway of patients with abdominal pain of non-traumatic origin.

- Uniform terminology is needed in patients with acute abdominal pain to avoid difficulty in interpretation and ease comparison of findings between studies.
- The authors propose the use of the following definition for acute abdominal pain: pain of nontraumatic origin with a maximum duration of 5 days.
- Clinical diagnosis: Clinical evaluation is advised to differentiate between urgent and nonurgent causes.
- The diagnostic accuracy of clinical assessment is insufficient to identify the correct diagnosis but can discriminate between urgent and nonurgent causes.
- Patients suspected of nonurgent diagnoses can safely be reevaluated the next day.
- Based on current literature, no conclusions can be drawn on the differences in accuracy between residents and specialists.
- No conclusions can be drawn on the influence of a gynecological consultation.
- In patients suspected of an urgent condition, additional imaging is justified.
- CRP and WBC count alone are insufficient to discriminate urgent from nonurgent diagnoses.
- Diagnostic imaging: There is no place for conventional radiography in the work-up of patients with acute abdominal pain due to the lack of added value on top of clinical assessment.
- Computed tomography leads to the highest sensitivity and specificity in patients with acute abdominal pain.
- Positive predictive value of ultrasound is comparable with CT and therefore preferred as the first imaging modality due to the downsides of computed tomography; negative or inconclusive ultrasound is followed by CT.
- Based on current literature, no conclusions can be drawn on the added value of a diagnostic laparoscopy in the work-up of patients with acute abdominal pain.
- Antibiotic treatment should be started within the first hour after recognition of sepsis.
- Administration of opioids (analgesics) decreases the intensity of the pain and does not affect the accuracy of physical examination.

## IBS and nerves

Gastroenterology. 2015 Feb 2. pii: S0016-5085(15)00160-2. doi: 10.1053/j.gastro.2015.01.042.

**Nerve Fiber Outgrowth is Increased in the Intestinal Mucosa of Patients with Irritable Bowel Syndrome.**

Dothel G<sup>1</sup>, Barbaro MR<sup>1</sup>, Boudin H<sup>2</sup>, Vasina V<sup>1</sup>, Cremon C<sup>1</sup>, Gargano L<sup>1</sup>, Bellacosa L<sup>1</sup>, De Giorgio R<sup>1</sup>, Le Berre-Scoul C<sup>2</sup>, Aubert P<sup>2</sup>, Neunlist M<sup>2</sup>, De Ponti F<sup>1</sup>, Stanghellini V<sup>1</sup>, Barbara G<sup>3</sup>.  
Author information

## Abstract

**BACKGROUND & AIMS:**

Mediators released by the intestinal mucosa of patients with irritable bowel syndrome (IBS) affect the function of enteric and extrinsic sensory nerves, which can contribute to the development of symptoms. Little is known about the effects of mucosal mediators on intestinal neuroplasticity. We investigated how these mediators affect the phenotypes of colonic mucosa nerve fibers, neuron differentiation, and fiber outgrowth.

**METHODS:**

We analyzed mucosal biopsy samples collected from 101 patients with IBS and 23 asymptomatic healthy individuals (controls). We measured levels of neuronal specific enolase (NSE), growth-associated protein 43 (GAP43), nerve growth factor (NGF), and tyrosine kinase receptor A (NTRK1) by immunohistochemistry and ELISA. Primary rat enteric neurons and human SH-SY5Y cells were incubated with supernatants from the mucosal biopsies and analyzed by morphometric and PCR analyses.

**RESULTS:**

Compared with mucosal tissues of controls, mucosa from patients with IBS had a significant increase in the area of lamina propria occupied by NSE-positive (57.7% increase) and GAP43-positive fibers (56.1% increase) and staining density of NGF (89.3% increase) ( $P < .05$  for all). Levels of NGF protein were also increased in tissues from patients with IBS vs controls (18% increase;  $P = .16$ ) along with levels of NTRK1 (64% increase;  $P < .05$ ). Mucosal supernatants from tissues of patients with IBS induced higher levels of neuritogenesis in primary culture of enteric neurons, compared with controls, and more NGF-dependent neuronal sprouting in SH-SY5Y cells.

**CONCLUSIONS:**

Nerve fiber density and sprouting, as well as expression of NGF and NTRK1, are significantly increased in mucosal tissues of patients with IBS. Mucosal mediators participate to these neuroplastic changes.

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**KEYWORDS:** enteric nerves; growth-associated protein 43; mast cells; nerve growth factor  
PMID:25655556

### CERVICAL SPINE

Neck pain

Mayo Clin Proc. 2015 Feb;90(2):284-299. doi: 10.1016/j.mayocp.2014.09.008.

#### **Epidemiology, Diagnosis, and Treatment of Neck Pain.**

Cohen SP<sup>1</sup>.

Author information

#### **Abstract**

Neck pain is the fourth leading cause of disability, with an annual prevalence rate exceeding 30%. Most episodes of acute neck pain will resolve with or without treatment, but nearly 50% of individuals will continue to experience some degree of pain or frequent occurrences. History and physical examination can provide important clues as to whether the pain is neuropathic or mechanical and can also be used to identify "red flags" that may signify serious pathology, such as myelopathy, atlantoaxial subluxation, and metastases. Magnetic resonance imaging is characterized by a high prevalence of abnormal findings in asymptomatic individuals but should be considered for cases involving focal neurologic symptoms, pain refractory to conventional treatment, and when referring a patient for interventional treatment. Few clinical trials have evaluated treatments for neck pain.

Exercise treatment appears to be beneficial in patients with neck pain. There is some evidence to support muscle relaxants in acute neck pain associated with muscle spasm, conflicting evidence for epidural corticosteroid injections for radiculopathy, and weak positive evidence for cervical facet joint radiofrequency denervation. In patients with radiculopathy or myelopathy, surgery appears to be more effective than nonsurgical therapy in the short term but not in the long term for most people.

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PMID:25659245



## CRANIUM/TMJ

## Orofacial pain

Neurologist. 2015 Jan;19(2):56-60. doi: 10.1097/NRL.0b013e3182811968.

**Orofacial pain after invasive dental procedures: neuropathic pain in perspective.**

Spierings EL<sup>1</sup>, Dhadwal S.

Author information

Abstract

**BACKGROUND:**

The neurologist is very familiar with the painful neuropathies of the trunk and extremities but, generally, to a lesser extent with those of the head and face. Of the latter, the neurologist is particularly familiar with ophthalmic zoster and trigeminal neuralgia.

**REVIEW SUMMARY:**

This review deals with neuropathic orofacial pain: (1) to highlight its presentation; and (2) to contrast it with that of neuropathic pain elsewhere in the body, including the head, from which it seems to differ significantly. The reason for the difference is also discussed as well as its implications for the diagnosis of orofacial pain as neuropathic. In the cases of neuropathic orofacial pain presented, the pain followed invasive dental procedures, making it relatively homogenous in terms of its etiology. The cases are contrasted with those of cranial nonorofacial and of noncranial painful neuropathy.

**CONCLUSIONS:**

It is suggested that the presence of abnormal sensory responses to touch, in the sense of paresthesia, dysesthesia, or allodynia, is a prerequisite for the diagnosis of neuropathic pain, when other, motor or sensory, signs of nerve injury ordinarily guiding the diagnosis are lacking, as is often the case in the face.

PMID: 25607335

**Trigeminal neuralgia**

Acta Neurochir (Wien). 2015 Jan 22.

**Trigeminal neuralgia due to neurovascular conflicts from venous origin: an anatomical-surgical study (consecutive series of 124 operated cases).**

Dumot C<sup>1</sup>, Sindou M.  
Author information

## Abstract

**BACKGROUND:**

Veins as the source of trigeminal neuralgias (TN) lead to controversies. Only a few studies have specifically dealt with venous implication in neurovascular conflicts (NVC). The aim of this study was the anatomical-surgical description of the compressive veins found during microvascular decompression (MVD).

**METHODS:**

Patients retained were those in whom a vein was considered compressive, alone, or in association with an artery. The study defined the type of vein involved, its situation along, the location around the root, and management. For this study, denomination of veins in relation with the root was revisited.

