

ABSTRACTS

**LUMBAR SPINE
PELVIC GIRDLE**

VISCERA

THORACIC SPINE

CERVICAL SPINE

CRANIUM/TMJ

HEADACHES

CONCUSSIONS

SHOULDER GIRDLE

GLENOHUMERAL/SHOULDER

ELBOW

WRIST AND HAND

HIP

KNEE

FOOT AND ANKLE

MANUAL THERAPY

STM/STRETCHING/MUSCLES

BET

ATHLETICS

RUNNING GAIT

PAIN

COMPLEX REGIONAL PAIN

FIBROMYALGIA

NUTRITION/VITAMINS/MEDICATION/TOPICALS

NEUROLOGICAL CONDITIONS

LUMBAR SPINE

Stenosis

[BMC Musculoskelet Disord.](#) 2014 Oct 16;15(1):348.

Visually assessed severity of lumbar spinal canal stenosis is paradoxically associated with leg pain and objective walking ability.

[Kuittinen P](#), [Sipola P](#), [Saari T](#), [Aalto TJ](#), [Sinikallio S](#), [Savolainen S](#), [Kröger H](#), [Turunen V](#), [Leinonen V](#), [Airaksinen O](#).

Abstract

BACKGROUND:

Lumbar spinal stenosis (LSS) is the common term used to describe patients with symptoms related to the anatomical reduction of the lumbar spinal canal size. However, some subjects may have a markedly narrowed canal without any symptoms. This raises the question of what is the actual role of central canal stenosis in symptomatic patients. The purpose of this study was to compare radiological evaluations of LSS, both visually and quantitatively, with the clinical findings of patients with LSS.

METHODS:

Eighty patients [mean age 63 (11) years, 44% male], with symptoms severe enough to indicate LSS surgery, were included in this prospective single-center study. Lumbar magnetic resonance imaging was performed and one experienced neuroradiologist classified patients into three groups: 0 = normal or mild stenosis, 1 = moderate stenosis, and 2 = severe stenosis. In addition, the same observer measured the minimal dural sac area level by level from the inferior aspect of L1 to the inferior aspect of S1. The association between radiological and clinical findings were tested with Oswestry Disability Index, overall visual analog pain scale, specific low back pain, specific leg pain, Beck Depression Inventory, and walking distance on treadmill exercise test.

RESULTS:

In the visual classification of the central spinal canal, leg pain was significantly higher and walking distance achieved was shorter among patients with moderate central stenosis than in patients with severe central stenosis (7.33 (2.29) vs 5.80 (2.72); $P=0.008$ and 421 (431) m vs 646 (436) m; $P=0.021$, respectively). Patients with severe stenosis at only one level also achieved shorter walking distance than patients with severe stenosis of at least two levels. No correlation between visually or quantitatively assessed stenosis and other clinical findings was found.

CONCLUSIONS:

There is no straightforward association between the stenosis of dural sac and patient symptoms or functional capacity. These findings indicated that dural sac stenosis is not the single key element in the pathophysiology of LSS.

PMID: 25319184

LBP**Sleep quality and LBP**

J Back Musculoskelet Rehabil. 2014 Oct 15.

Sleep quality in patients with chronic low back pain: A cross-sectional study assessing its relations with pain, functional status and quality of life.

Sezgin M¹, Hasanefendioğlu EZ², Ali Sungur M³, Incel NA⁴, Cimen O⁴, Kanık A³, Shin G⁴.

Author information**Abstract****OBJECTIVE:**

The aim of this study was to investigate sleep quality in patients with chronic low back pain (CLBP) and its relationship with pain, functional status, and health-related quality of life (HRQOL). **METHODS:** Two hundred patients with CLBP aged 20-78 years (mean: 50.2 years) and 200 sex- and age-matched pain-free healthy controls (HCs) aged 21-73 years (mean: 49.7 years) were included in this study. After lumbar region examination, in patients, pain was evaluated with the Short Form-McGill Pain Questionnaire (SF-MPQ), functional capacity with the Functional Rating Index (FRI), and health-related quality of life with the Short Form-36 (SF-36). The Pittsburgh Sleep Quality Index (PSQI) was used to evaluate sleep quality of both groups. The sleep quality was compared between the patients and HCs. In patients with CLBP, its relations with pain, functional status and HRQOL were also investigated.