**RESULTS:**

Of the 326 consecutive patients who underwent MVD from 2005 to 2013, 124 (38.0 %) had a venous conflict, alone in 29 (8.9 %), or in association with an artery in 95 (29.1 %). The compressive veins belonged to one of the two venous systems described: the superficial or the deep superior petrosal venous system (sSPVS or DSPVS). A vein from sSPVS was found compressive in 81 cases (59.6 %), for the major part it was the pontine affluent of the superior petrosal vein (48 cases). The conflict was situated at TREZ in 28.4 %, mid-cisternal portion in 50.6 %, and porus in 8.6 %. The DSPVS was found compressive in 55 cases (40.4 %), almost always a transverse vein at porus (51 cases). Decompression was coagulation-division of the conflicting vein in 36.8 % and simple cleavage in the other.

**CONCLUSIONS:**

The study shows the frequent implication of veins in NVC as the source of TN. NVC are not only at TREZ but also at mid-cisternal portion and porus of Meckel cave.

PMID:25604274

**HEADACHES**

Migraine susceptibility

Cephalalgia. 2015 Feb 9. pii: 0333102415570492.

**The association between candidate migraine susceptibility loci and severe migraine phenotype in a clinical sample.**

Esserlind AL<sup>1</sup>, Christensen AF<sup>1</sup>, Steinberg S<sup>2</sup>, Grarup N<sup>3</sup>, Pedersen O<sup>3</sup>, Hansen T<sup>4</sup>, Werge T<sup>5</sup>, Hansen TF<sup>5</sup>, Husemoen LL<sup>6</sup>, Linneberg A<sup>7</sup>, Budtz-Jorgensen E<sup>8</sup>, Westergaard ML<sup>1</sup>, Stefansson H<sup>2</sup>, Olesen J<sup>9</sup>.

Author information

Abstract

**INTRODUCTION:**

The objective of the study was to follow up and to test whether 12 previously identified migraine-associated single nucleotide polymorphisms were associated as risk factors and/or modifying factors for severe migraine traits in a Danish clinic-based population.

**METHODS:**

Semi-structured migraine interviews, blood sampling and genotyping were performed on 1806 unrelated migraineurs recruited from the Danish Headache Center. Genotyping was also performed on a control group of 6415 people with no history of migraine. Association analyses were carried out using logistic regression and odds ratios were calculated assuming an additive model for risk. The proxies for severe migraine traits (early onset of migraine; many lifetime attacks, prolonged migraine and tendency to chronification of migraine) were tested against the 12 single nucleotide polymorphisms and a combined genetic score in both a case-control and case-only logistic regression model.

**RESULTS:**

We successfully replicated five out of the 12 previously reported loci and confirmed the same direction of effects for all the 12 single nucleotide polymorphisms. In line with the recently published genome-wide association meta-analysis, the associations were significant for all migraine and migraine without aura but not for migraine with typical aura. Two single nucleotide polymorphisms (rs2274316 and rs11172113) conferred risk of many lifetime attacks in the case-control analysis. In the case-only analysis, only three single nucleotide polymorphisms showed nominal association with many lifetime attacks and prolonged migraine attacks.

**CONCLUSION:**

Our study supports previously reported findings on the association of several single nucleotide polymorphisms with migraine. It also suggests that the migraine susceptibility loci may be risk factors for severe migraine traits.

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**KEYWORDS:** Migraine; clinic-based sample; genetics; genome-wide association studies; replication; susceptibility loci

PMID:25667298

**Psychosocial adjustment**

Headache. 2015 Feb 6. doi: 10.1111/head.12510.

**Psychosocial Adjustment of Children With Migraine and Tension-Type Headache - A Nationwide Study.**

Arruda MA<sup>1</sup>, Arruda R, Guidetti V, Bigal ME.  
Author information

Abstract

**OBJECTIVE:**

To describe patterns of psychosocial adjustment and psychological attributes in preadolescent children as a function of headache status in univariate and adjusted analyses.

**METHODS:**

Target sample of children (n = 8599) was representative of Brazil by demographics. Parents were interviewed using validated headache questionnaires and the "Strengths and Difficulties Questionnaire," which measures behavior in 5 domains. One-year prevalence estimates of headaches were derived by demographics. Relative risk of abnormal Strengths and Difficulties Questionnaire scores were separately modeled in children with episodic migraine and episodic tension-type headache using logistic regression.

**RESULTS:**

Sample consisted of 5671 children (65.9% of the target sample), from 5 to 12 years old (49.3% girls). Prevalence estimates in children were 20.6% for "no headache," 9% for episodic migraine, and 12.8% for episodic tension-type headache. Abnormal scores in psychosocial adjustment were significantly more likely in children with episodic migraine, relative to children without headaches and children with episodic tension-type headache, and was significantly influenced by frequency of headache attacks, nausea, school performance, prenatal exposure to tobacco, as well as by phonophobia and photophobia.

**CONCLUSIONS:**

Children with migraine are at an increased risk of having impairment in psychosocial adjustment, and the factors associated with this impairment have been mapped. Future studies should address the directionality of the association and putative mechanisms to explain it.

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**KEYWORDS:** children; headache; migraine; psychiatric comorbidity; psychosocial adjustment; tension-type headache

PMID: 25659227

**Air pollution and weather**

Cephalalgia. 2015 Feb 4. pii: 0333102415570300.

**Ambient air pollution, weather and daily emergency department visits for headache.**

Vodanos A<sup>1</sup>, Novack V<sup>2</sup>, Zlotnik Y<sup>3</sup>, Ifergane G<sup>3</sup>.

Author information

Abstract

**BACKGROUND:**

Headache is a common condition, and a common complaint leading patients to emergency departments (ED). There have been a number of studies of the effect of environmental factors on headache, such as weather and air pollutants.

**METHODS:**

This retrospective cohort study included data on daily ED visits with a chief complaint of headache in Soroka University Medical Center (SUMC) during 2002-2012. Data on weather and air pollutants were obtained from monitor station in Be'er-Sheva. To estimate the short-term effects of air pollution and temperature on number of daily headache ED visits, we applied generalized linear mixed models (GLMM).

**RESULTS:**

A total of 22,021 ED visits were included in the analysis. An increase in 5°C in temperature was associated with an increase in ED visits, relative risk (RR) = 1.042, (95% CI 1.009; 1.076). RR for headache was associated with an increase in 10 units of nitrogen dioxide (NO<sub>2</sub>), RR = 1.110 (95% CI 1.057; 1.167), with a higher effect for older patients.

**DISCUSSION:**

The current findings give evidence of an association between air pollution, weather and ED visits for headache, especially for NO<sub>2</sub>. Short-term increases in air pollution exposure may trigger headache by increasing pulmonary and systemic inflammation, increasing blood coagulability or altering endothelial function.

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**KEYWORDS:** Dust exposure; air pollution; emergency department visit; headache

PMID:25653308

## CONCUSSIONS

## Boxers

Br J Sports Med. 2015 Jan 29. pii: bjsports-2014-093877. doi: 10.1136/bjsports-2014-093877.

**Repeated head trauma is associated with smaller thalamic volumes and slower processing speed: the Professional Fighters' Brain Health Study.**

Bernick C<sup>1</sup>, Banks SJ<sup>1</sup>, Shin W<sup>2</sup>, Obuchowski N<sup>3</sup>, Butler S<sup>3</sup>, Noback M<sup>1</sup>, Phillips M<sup>2</sup>, Lowe M<sup>2</sup>, Jones S<sup>2</sup>, Modic M<sup>2</sup>.

Author information

Abstract

**OBJECTIVES:**

Cumulative head trauma may alter brain structure and function. We explored the relationship between exposure variables, cognition and MRI brain structural measures in a cohort of professional combatants.

**METHODS:**

224 fighters (131 mixed martial arts fighters and 93 boxers) participating in the Professional Fighters Brain Health Study, a longitudinal cohort study of licensed professional combatants, were recruited, as were 22 controls. Each participant underwent computerised cognitive testing and volumetric brain MRI. Fighting history including years of fighting and fights per year was obtained from self-report and published records. Statistical analyses of the baseline evaluations were applied cross-sectionally to determine the relationship between fight exposure variables and volumes of the hippocampus, amygdala, thalamus, caudate, putamen. Moreover, the relationship between exposure and brain volumes with cognitive function was assessed.

**RESULTS:**

Increasing exposure to repetitive head trauma measured by number of professional fights, years of fighting, or a Fight Exposure Score (FES) was associated with lower brain volumes, particularly the thalamus and caudate. In addition, speed of processing decreased with decreased thalamic volumes and with increasing fight exposure. Higher scores on a FES used to reflect exposure to repetitive head trauma were associated with greater likelihood of having cognitive impairment.

**CONCLUSIONS:**

Greater exposure to repetitive head trauma is associated with lower brain volumes and lower processing speed in active professional fighters.

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**KEYWORDS:** Boxing/Kick Boxing; Concussion; Contact sports; Epidemiology; Neurology

PMID:25633832

**No benefit from strict bed rest**

Pediatrics. 2015 Feb;135(2):213-23. doi: 10.1542/peds.2014-0966. Epub 2015 Jan 5.

**Benefits of strict rest after acute concussion: a randomized controlled trial.**

Thomas DG<sup>1</sup>, Apps JN<sup>2</sup>, Hoffmann RG<sup>3</sup>, McCrea M<sup>4</sup>, Hammeke T<sup>2</sup>.  
Author information

Abstract

**OBJECTIVES:**

To determine if recommending strict rest improved concussion recovery and outcome after discharge from the pediatric emergency department (ED).

**METHODS:**

Patients aged 11 to 22 years presenting to a pediatric ED within 24 hours of concussion were recruited. Participants underwent neurocognitive, balance, and symptom assessment in the ED and were randomized to strict rest for 5 days versus usual care (1-2 days rest, followed by stepwise return to activity). Patients completed a diary used to record physical and mental activity level, calculate energy exertion, and record daily postconcussive symptoms. Neurocognitive and balance assessments were performed at 3 and 10 days postinjury. Sample size calculations were powered to detect clinically meaningful differences in postconcussive symptom, neurocognitive, and balance scores between treatment groups. Linear mixed modeling was used to detect contributions of group assignment to individual recovery trajectory.

**RESULTS:**

Ninety-nine patients were enrolled; 88 completed all study procedures (45 intervention, 43 control). Postdischarge, both groups reported a 20% decrease in energy exertion and physical activity levels. As expected, the intervention group reported less school and after-school attendance for days 2 to 5 postconcussion (3.8 vs 6.7 hours total,  $P < .05$ ). There was no clinically significant difference in neurocognitive or balance outcomes. However, the intervention group reported more daily postconcussive symptoms (total symptom score over 10 days, 187.9 vs 131.9,  $P < .03$ ) and slower symptom resolution.

**CONCLUSIONS:**

Recommending strict rest for adolescents immediately after concussion offered no added benefit over the usual care. Adolescents' symptom reporting was influenced by recommending strict rest.

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**KEYWORDS:** adolescent; brain injury; concussion; discharge instructions; rest

PMID: 25560444

## Vestibular involvement test

Clin J Sport Med. 2014 Jul 24.

### **Gaze Stabilization Test Asymmetry Score as an Indicator of Previous Concussion in a Cohort of Collegiate Football Players.**

Honaker JA1, Criter RE, Patterson JN, Jones SM.

#### **Abstract**

##### **OBJECTIVE:**

Vestibular dysfunction may lead to decreased visual acuity with head movements, which may impede athletic performance and result in injury. The purpose of this study was to test the hypothesis that athletes with history of concussion would have differences in gaze stabilization test (GST) as compared with those without a history of concussion.

##### **DESIGN:**

Cross-sectional, descriptive.

##### **SETTING:**

University Athletic Medicine Facility.

##### **PARTICIPANTS::**

Fifteen collegiate football players with a history of concussion, 25 collegiate football players without a history of concussion.

##### **INTERVENTION:**

Participants completed the dizziness handicap inventory (DHI), static visual acuity, perception time test, active yaw plane GST, stability evaluation test (SET), and a bedside oculomotor examination.

##### **MAIN OUTCOME MEASURES:**

Independent samples t test was used to compare GST, SET, and DHI scores per group, with Bonferroni-adjusted alpha at  $P < 0.01$ . Receiver operating characteristic curve analysis and area under the curve (AUC) were used to assess the clinical performance of the GST and SET.

##### **RESULTS:**

Athletes with previous concussion had a larger GST asymmetry score [mean (M) = 12.40, SD = 9.09] than those without concussion (M = 4.92, SD = 4.67;  $t(18.70) = -2.955$ ,  $P = 0.008$ , 95% CI, -12.79 to -2.18,  $d = -1.37$ ). Clinical performance of the GST (AUC = 0.77) was better than the SET (AUC = 0.61).

##### **CONCLUSIONS:**

Results suggest peripheral vestibular or vestibular-visual interaction deficits in collegiate athletes with a history of concussion. The results support further research on the use of GST for sport-related concussion evaluation and monitoring.

##### **CLINICAL RELEVANCE:**

Inclusion of objective vestibular tests in the concussion protocol may reveal the presence of peripheral vestibular or visual-vestibular deficits. Therefore, the GST may add an important perspective on the effects of concussion.



**Postural stability**

J Sci Med Sport. 2015 Jan;18(1):2-7. doi: 10.1016/j.jsams.2013.11.010. Epub 2013 Dec 12.

**Tracking postural stability of young concussion patients using dual-task interference.**

Dorman JC1, Valentine VD2, Munce TA3, Tjarks BJ4, Thompson PA5, Bergeron MF3.

**Author information****Abstract****OBJECTIVES:**

This study examined the diagnostic benefit of using dual-task interference balance testing in young concussion patients and the longitudinal changes in postural stability that occur relative to other standard clinical assessments of concussion injury.

**DESIGN:**

Longitudinal, case-control.

**METHODS:**

Eighteen patients (16.6 (1.6)y) diagnosed with a concussion provided 22 separate ratings to characterize the severity of their current concussion-related symptoms and were evaluated for postural stability at each of four clinical visits. Twenty-six injury-free adolescents (17 (2.8)y) performed balance testing on two occasions, separated by 1 week.

**RESULTS:**

There was a progressive decrease in self-reported symptoms from visit 1 to visit 4 ( $P < 0.0001-0.001$ ). A similar improvement occurred in postural stability, indicated by 95% ellipse area and velocity. However, the differences in ellipse area and velocity were significant only between visit 1 and the rest of the visits as a whole ( $P < 0.0001-0.05$ ). There was a significant difference between concussion patients and healthy, injury-free participants in ellipse area and velocity during visit 1. A group difference was also observed in ellipse area on visit 2, but only during the two balance tests that involved a concomitant secondary cognitive task.

**CONCLUSIONS:**

Improvements in postural stability coincide with reductions in reported symptoms, though apparent recovery of these selected measures of postural stability seemingly occurs sooner. Because of the distinguishing time course of recovery indicated by dual-task interference balance testing, this type of balance testing assessment may be particularly valuable in evaluating integrated functional impairment and recovery in young concussion patients.

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**SHOULDER GIRDLE****Lower trap in scapular dyskinesis**

Man Ther. 2015 Jan 13. pii: S1356-689X(15)00003-X. doi: 10.1016/j.math.2015.01.002.

**Muscle thickness measurements of the lower trapezius with rehabilitative ultrasound imaging are confounded by scapular dyskinesis.**

Seitz AL<sup>1</sup>, Baxter CJ<sup>2</sup>, Benya K<sup>3</sup>.

Author information

**Abstract**

Alterations in scapular muscle activity have been theorized to contribute to abnormal scapular motion and shoulder pain, but pose challenges to quantify in the clinic. Rehabilitative Ultrasound Imaging (RUSI) has proved useful identifying dysfunction of lumbar regional stabilizing muscle activity, specifically contractile behavior. Although, recent examinations of scapular stabilizing trapezius muscle function using RUSI did not detect alterations individuals with shoulder pain or differences in muscle thickness between varying external loads in asymptomatic individuals, a potential confounder to prior results, scapular dyskinesis has not been controlled. It is unknown if dyskinesis alters scapular muscle thickness during activation measured with RUSI. Thus, the purpose of this study was to compare change in scapular muscle thickness between individuals with and without scapular dyskinesis. Thirty-nine asymptomatic adults with (n = 19) and without (n = 20) scapular dyskinesis, defined with a reliable and validated method, participated. Two separate ultrasound images of the serratus anterior (SA) and lower trapezius (LT) were captured under two randomized conditions, rest and isometric contraction against gravity, and saved for blinded measurement. Change in thickness with contraction was calculated and expressed as a percentage.