RESULTS:

The patients had significantly higher total scores (8.1 ± 4.3 , 4.6 ± 3.4 , $P < 0.001$, respectively) and subscale scores ($P < 0.001$) for PSQI compared to HCs. The groups were only similar in use of sleeping medication ($P > 0.05$). Among the patients, sleep quality was worse in women, in the patients with complaints more than 11 years, in the patients with low back and two leg pain ($P < 0.05$). Mean scores of the FRI, SF-MPQ, and visual analog scale in the patients were 8.5 ± 3.0 , 16.7 ± 8.0 , 6.9 ± 1.2 , respectively. The PSQI total scores of patients were positively related with both SF-MPQ and FRI scores ($P < 0.001$). Also, there were negative relationships between the physical component summary score of the SF-36 and all subscale scores of the PSQI, without sleep duration of PSQI ($P < 0.001$).

CONCLUSION:

The sleep quality of patients with CLBP was worse compared to HCs, and there were positive relations between the sleep quality with pain and functional status. Also, the poor sleep quality had negative effect on the physical component of quality of life.

KEYWORDS:

Chronic low back pain; functional status; health-related quality of life; sleep quality

PMID: 25322735

LBP in Kitchen workers

[J Back Musculoskelet Rehabil.](#) 2014 Oct 15.

Workplace factors and prevalence of low back pain among male commercial kitchen workers.

[Shankar S](#)¹, [Shanmugam M](#)¹, [Jayaraman S](#)².

Author information**Abstract****BACKGROUND:**

The occurrence of specific low back pain (LBP) due to workplace factors has not been well described among kitchen industry workers. This study would claim various risk factors that contributing LBP among kitchen workers.

OBJECTIVE:

The purpose of the study was to examine the risk factors and the prevalence of LBP among the male commercial kitchen workers at catering industry.

METHODS:

The study population comprised of 114 male kitchen workers from nine hostel kitchens in a college campus in South India. The reported musculoskeletal symptoms during past 12 months were determined with the help of standardized Nordic Musculoskeletal Questionnaire (NMQ) survey and by direct observations.

RESULTS:

The statistical analyses were carried out and the highest prevalence of LBP among subjects was reported as 65.8%. Among different work categories, the Chief cooks were reported highest prevalence of LBP (79.2%) than Assistant Cooks (71.4%) and Kitchen Aids (30.0%). Similarly the upper age group (≥ 41 years) workers had experienced the highest discomfort in low back as 92.9% than other age groups.

CONCLUSIONS:

Results suggest that to undertake further studies on different preventive measures and ergonomics intervention to reduce the risks of LBP among kitchen workers.

KEYWORDS:

Musculoskeletal disorders; low back pain; male kitchen workers; occupational disorders

PMID: 25322740

Emotional status

[J Back Musculoskelet Rehabil.](#) 2014 Oct 15.

Comparison of pain intensity, emotional status and disability level in patients with chronic neck and low back pain.

[Altuğ F](#), [Kavlak E](#), [Kurtca MP](#), [Unal A](#), [Cavlak U](#).

Author information

Abstract

OBJECTIVE:

This study was planned to compare of pain, emotional status and disability level in patients with chronic neck pain and low back pain.

METHODS:

In this study, fifty patients with chronic low back pain (Group I) and fifty patients with chronic neck pain (Group II) at least 6 months were evaluated. A Visual Analog Scale was used to describe pain intensity. To determine emotional status of the subjects, the Beck Depression Scale was used. The Oswestry Disability Index and the Neck Disability Index were used to evaluate disability level.