The dyskinesis group demonstrated a greater increase (p = 0.005) in LT thickness with the isometric contraction than the group without (mean difference = 31.6%; 95%CI = 10.3, 53.0). No differences in SA or resting thickness of either muscle were found between groups. The presence of scapular dyskinesis alters thickness changes of the lower trapezius during activation. Furthermore, potential underlying reasons beyond muscle contractile behavior must be considered.

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**KEYWORDS:** Scapular muscle; Scapululothoracic; Serratus anterior; Shoulder

PMID: 25657107

## GLENOHUMERAL/SHOULDER

## ROTATOR CUFF

## Supraspinatus tendon

Knee Surg Sports Traumatol Arthrosc. 2015 Feb;23(2):408-14. doi: 10.1007/s00167-013-2475-2. Epub 2013 Mar 23.

**Partial supraspinatus tears are associated with tendon lengthening.**

Farshad-Amacker NA<sup>1</sup>, Buck FM, Farshad M, Pfirrmann CW, Gerber C.  
Author information

Abstract

**PURPOSE:**

Tendon tear may result in muscular retraction with the loss of contractile amplitude and strength of the rotator cuff muscles. Currently, neither a validated method of measuring supraspinatus tendon length nor normal values are known. It was therefore the purpose of this study to measure the normal length of the supraspinatus tendon and to determine whether partial tears are associated with changes in tendon length.

**METHODS:**

MR examinations of 49 asymptomatic volunteers and 37 patients with arthroscopically proven, isolated partial tears of the supraspinatus tendon were compared. The ratio of the extramuscular tendon length to the distance between the footprint and the glenoid surface was calculated (TL/FG ratio). Tendon length measurements were taken by two independent readers at the bursal and articular surfaces at the anterior, the central and the posterior parts of the tendon.

**RESULTS:**

TL/FG ratios at the bursal surface of tendons with partial tears were significantly higher than those in the control group [anterior:  $0.78 \pm 0.20$  vs.  $0.66 \pm 0.15$  ( $p < 0.05$ ); central:  $0.61 \pm 0.13$  vs.  $0.52 \pm 0.10$  ( $p < 0.05$ ); posterior:  $0.57 \pm 0.15$  vs.  $0.52 \pm 0.10$  ( $p < 0.05$ )]. At the articular surface, differences were significant only anteriorly [ $0.60 \pm 0.13$ , vs.  $0.54 \pm 0.10$  ( $p < 0.05$ )]. A cut-off TL/FG ratio of 0.63 for measurements at the bursal surface in the center of the tendon achieved a sensitivity of 46 % and a specificity of 92 % for the identification of partial cuff tearing.

**CONCLUSION:**

A reproducible method for measurement of extramuscular supraspinatus tendon length is described. Partial tearing of the supraspinatus tendon is associated with significant tendon lengthening, suggesting failure in continuity, and this is most reliably measured on the bursal surface.

**LEVEL OF EVIDENCE: III.**

PMID: 23525764

**HIP****Hip and groin pain**

Br J Sports Med. 2015 Jan 29. pii: bjsports-2014-094256. doi: 10.1136/bjsports-2014-094256.

**Study quality on groin injury management remains low: a systematic review on treatment of groin pain in athletes.**

Serner A<sup>1</sup>, van Eijck CH<sup>2</sup>, Beumer BR<sup>2</sup>, Hölmich P<sup>1</sup>, Weir A<sup>3</sup>, de Vos RJ<sup>4</sup>.  
Author information

Abstract

**BACKGROUND:**

Groin pain in athletes is frequent and many different treatment options have been proposed. The current level of evidence for the efficacy of these treatments is unknown.

**OBJECTIVE:**

Systematically review the literature on the efficacy of treatments for groin pain in athletes.

**METHODS:**

Nine medical databases were searched in May 2014. Inclusion criteria: treatment studies in athletes with groin pain; randomised controlled trials, controlled clinical trials or case series; n>10; outcome measures describing number of recovered athletes, patient satisfaction, pain scores or functional outcome scores. One author screened search results, and two authors independently assessed study quality. A best evidence synthesis was performed. Relationships between quality score and outcomes were evaluated. Review registration number CRD42014010262.

**RESULTS:**

72 studies were included for quality analysis. Four studies were high quality. There is moderate evidence that, for adductor-related groin pain, active exercises compared with passive treatments improve success, multimodal treatment with a manual therapy technique shortens the time to return to sports compared with active exercises and adductor tenotomy improves treatment success over time. There is moderate evidence that for athletes with sportsman's hernia, surgery results in better treatment success than conservative treatment. There was a moderate and inverse correlation between study quality and treatment success ( $p<0.001$ ,  $r=-0.41$ ), but not between study quality and publication year ( $p=0.09$ ,  $r=0.20$ ).

**CONCLUSIONS:**

Only 6% of publications were high quality. Low-quality studies showed significantly higher treatment success and study quality has not improved since 1985. There is moderate evidence for the efficacy of conservative treatment (active exercises and multimodal treatments) and for surgery in patients with adductor-related groin pain. There is moderate evidence for efficacy of surgical treatment in sportsman's hernia.

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**KEYWORDS:** Effectiveness; Groin; Methodological; Orthopaedics; Overuse

PMID: 25633830

### IMPINGEMENT

#### Evaluation of impingement

Knee Surg Sports Traumatol Arthrosc. 2015 Jan 25.

#### **Femoro-acetabular impingement clinical research: is a composite outcome the answer?**

Ayeni OR<sup>1</sup>, Sansone M, de Sa D, Simunovic N, Bedi A, Kelly BT, Farrokhyar F, Karlsson J.  
Author information

#### Abstract

Femoro-acetabular impingement (FAI) is increasingly recognized as an important cause of hip pain in the young adult. However, the methods of evaluating the efficacy of surgical intervention are often not validated and/or inconsistently reported. Important clinical, gait, radiographic and biomarker outcomes are discussed.

This article (1) presents the rationale for considering a composite outcome for FAI patients; (2) examines a variety of important end points currently used to evaluate FAI surgery; (3) discusses a strategy to generate a composite outcome by combining these end points; and (4) highlights the challenges and current areas of controversy that such an approach to evaluating symptomatic FAI patients may present.

PMID: 25618276

### KNEE

#### KNEE/ACL

#### ACL injury risk

Scand J Med Sci Sports. 2014 Dec 30. doi: 10.1111/sms.12355.

#### **ACL injury risk in elite female youth soccer: Changes in neuromuscular control of the knee following soccer-specific fatigue.**

De Ste Croix MB1, Priestley AM, Lloyd RS, Oliver JL.

#### **Author information**

#### **Abstract**

Fatigue is known to influence dynamic knee joint stability from a neuromuscular perspective, and electromechanical delay (EMD) plays an important role as the feedback activation mechanism that stabilizes the joint. The aim of this study was to investigate the influence of soccer-specific fatigue on EMD in U13-, U15-, and U17-year-old female soccer players. Thirty-six youth soccer players performed eccentric actions of the hamstrings in a prone position at 60, 120, and 180°/s before and after a soccer-specific fatigue trial.

Surface electromyography was used to determine EMD from the semitendinosus, biceps femoris and gastrocnemius. A time × age × muscle × velocity repeated measures analysis of variance was used to explore the influence of fatigue on EMD. A significant main effect for time ( $P = 0.001$ ) indicated that EMD was significantly longer post- compared with pre-fatigue (58.4% increase).

A significant time × group interaction effect ( $P = 0.046$ ) indicated EMD was significantly longer in the U13 age group compared with the U15 ( $P = 0.011$ ) and U17 ( $P = 0.021$ ) groups and greater post-fatigue. Soccer-specific fatigue compromised neuromuscular feedback mechanisms and the age-related effects may represent a more compliant muscle-tendon system in younger compared with older girls, increasing risk of injury.

**PATELLA****Lateral release and patella instability**

Knee Surg Sports Traumatol Arthrosc. 2015 Jan 25.

**Iatrogenic medial patellar instability following lateral retinacular release of the knee joint.**

Song GY<sup>1</sup>, Hong L, Zhang H, Zhang J, Li Y, Feng H.

Author information

Abstract

**PURPOSE:**

Iatrogenic medial patellar instability (IMPI) is a disabling but easily missed condition that is most often seen as a late complication of lateral retinacular release (LRR) procedures. The purposes of this study were (1) to summarize the available diagnostic methods and (2) to explore the contributing factors of IMPI following LRR procedures.