RESULTS:

The mean age of the patients with low back pain and neck pain were 39.70 ± 9.71 years, 45.44 ± 10.39 years, respectively. It was not found a significant difference between in low back pain (Group I) and neck pain (Group II) in results of pain intensity ($p=0.286$) and pain duration ($p=0.382$). It was found a significant difference between group I and group II in results of emotional status ($p=0.000$) and disability level ($p=0.000$). The emotional status and disability level scores were found highest in patient's with low back pain.

CONCLUSION:

Chronic low back pain is affect in patients than chronic neck pain as a emotional status and disability level.

KEYWORDS: Chronic low back pain; neck disability index; neck pain; oswestry disability index PMID: 25322739

Fusion vs. PT for LBP

[J Spinal Disord Tech](#). 2014 Jul;27(5):297-304. doi: 10.1097/BSD.0000000000000072.

Lumbar fusion versus nonoperative management for treatment of discogenic low back pain: a systematic review and meta-analysis of randomized controlled trials.

[Bydon M¹](#), [De la Garza-Ramos R](#), [Macki M](#), [Baker A](#), [Gokaslan AK](#), [Bydon A](#).

Author information**Abstract****STUDY DESIGN:**

Systematic review and meta-analysis of randomized controlled trials (RCTs).

OBJECTIVE:

To evaluate the current evidence comparing lumbar fusion to nonoperative management for the treatment of chronic discogenic low back pain.

BACKGROUND AND CONTEXT:

Discogenic low back pain is a common and sometimes disabling condition. When the condition becomes chronic and intractable, spinal fusion may play a role.

METHODS:

A systematic review of the literature was conducted using the PubMed and CENTRAL databases. We included RCTs that compared lumbar fusion to nonoperative management for the treatment of adult patients with chronic discogenic low back pain. A meta-analysis was conducted to assess the improvement in back pain based on the Oswestry Disability Index (ODI).

RESULTS:

Five RCTs met our inclusion criteria. A total of 707 patients were divided into lumbar fusion (n=523) and conservative management (n=134). Although inclusion/exclusion criteria were relatively similar across studies, surgical techniques and conservative management protocols varied. The pooled mean difference in ODI (final ODI-initial ODI) between the nonoperative and lumbar fusion groups across all studies was -7.39 points (95% confidence interval: -20.26, 5.47) in favor of lumbar fusion, but this difference was not statistically significant (P=0.26).

CONCLUSIONS:

Despite the significant improvement in ODI in the lumbar fusion groups in 3 studies, pooled data revealed no significant difference when compared with the nonoperative group. Although there was an overall improvement of 7.39 points in the ODI in favor of lumbar fusion, it is unclear that this change in ODI would lead to a clinically significant difference. Prospective randomized trials comparing a specific surgical technique versus a structured physical therapy program may improve evidence quality. Until then, either operative intervention by lumbar fusion or nonoperative management and physical therapy remain 2 acceptable treatment methods for intractable low back pain. PMID: 24346052

Glut Med weakness and LBP

[Arch Phys Med Rehabil](#). 2014 Oct;95(10):1969-76. doi: 10.1016/j.apmr.2014.06.009. Epub 2014 Jun 30.

Determining the activation of gluteus medius and the validity of the single leg stance test in chronic, nonspecific low back pain.

[Penney T](#)¹, [Ploughman M](#)², [Austin MW](#)², [Behm DG](#)³, [Byrne JM](#)⁴.

Author information

Abstract

OBJECTIVES: To determine the activation of the gluteus medius in persons with chronic, nonspecific low back pain compared with that in control subjects, and to determine the association of the clinical rating of the single leg stance (SLS) with chronic low back pain (CLBP) and gluteus medius weakness.

DESIGN: Cohort-control comparison.

SETTING: Academic research laboratory.

PARTICIPANTS: Convenience sample of people (n=21) with CLBP (>12wk) recruited by local physiotherapists, and age- and sex-matched controls (n=22). Subjects who received specific pain diagnoses were excluded.

INTERVENTIONS:

Not applicable.

MAIN OUTCOME MEASURES:

Back pain using the visual analog scale (mm); back-related disability using the Oswestry Back Disability Index (%); strength of gluteus medius measured using a hand dynamometer (N/kg); SLS test; gluteus medius onset and activation using electromyography during unipedal stance on a forceplate.

RESULTS:

Individuals in the CLBP group exhibited significant weakness in the gluteus medius compared with controls (right, $P=.04$; left, $P=.002$). They also had more pain (CLBP: mean, 20.50mm; 95% confidence interval [CI], 13.11-27.9mm; control subjects: mean, 1.77mm; 95% CI, -.21 to 3.75mm) and back-related disability (CLBP: mean, 18.52%; 95% CI, 14.46%-22.59%; control subjects: mean, .68%; 95% CI, -.41% to 1.77%), and reported being less physically active. Weakness was accompanied by increased gluteus medius activation during unipedal stance ($R=.50$, $P=.001$) but by no difference in muscle onset times. Although greater gluteus medius weakness was associated with greater pain and disability, there was no difference in muscle strength between those scoring positive and negative on the SLS test (right: $F=.002$, $P=.96$; left: $F=.1.75$, $P=.19$).

CONCLUSIONS:

Individuals with CLBP had weaker gluteus medius muscles than control subjects without back pain. Even though there was no significant difference in onset time of the gluteus medius when moving to unipedal stance between the groups, the CLBP group had greater gluteus medius activation. A key finding was that a positive SLS test did not distinguish the CLBP group from the control group, nor was it a sign of gluteus medius weakness.

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KEYWORDS: Buttocks; Chronic pain; Electromyography; Low back pain; Muscle strength; Physical therapy modalities; Rehabilitation PMID: 24992020

Hip OA and LBP

[J Back Musculoskelet Rehabil.](#) 2014 Oct 15.

Factors related to low back pain in patients with hip osteoarthritis.

[Tanaka S](#)¹, [Matsumoto S](#)², [Fuji K](#)³, [Tamari K](#)⁴, [Mitani S](#)⁵, [Tsubahara A](#)⁶.

Author information

Abstract

BACKGROUND:

The incidence of low back pain (LBP) is high in patients with hip osteoarthritis (OA). Evidence from previous studies suggests that lumbar alignments and hip range of motion (ROM) are important etiological factors for LBP. However, no studies have investigated which factors that have the greatest influence on LBP.

OBJECTIVE:

This investigation aimed to collectively examine factors related to LBP in patients with hip OA, including lumbar lordosis angle (LLA), leg length discrepancy (LLD), and hip ROM. **METHODS:** Thirty-five patients participated in this study. LBP was treated as a dependent variable, whereas hip ROMs were treated as independent variables. Patients' age and body mass index (BMI) were recorded as confounding factors, as were LLA and LLD. A logistic regression model was performed to determine the most accurate set of variables to predict LBP.

RESULTS:

BMI and ROM of hip flexion on the affected side were identified as significant variables.

CONCLUSIONS:

Our results suggest that BMI and ROM of hip flexion on the affected side are related to LBP in patients with hip OA and need to be assessed.

KEYWORDS: Low back pain; osteoarthritis of the hip; prediction PMID: 2532273

DISC**RNA and DJD**

[Arthritis Res Ther.](#) 2014 Oct 4;16(5):465.

Aberrantly expressed long noncoding RNAs in human intervertebral disc degeneration: a microarray related study.

[Wan ZY](#), [Song F](#), [Sun Z](#), [Chen YF](#), [Zhang WL](#), [Samartzis D](#), [Ma CJ](#), [Che L](#), [Liu X](#), [Ali M](#), [Wang HQ](#), [Luo ZJ](#).