**METHODS:**

The MEDLINE, PubMed, EMBASE and Cochrane Library databases were searched for studies including diagnosed IMPI cases following LRR procedures. All patients were first divided into IMPI group and non-IMPI group based on the diagnostic methods of IMPI collected from studies. Univariate analysis was performed by comparing the two groups with regard to individual patient data (age at initial LRR, gender) and surgical details (type, releasing scope, combined surgeries and indication) of LRR procedures. Multivariate logistic regression was carried out to identify independent contributing factors for IMPI and to calculate odds ratios (ORs).

**RESULTS:**

Eight studies with 274 patients (300 knees) were finally included. Of those, 161 patients (171 knees, 57.0 %) had IMPI and 113 patients (129 knees, 43.0 %) had no IMPI. Univariate analysis revealed a statistically significant difference between both groups for releasing scope ( $P_1 < 0.001$ ) and indication of LRR procedures ( $P_2 < 0.001$ ), with releasing lateral retinaculum (LR) + vastus lateralis (VL) tendon and absence of tight LR during the initial LRR procedures being more common in patients with IMPI. The independent contributing factors for IMPI identified in the multivariate logistic regression analysis were releasing LR + VL ( $OR_1 = 16.49$ ) and absence of tight LR ( $OR_2 = 14.37$ ).

**CONCLUSIONS:**

The IMPI was more common in patient with an over-released LRR and patient who was absent of tight LR during the initial LRR procedures. Aggressive surgical corrections and inappropriate indications of initial LRR were two contributing factors for the late complications of IMPI. This study suggests that the IMPI may occur as a major complication of LRR, especially when the VL tendon is extensively released or when there is no confirmative clinical evidence of a tight LR preoperatively.

**LEVEL OF EVIDENCE: IV.**

PMID: 25618277

### LE angles

#### **Does anterior knee pain severity and function relate to the frontal plane projection angle and trunk and hip strength in women with patellofemoral pain**

Journal of Bodywork & Movement Therapies , 02/09/2015

Almeida GPL, et al.

– The aim of the present study was to determine the relationship between knee pain severity and function with the frontal plane projection angle (FPPA) and trunk and hip peak torque (PT) in women with patellofemoral pain (PFPS). Increase in FPPA was associated with greater KPS, and the lowest PT of lateral core stability, hip abductors, and extensors was associated with lower function in women with PFPS.

#### **Methods**

- Twenty-two women with PFPS were assessed.
- Knee pain severity (KPS) was assessed with an 11-point visual analog scale and function with an Anterior Knee Pain Scale.

#### **Results**

- The FPPA was recorded with a digital camera.
- PT of extensors, abductors, and the lateral rotators of hip and lateral core stability were measured with a handheld dynamometer.
- FPPA was the only predictor for the KPS.
- Regarding predictors of function, PT of lateral core stability and the extensor and abductor of the hip explained 41.4% of the function.



**OSTEOARTHRITIS/KNEE****High impact exercise improves arthritis**

Med Sci Sports Exerc. 2015 Feb 9.

**Effect of Exercise on Patellar Cartilage in Women with Mild Knee Osteoarthritis.**

Koli J<sup>1</sup>, Multanen J, Kujala UM, Häkkinen A, Nieminen MT, Kautiainen H, Lammentausta E, Jämsä T, Ahola R, Selänne H, Kiviranta I, Heinonen A.

Author information

Abstract

**PURPOSE:**

To investigate the effects of exercise on patellar cartilage using T2 relaxation time mapping of MRI in postmenopausal women with mild patellofemoral joint osteoarthritis (OA).

**METHODS:**

Eighty postmenopausal women (mean age: 58 y (SD 4.2)) with mild knee osteoarthritis were randomized to either a supervised progressive impact exercise program three times a week for 12 months (n = 40) or to a non-intervention control group (n = 40). The biochemical properties of cartilage were estimated using T2 relaxation time mapping, a parameter sensitive to collagen integrity, collagen orientation and tissue hydration. Leg muscle strength and power, aerobic capacity and self-rated assessment by the Knee Injury and Osteoarthritis Outcome Score (KOOS) were also measured.

**RESULTS:**

Post intervention the full-thickness patellar cartilage T2 values had medium size effect (d= 0.59; 95% CI: 0.16 to 0.97, p=0.018), the change difference was 7% greater in the exercise group compared to the control group. In the deep half of tissue, the significant exercise effect was in medium size (d= 0.56; 95% CI: 0.13 to 0.99, p=0.013), the change difference was 8% greater in the exercise group compared to the controls. Also, significant medium size T2 effects were found in the total lateral segment, lateral deep and lateral superficial zone in favor of the exercise group. Extension force increased by 11% (d=0.63, p=0.006) more and maximal aerobic capacity by 4% (d=0.55, p=0.028) more in the exercise group than controls. No changes in KOOS emerged between the groups.

**CONCLUSIONS:**

Progressively implemented high-impact and intensive exercise created enough stimuli and had favorable effects both on patellar cartilage quality and physical function in postmenopausal women with mild knee OA.

PMID: 25668399

**OA and power in stair climbing**

Phys Ther. 2015 Feb 5.

**Knee Extensor Power Relates to Mobility Performance in People With Knee Osteoarthritis: Cross-Sectional Analysis.**

Accettura AJ<sup>1</sup>, Brenneman EC<sup>2</sup>, Stratford PW<sup>3</sup>, Maly MR<sup>4</sup>.

Author information

Abstract

**BACKGROUND:**

Quadriceps strengthening is a common rehabilitation exercise for knee osteoarthritis (OA). More information is required to determine whether targeting muscle power is a useful adjunct to strengthening for people with knee OA.

**OBJECTIVE:**

To identify the predictive ability of knee extensor strength and knee extensor power in the performance of physical tasks in adults with knee OA.

**DESIGN:**

A cross-sectional design.

**METHODS:**

Fifty-five participants with clinical knee OA were included (43 women; mean 60.9 ± 6.9 years). Dependent variables included timed stair ascent, timed stair descent, and the six minute walk test (6MWT). Independent variables included peak knee extensor strength and mean peak knee extensor power. Covariates were age, body mass index, and self-efficacy. Multiple regression analyses were run for each dependent variable with just covariates, then a second model including strength and a third model including power. R-squared values were compared between models.

**RESULTS:**

Power explained greater variance than strength in all models. Over and above the covariates, power explained an additional 6% of the variance in the 6MWT, increasing the r-squared value from 0.33 to 0.39 (p=0.022); 8% in the stair ascent test, increasing the r-squared value from 0.52 to 0.60 (p=0.002); and 3% in the stair descent test, increasing the r-squared value from 0.44 to 0.47 (p=0.039).

**LIMITATIONS:**

The sample demonstrated very good mobility and muscle function scores and may not be indicative of those with severe knee OA.

**CONCLUSIONS:**

In adults with knee OA, knee extensor power was a stronger determinant of walking and stair performance when compared to knee extensor strength. Clinicians should consider these results when advising patients on exercise to maintain or improve mobility.

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PMID: 25655881

## FOOT AND ANKLE

### SHOES/ORTHOTICS

#### MS pain and shoes

Arthritis Care Res (Hoboken). 2015 Jan 20. doi: 10.1002/acr.22548.

#### **Footwear experiences of people with chronic musculoskeletal diseases.**

Hendry GJ<sup>1</sup>, Brenton-Rule A, Barr G, Rome K.

Author information

#### **Abstract**

**Objective:** Foot pain and deformities are frequently reported by people with chronic musculoskeletal diseases, but only limited research has been conducted to explore the key issues concerning footwear difficulties in this population. The aim of this study was to explore, identify and describe the main issues surrounding the footwear experiences of people with chronic musculoskeletal diseases. **Methods:** A qualitative manifest content analysis of open-ended survey responses concerning footwear experiences was conducted from a national footwear survey of people with chronic musculoskeletal diseases in New Zealand. Eighty-five respondents submitted usable responses. Specific statements in the text were identified as 'units of analysis' prior to coding and organisation of these units into emerging mutually-exclusive categories.

Content analysis was independently undertaken by three researchers and final categories and coding was achieved through consensus. Frequencies of assigned units of analysis were calculated in order to obtain a quantitative description for each category. **Results:** Four categories encompassing a total of nine subcategories related to the footwear experiences of respondents emerged from the qualitative data content analysis including: 1) difficulties in finding appropriate footwear; 2) dissatisfaction with therapeutic footwear provision and foot care access; 3) high costs of footwear, foot care and self-care; and 4) satisfaction with therapeutic footwear and foot care.

**Conclusion:** Key categories describing the important issues surrounding the footwear experiences of respondents with chronic musculoskeletal diseases were identified which may provide important targets for improving footwear and foot care services, and self-management strategies. This article is protected by copyright. All rights reserved.

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PMID: 25604616

**HALLUX VALGUS****Success of surgery**

Bone Joint J. 2015 Feb;97-B(2):208-14. doi: 10.1302/0301-620X.97B2.34891.

**Surgery for the correction of hallux valgus: Minimum five-year results with a validated patient-reported outcome tool and regression analysis.**

Chong A<sup>1</sup>, Nazarian N<sup>1</sup>, Chandrananth J<sup>1</sup>, Tacey M<sup>2</sup>, Shepherd D<sup>1</sup>, Tran P<sup>1</sup>.  
Author information

**Abstract**

This study sought to determine the medium-term patient-reported and radiographic outcomes in patients undergoing surgery for hallux valgus. A total of 118 patients (162 feet) underwent surgery for hallux valgus between January 2008 and June 2009. The Manchester-Oxford Foot Questionnaire (MOXFQ), a validated tool for the assessment of outcome after surgery for hallux valgus, was used and patient satisfaction was sought. The medical records and radiographs were reviewed retrospectively. At a mean of 5.2 years (4.7 to 6.0) post-operatively, the median combined MOXFQ score was 7.8 (IQR:0 to 32.8). The median domain scores for pain, walking/standing, and social interaction were 10 (IQR: 0 to 45), 0 (IQR: 0 to 32.1) and 6.3 (IQR: 0 to 25) respectively.

A total of 119 procedures (73.9%, in 90 patients) were reported as satisfactory but only 53 feet (32.7%, in 43 patients) were completely asymptomatic. The mean (SD) correction of hallux valgus, intermetatarsal, and distal metatarsal articular angles was 18.5° (8.8°), 5.7° (3.3°), and 16.6° (8.8°), respectively. Multivariable regression analysis identified that an American Association of Anesthesiologists grade of >1 (Incident Rate Ratio (IRR) = 1.67, p-value = 0.011) and recurrent deformity (IRR = 1.77, p-value = 0.003) were associated with significantly worse MOXFQ scores.

No correlation was found between the severity of deformity, the type, or degree of surgical correction and the outcome. When using a validated outcome score for the assessment of outcome after surgery for hallux valgus, the long-term results are worse than expected when compared with the short- and mid-term outcomes, with 25.9% of patients dissatisfied at a mean follow-up of 5.2 years. Cite this article: Bone Joint J 2015;97-B:208-14.

©2015 The British Editorial Society of Bone & Joint Surgery.

**KEYWORDS:** Bunion; Hallux Valgus; Manchester-Oxford Foot Questionnaire (MOXFQ); Outcomes; Surgery

PMID: 25628284

## STM

## Dry needling and shoulder

J Manipulative Physiol Ther. 2015 Feb 7. pii: S0161-4754(14)00272-3. doi: 10.1016/j.jmpt.2014.11.007.

**Inclusion of Trigger Point Dry Needling in a Multimodal Physical Therapy Program for Postoperative Shoulder Pain: A Randomized Clinical Trial.**

Arias-Buría JL<sup>1</sup>, Valero-Alcaide R<sup>2</sup>, Cleland JA<sup>3</sup>, Salom-Moreno J<sup>4</sup>, Ortega-Santiago R<sup>4</sup>, Atín-Arratibel MA<sup>2</sup>, Fernández-de-Las-Peñas C<sup>5</sup>.

Author information

Abstract

**OBJECTIVE:**

The purpose of this study was to evaluate the effects of including 1 session of trigger point dry needling (TrP-DN) into a multimodal physiotherapy treatment on pain and function in postoperative shoulder pain.

**METHODS:**

Twenty patients (5 male; 15 female; age,  $58 \pm 12$  years) with postoperative shoulder pain after either open reduction and internal fixation with Proximal Humeral Internal Locking System plate or rotator cuff tear repair were randomly divided into 2 groups: physiotherapy group (n = 10) who received best evidence physical therapy interventions and a physical therapy plus TrP-DN group (n = 10) who received the same intervention plus a single session of TrP-DN targeted at active TrPs. The Constant-Murley score was used to determine pain, activities of daily living, range of motion, and strength, which was captured at baseline and 1 week after by an assessor blinded to group assignment **RESULTS:** Analysis of variance showed that subjects receiving TrP-DN plus physical therapy exhibited greater improvement in the Constant-Murley total score ( $P < .001$ ) and also activities of daily living ( $P < .001$ ) and strength ( $P = .019$ ) subscales than those receiving physical therapy alone. Between-group effect sizes were large in favor of the TrP-DN group ( $0.97 < \text{SMD} < 1.45$ ). Both groups experienced similar improvements in pain ( $P < .001$ ) and range of motion ( $P < .001$ ).

**CONCLUSIONS:**

Our results suggest that including a single session of TrP-DN in the first week of a multimodal physical therapy approach may assist with faster increases in function in individuals with postoperative shoulder pain.

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**KEYWORDS:** Fracture; Rehabilitation; Shoulder Pain; Trigger Point

PMID: 25666690

**Trigger points postmeniscectomy**

Clin J Pain. 2015 Mar;31(3):265-72. doi: 10.1097/AJP.000000000000109.

**Trigger points and pressure pain hypersensitivity in people with postmeniscectomy pain.**

Torres-Chica B<sup>1</sup>, Núñez-Samper-Pizarroso C, Ortega-Santiago R, Cleland JA, Salom-Moreno J, Laguarda-Val S, Fernández-de-Las-Peñas C.

Author information

Abstract

**OBJECTIVES:**

The objectives of this study are (1) to assess the presence of myofascial trigger points (TrPs) and widespread pressure hyperalgesia; and (2) to assess the relationship between the presence of active TrPs, pain intensity, and widespread pressure hypersensitivity in individuals with postmeniscectomy pain.

**METHODS:**

Thirty-three patients with postmeniscectomy pain, 46 to 60 years of age, and 33 matched controls participated. TrPs were explored bilaterally within the tensor fasciae latae, rectus femoris, vastus lateralis, vastus medialis, adductor magnus, adductor longus, semitendinosus, biceps femoris, and gastrocnemius muscles in a blinded manner. TrPs were considered active if the referred pain reproduced knee symptoms. Pressure pain thresholds (PPT) were also assessed bilaterally over the vastus medialis, vastus lateralis, patellar tendon, second metacarpal, and tibialis anterior. Pain was collected with a numerical pain rate scale (0 to 10).

**RESULTS:**

Patients with postmeniscectomy pain showed a greater ( $P<0.001$ ) number of active TrPs (mean:  $2\pm 1$ ) and a similar number ( $P=0.611$ ) of latent TrPs (mean:  $4\pm 4$ ) than pain-free controls (mean latent TrP:  $4\pm 1$ ). A greater number of active TrPs was associated with higher pain intensity ( $r=0.352$ ;  $P=0.045$ ). Patients also exhibited reduced PPT over the affected vastus medialis and patellar tendon ( $P<0.05$ ) and bilaterally over the tibialis anterior muscle ( $P=0.001$ ). A greater the number of active muscle TrPs was also associated with widespread pressure pain hyperalgesia.

**CONCLUSIONS:**

The referred pain elicited by active TrPs reproduced knee symptoms in patients with postmeniscectomy pain. Patients also showed localized reduction of PPT. The number of TrPs was associated with the intensity of pain and pressure hyperalgesia. Our findings suggest the presence of peripheral sensitization in patients with postmeniscectomy pain could be associated with the presence of active TrPs.

PMID: 24762866

## ATHLETICS

**Blood pressure in athletes**

Br J Sports Med. 2015 Jan 28. pii: bjsports-2014-093976. doi: 10.1136/bjsports-2014-093976.