Abstract

Introduction In addition to the well-known short noncoding RNAs such as microRNAs (miRNAs), increasing evidence suggests that long noncoding RNAs (lncRNAs) act as key regulators in a wide aspect of biologic processes. Dysregulated expression of lncRNAs has been demonstrated being implicated in a variety of human diseases. However, little is known regarding the role of lncRNAs with regards to intervertebral disc degeneration (IDD). In the present study we aimed to determine whether lncRNAs are differentially expressed in IDD.

Methods An lncRNA-mRNA microarray analysis of human nucleus pulposus (NP) was employed. Bioinformatics prediction was also applied to delineate the functional roles of the differentially expressed lncRNAs. Several lncRNAs and mRNAs were chosen for quantitative real-time PCR (qRT-PCR) validation.

Results Microarray data profiling indicated that 116 lncRNAs (67 up and 49 down) and 260 mRNAs were highly differentially expressed with an absolute fold change greater than ten. Moreover, 1,052 lncRNAs and 1,314 mRNAs were differentially expressed in the same direction in at least four of the five degenerative samples with fold change greater than two. Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway analysis for the differentially expressed mRNAs indicated a number of pathways, such as extracellular matrix (ECM)-receptor interaction. A coding-noncoding gene co-expression (CNC) network was constructed for the ten most significantly changed lncRNAs. Annotation terms of the coexpressed mRNAs were related to several known degenerative alterations, such as chondrocyte differentiation. Moreover, lncRNAs belonging to a particular subgroup were identified. Functional annotation for the corresponding nearby coding genes showed that these lncRNAs were mainly associated with cell migration and phosphorylation. Interestingly, we found that Fas-associated protein factor-1 (FAF1), which potentiates the Fas-mediated apoptosis and its nearby enhancer-like lncRNA RP11-296A18.3, were highly expressed in the degenerative discs. Subsequent qRT-PCR results confirmed the changes.

Conclusions This is the first study to demonstrate that aberrantly expressed lncRNAs play a role in the development of IDD. Our study noted that up-regulated RP11-296A18.3 highly likely induced the over-expression of FAF1, which eventually promoted the aberrant apoptosis of disc cells. Such findings further broaden the understanding of the etiology of IDD.

PMID: 25280944

INJECTIONS

Impact of epidural

[Arch Phys Med Rehabil.](#) 2014 Aug 7. pii: S0003-9993(14)00931-9. doi:

10.1016/j.apmr.2014.07.404.

Factors Associated With Pain Reduction After Transforaminal Epidural Steroid Injection for Lumbosacral Radicular Pain.

[McCormick Z¹](#), [Cushman D²](#), [Casey E²](#), [Garvan C³](#), [Kennedy DJ⁴](#), [Plastaras C⁵](#).

Abstract

OBJECTIVE:

To identify demographic and clinical factors associated with pain improvement after a lumbosacral transforaminal epidural steroid injection (TFESI) for the treatment of radicular pain.

DESIGN:

Retrospective cohort study.

SETTING:

Outpatient center.

PARTICIPANTS:

Adults (N=188) who underwent a fluoroscopically guided TFESI for lumbosacral radicular pain.

INTERVENTIONS:

Not applicable.

MAIN OUTCOME MEASURES:

Pain reduction from preinjection to 2-week follow-up was measured by visual analog scale (VAS). Patients were grouped by those who experienced no pain relief or worsened pain ($\leq 0\%$), pain relief but $< 50\%$ relief ($> 0\% - < 50\%$), or significant pain relief ($\geq 50\%$) on the VAS.