**Blood pressure and hypertension in athletes: a systematic review.**

Berge HM<sup>1</sup>, Isern CB<sup>2</sup>, Berge E<sup>3</sup>.  
Author information

## Abstract

**OBJECTIVE:**

Hypertension is reported to be the most prevalent risk factor for cardiovascular disease in elite athletes. We aimed to review blood pressure (BP) and prevalence of hypertension in different elite athletes, and study whether there was an association between high BP and left ventricular hypertrophy (LVH).

**METHODS:**

A systematic review of studies reporting BP in athletes using search strategies developed for PubMed and EMBASE, including only studies with  $\geq 100$  participants. We collected data on BP, prevalence of hypertension, LVH and methods of BP measurement.

**RESULTS:**

Of 3723 records identified, 51 met the inclusion criteria. These included men and women (n=138 390), aged mostly between 18 and 40 years, from varied sports disciplines. Mean systolic BP varied from 109 $\pm$ 11 to 138 $\pm$ 7 mm Hg and mean diastolic BP from 57 $\pm$ 12 to 92 $\pm$ 10 mm Hg. Strength-trained athletes had higher BP than endurance-trained athletes (131.3 $\pm$ 5.3/77.3 $\pm$ 1.4 vs 118.6 $\pm$ 2.8/71.8 $\pm$ 1.2 mm Hg, p<0.05), and there was a trend towards a higher BP in athletes training  $\geq 10$  h compared with others (121.8 $\pm$ 3.8/73.8 $\pm$ 2.5 vs 117.6 $\pm$ 3.3/66.8 $\pm$ 6.9, p=0.058), but overall there was no significant difference in BP between athletes and controls. The prevalence of hypertension varied from 0% to 83%. Some studies showed an association between high BP and LVH. Measurement methods were poorly standardised.

**CONCLUSIONS:**

BP and prevalence of hypertension in athletes varied considerably partly because of variations in methodology, but type and intensity of training may contribute towards higher BP. High BP may be associated with LVH.

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**KEYWORDS:** Athletics; Cardiology; Cardiovascular

PMID: 25631543

**Sleep disturbance and performance**

J Sci Med Sport. 2015 Jan;18(1):13-8. doi: 10.1016/j.jsams.2014.02.007. Epub 2014 Feb 13.

**Understanding sleep disturbance in athletes prior to important competitions.**

Juliff LE1, Halson SL2, Peiffer JJ3.

**Author information****Abstract****OBJECTIVES:**

Anecdotally many athletes report worse sleep in the nights prior to important competitions. Despite sleep being acknowledged as an important factor for optimal athletic performance and overall health, little is understood about athlete sleep around competition. The aims of this study were to identify sleep complaints of athletes prior to competitions and determine whether complaints were confined to competition periods.

**DESIGN:**

Cross-sectional study.

**METHODS:**

A sample of 283 elite Australian athletes (129 male, 157 female, age 24±5 y) completed two questionnaires; Competitive Sport and Sleep questionnaire and the Pittsburgh Sleep Quality Index.

**RESULTS:**

64.0% of athletes indicated worse sleep on at least one occasion in the nights prior to an important competition over the past 12 months. The main sleep problem specified by athletes was problems falling asleep (82.1%) with the main reasons responsible for poor sleep indicated as thoughts about the competition (83.5%) and nervousness (43.8%). Overall 59.1% of team sport athletes reported having no strategy to overcome poor sleep compared with individual athletes (32.7%,  $p=0.002$ ) who utilised relaxation and reading as strategies. Individual sport athletes had increased likelihood of poor sleep as they aged. The poor sleep reported by athletes prior to competition was situational rather than a global sleep problem.

**CONCLUSION:**

Poor sleep is common prior to major competitions in Australian athletes, yet most athletes are unaware of strategies to overcome the poor sleep experienced. It is essential coaches and scientists monitor and educate both individual and team sport athletes to facilitate sleep prior to important competitions.



## RUNNING

## Training Hypoxic

Med Sci Sports Exerc. 2015 Feb 9.

**"Live High-Train Low and High" Hypoxic Training Improves Team-Sport Performance.**

Brocherie F<sup>1</sup>, Millet GP, Hauser A, Steiner T, Rysman J, Wehrin JP, Girard O.  
Author information

Abstract

**PURPOSE:**

To investigate physical performance and hematological changes in 32 elite male team-sport players after 14 days of 'live high-train low' (LHTL) in normobaric hypoxia ( $\geq 14$  h.day at 2800-3000 m) combined with repeated-sprint training (6 sessions of 4 sets of 5 x 5-s sprints with 25 s of passive recovery) either in normobaric hypoxia at 3000 m (LHTL+RSH, namely LHTLH; n = 11) or in normoxia (LHTL+RSN, namely LHTL; n = 12) compared to controlled 'live low-train low' (LLTL; n = 9).

**METHODS:**

Prior to (Pre-), immediately (Post-1) and 3 weeks (Post-2) after the intervention, hemoglobin mass (Hbmass) was measured in duplicate (optimized carbon monoxide rebreathing method) and vertical jump, repeated-sprint (8 x 20 m - 20 s recovery) and Yo-Yo Intermittent Recovery level 2 (YYIR2) performances were tested.

**RESULTS:**

Both hypoxic groups increased similarly Hbmass at Post-1 and Post-2 in reference to Pre- (LHTLH: +4.0%,  $P < 0.001$  and +2.7%,  $P < 0.01$ ; LHTL: +3.0% and +3.0%, both  $P < 0.001$ ), while no change occurred in LLTL. Compared to Pre-, YYIR2 performance increased by ~21% at Post-1 ( $P < 0.01$ ) and by ~45% at Post-2 ( $P < 0.001$ ) with no difference between the two intervention groups (vs. no change in LLTL). From Pre- to Post-1 cumulated sprint time decreased in LHTLH (-3.6%,  $P < 0.001$ ) and in LHTL (-1.9%,  $P < 0.01$ ), but not in LLTL (-0.7%), and remained significantly reduced at Post-2 (-3.5%  $P < 0.001$ ) in LHTLH only. Vertical jump performance did not change.

**CONCLUSION:**

'Live high-train low and high' hypoxic training interspersed with repeated sprints in hypoxia for 14 days (in-season) increases Hbmass, YYIR2 performance and repeated-sprint ability of elite field team-sport players with the benefits lasting for at least three weeks post-intervention.

PMID:25668402

Aging mechanics

ed Sci Sports Exerc. 2015 Feb 9.

### **Running Mechanics and Variability with Aging.**

Silvernail JF<sup>1</sup>, Boyer K, Rohr E, Brüggemann GP, Hamill J.  
Author information

#### Abstract

#### **INTRODUCTION:**

As the elderly population continues to grow in the US, issues related to the maintenance of health become increasingly important. Physical activity has positive benefits for healthy aging. Running, a popular form of exercise is associated with the risk of developing an injury, especially in older runners. Initial differences have been observed between older and younger runners, but these were observed without consideration for other differences between groups such as running mileage.

#### **PURPOSE:**

To compare running mechanics and lower extremity coordination variability in matched groups of healthy younger and healthy older runners.

#### **METHODS:**

Three-dimensional kinetics and kinematics were collected while 14 older adults (45-65 years) and younger adults (18-35 years) ran overground at 3.5 m/s. Knee, ankle and hip joint angles and moments were determined and discrete measures at foot-strike, maximum and minimum were determined and compared between groups. Segment angles during stance were utilized to calculate segment coordination variability between the pelvis and thigh, thigh and shank and shank and foot using a modified vector coding technique.

#### **RESULTS:**

Knee and ankle joint angles were similar between groups ( $p>0.05$ ). Older runners had a greater hip range of motion ( $p=0.01$ ) and peak hip flexion ( $p=0.001$ ) more extended hip position than younger runners. Older runners had a smaller ankle plantar-flexion moment ( $p=0.04$ ) and hip rotational moment ( $p=0.005$ ) than younger runners. There were no differences between groups observed in any of the variability measures ( $p>0.05$ ).

#### **CONCLUSION:**

Runners appear to maintain movement patterns and variability during running with increasing age indicating that the activity of running itself may be contributing to the maintenance of health of the older runners in the current study.

PMID:25668398

## NUTRITION/VITAMINS

## Vit. D and MD's

Osteoporos Int. 2015 Jan 30.

**Vitamin D deficiency among physicians: a comparison between hospitalists and community-based physicians.**

Munter G<sup>1</sup>, Levi-Vineberg T, Sylvetsky N.  
Author information

**Abstract**

Physicians are indoor workers with low sun exposure. The aim of this study was to compare serum 25-hydroxyvitamin D(25(OH)D) levels among hospitalists and community-based physicians. 25(OH)D levels among hospitalist physicians were significantly lower than those among community-based physicians. Hospitalist physicians should be considered for vitamin D deficiency screening and replacement.

**INTRODUCTION:**

Vitamin D deficiency is now recognized as a widespread phenomenon, even in a sunny, Mediterranean country such as Israel. Physicians may be vulnerable to low vitamin D levels due to long work hours and lack of sun exposure.

**METHODS:**

Forty-three physicians employed in a hospital and 38 physicians who work in the community in Jerusalem were enrolled. Their serum 25(OH)D levels were measured, and a questionnaire was filled to assess the risk of vitamin D deficiency.

**RESULTS:**

Mean serum levels of 25(OH)D among hospitalist physicians were significantly lower than those among community-based physicians ( $15 \pm 6$  vs.  $19.7 \pm 6$  ng/ml, respectively;  $p < 0.001$ ). Arab physicians had a lower 25(OH)D level compared to Jewish physicians ( $18.2 \pm 6.6$  vs.  $11.4 \pm 2.7$  ng/ml;  $p < 0.001$ ). After exclusion of Arab physicians from the analysis, 25(OH)D levels remained higher in hospitalist compared to community-based physicians ( $15.9 \pm 6$  vs.  $20.4 \pm 6$  ng/ml;  $p < 0.004$ ). The variables that were significantly linked to low mean serum levels of 25(OH)D were as follows: age, night shifts, daily sun exposure, and ethnic origin.

**CONCLUSION:**

Hospitalist physicians are at greater risk for low vitamin D levels than community-based physicians.

PMID: 25634772

**Vit D and bone loss**

Osteoporos Int. 2015 Jan 20.

**Persistent hypovitaminosis D and loss of hip bone mineral density over time as additional risk factors for recurrent falls in a population-based prospective cohort of elderly persons living in the community.**

The São Paulo Ageing & Health (SPAH) Study.

Machado KL<sup>1</sup>, Domiciano DS, Machado LG, Lopes JB, Figueiredo CP, Takayama L, Oliveira RM, Menezes PR, Pereira RM.

Author information

**Abstract**

We performed concomitant evaluation of clinical, laboratory, and bone mineral density (BMD) parameters as potential risk factors for falls in a population-based prospective cohort of older adults, since previous studies have focused mostly in clinical risk factors. Loss of hip BMD and persistent hypovitaminosis D were associated with recurrent falls in community-dwelling elderly.

**INTRODUCTION:**

Few studies have performed a concomitant evaluation of clinical data, laboratory bone parameters, and bone mineral density (BMD) to determine more accurately the contribution of each of these variables to risk of falls in elderly persons. We investigated the association between bone parameters and recurrent falls in a population-based prospective cohort of community-dwelling older adults.

**METHODS:**

A total of 705 elderly individuals (448 women, 257 men) were evaluated with clinical data, BMD, and laboratory bone tests at baseline and after a mean follow-up of  $4.3 \pm 0.8$  years. Individuals with recurrent falls ( $\geq 2$  falls in the previous year from the date of the second evaluation) were considered chronic fallers. Logistic regression models were used to identify independent risk factors for recurrent falls.

**RESULTS:**

The frequency of chronic fallers was 16.5%. In multivariate analyses, risk factors for recurrent falls were visual impairment (odds ratio (OR) = 2.49, 95% confidence interval (CI) 1.30-4.74,  $p = 0.006$ ), use of psychotropic drugs (OR = 2.47, 95% CI 1.37-4.49,  $p = 0.003$ ), clinical fracture (OR = 2.78, 95% CI 1.48-5.20,  $p = 0.001$ ), persistently low 25-hydroxyvitamin D (25OHD) ( $< 20$  ng/mL) (OR = 1.71, 95% CI 1.10-2.64,  $p = 0.016$ ), and loss of total hip BMD during the study (OR = 1.21, 95% CI 1.17-1.25,  $p = 0.035$  for each 4% decrease).

**CONCLUSIONS:**

In addition to traditional clinical risk factors for falls, loss of hip BMD and hypovitaminosis D were associated with recurrent falls in community-dwelling elderly persons. Thus, recognizing these factors is essential to preventing falls and improving the outcomes of this population.

PMID: 25600475

## PHARMACOLOGY

## Opioids effectiveness in HA

Pain Med. 2015 Feb 3. doi: 10.1111/pme.12702.

**Physical Functioning and Opioid use in Patients with Neuropathic Pain.**

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Author information

Abstract

**OBJECTIVE:**

To evaluate the association between opioid dosage and ongoing therapy with physical function and disability in patients with neuropathic pain (NeP).

**DESIGN:**

Secondary analysis of a prospective cohort.

**SETTING:**

Multicenter clinical NeP registry.

**SUBJECTS:**

Seven hundred eighty-nine patients treated for various NeP diagnoses.

**METHODS:**

The following measures were included: dependent variables. 12-month self-reported physical function (pain disability index [PDI] and medical outcomes study short form-12 physical function [PCSS-12]); independent variables: baseline opioid dose (none,  $\leq 200$  mg and  $>200$  mg of morphine equivalent), ongoing opioid use; potential confounding variables: age, sex, baseline pain intensity, and psychological distress (profile of mood states). Analysis of covariance models was created to examine the relationship between opioid therapy and both physical functioning outcomes with adjustment for confounding.

**RESULTS:**

Complete data was available for 535 patients (68%). Compared with the lower and high dose opioid groups, NeP patients not taking opioids had statistically lower disability and higher physical functioning scores, after adjusting for disease severity. Compared with patients prescribed opioid therapy on an ongoing basis, NeP patients who were not prescribed had statistically lower disability and higher physical functioning scores, after adjusting for disease severity. Improvements in disability and physical functioning scores from baseline and 12-months in all groups were modest and may not be clinically significant.

**CONCLUSIONS:**

Physical functioning and disability did not improve in patients with NeP who were prescribed opioids compared with those who are not prescribed, even after adjusting for disease severity.

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**KEYWORDS:** Neuropathic Pain; Opioid Therapy; Physical Functioning

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## ELECTROTHERAPY

## Shoulder and passive modalities

Phys Ther. 2014 Nov 13.

**Effectiveness of Passive Physical Modalities for Shoulder Pain: Systematic Review by the Ontario Protocol for Traffic Injury Management Collaboration.**

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Author information

Abstract

**BACKGROUND:** Shoulder pain is a common musculoskeletal condition in the general population. Passive physical modalities are commonly used to treat shoulder pain. However, previous systematic reviews reported conflicting results.

**PURPOSE:** The aim of this study was to evaluate the effectiveness of passive physical modalities for the management of soft tissue injuries of the shoulder.

**DATA SOURCES:** MEDLINE, EMBASE, CINAHL, PsycINFO, and the Cochrane Central Register of Controlled Trials were searched from January 1, 1990, to April 18, 2013.

**STUDY SELECTION:** Randomized controlled trials (RCTs) and cohort and case-control studies were eligible. Random pairs of independent reviewers screened 1,470 of 1,760 retrieved articles after removing 290 duplicates. Twenty-two articles were eligible for critical appraisal. Eligible studies were critically appraised using the Scottish Intercollegiate Guidelines Network criteria. Of those, 11 studies had a low risk of bias.

**DATA EXTRACTION:** The lead author extracted data from low risk of bias studies and built evidence tables. A second reviewer independently checked the extracted data.

**DATA SYNTHESIS:** The findings of studies with a low risk of bias were synthesized according to principles of best evidence synthesis. Pretensioned tape, ultrasound, and interferential current were found to be noneffective for managing shoulder pain. However, diathermy and corticosteroid injections led to similar outcomes. Low-level laser therapy provided short-term pain reduction for subacromial impingement syndrome. Extracorporeal shock-wave therapy was not effective for subacromial impingement syndrome but provided benefits for persistent shoulder calcific tendinitis.

**LIMITATIONS:** Non-English studies were excluded.

**CONCLUSIONS:** Most passive physical modalities do not benefit patients with subacromial impingement syndrome. However, low-level laser therapy is more effective than placebo or ultrasound for subacromial impingement syndrome. Similarly, shock-wave therapy is more effective than sham therapy for persistent shoulder calcific tendinitis.

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