RESULTS:

The mean duration of pain prior to injection was 45.8 ± 81 weeks. The mean time to follow-up after TFESI was 20 ± 14.2 days. Significantly more patients who experienced $\geq 50\%$ pain relief at follow-up reported higher preinjection pain on the VAS ($P = .0001$) and McGill Pain Inventory Questionnaire ($P = .0358$), reported no worsening of their pain with walking ($P = .0161$), or had a positive femoral stretch test ($P = .0477$). No significant differences were found between VAS pain reduction and all other demographic and clinical factors, including a radiologic diagnosis of disk herniation versus stenosis or other neural tension signs on physical examination.

CONCLUSIONS:

Greater baseline pain on the VAS and McGill Pain Inventory, a history of a lack of worsening pain with walking, and a positive femoral stretch test predict a greater likelihood of pain reduction after TFESI for lumbosacral radicular pain at short-term follow-up. Greater baseline pain on the McGill Pain Inventory and a lack of worsening pain with walking predict a magnitude of $> 50\%$ pain reduction.

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KEYWORDS: Back pain; Injections; Lumbosacral region; Radiculopathy; Rehabilitation; epidural PMID: 25108099

Epidural and LBP

[J Back Musculoskelet Rehabil.](#) 2014 Oct 15.

The effectiveness of transforaminal epidural steroid injection in patients with radicular low back pain due to lumbar disc herniation two years after treatment.

[Taskaynatan MA](#)¹, [Tezel K](#)¹, [Yavuz F](#)², [Tan AK](#)¹.

Abstract

BACKGROUND AND AIM:

The aim of this retrospective study was to investigate the therapeutic effect of transforaminal epidural steroid injection in patients with chronic low back pain and radicular leg pain due to lumbar disc herniation.

MATERIALS AND METHODS:

This study included 80 patients (32 female and 48 male; mean age: 45.8 years [range: 25-65 years]) that received fluoroscopically guided transforaminal epidural steroid injections for chronic radicular low back pain due to lumbar disc herniation. All of the patients had diagnostic MRI findings and did not respond to conservative treatment. All injections were performed by the same physician at the interventional pain unit of a tertiary hospital. The effectiveness of transforaminal epidural steroid injections was assessed via a standardized telephone questionnaire administered 2 years after the first injection. **RESULTS:** Mean duration of radicular low back pain was 24.50 ± 18.25 months. Most of the epidural injections were administered at the L5 and S1 levels. The most effective post-injection period was the first 5.11 ± 3.07 months. Mean duration of injection effect was 12.46 ± 7.24 months. The response rate to the epidural steroid injections was 72%.

CONCLUSIONS: There was negative correlation between the duration of treatment effect and the duration of pre-treatment symptoms. Additionally, clinical improvement of radicular low back pain increased significantly as the duration of pre-treatment symptoms decreased. Based on the present findings, we think that transforaminal epidural steroid injections can be used as an alternative treatment for managing chronic radicular low back pain.

KEYWORDS: Low back pain; epidural steroids; radiculopathy; transforaminal

PMID: 25322733

VISCERA

Dysmenorrhea and chronic pelvic pain

[Aust N Z J Obstet Gynaecol.](#) 2014 Oct 11. doi: 10.1111/ajo.12274.

A possible link between dysmenorrhoea and the development of chronic pelvic pain.

[Hardi G¹](#), [Evans S](#), [Craigie M](#).

Abstract

Anecdotally, severe dysmenorrhoea can pre-date the development of chronic pelvic pain (CPP). This study describes the timeline for the transition from dysmenorrhoea to CPP in a cohort of new patients attending a private gynaecology clinic. In 16.4% of cases, transition occurred within one year, and within 12 years in over 50%. Our study suggests clinicians need to observe women with severe dysmenorrhoea for signs of chronic pain. Further research is needed into the transition from dysmenorrhoea to CPP, and effective early interventions.

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KEYWORDS: chronic pelvic pain; dysmenorrhoea; gynaecologist PMID: 25307256

Abdominal pain and allergies

Aliment Pharmacol Ther. 2014 Oct 1. doi: 10.1111/apt.12965

Allergy-related diseases and recurrent abdominal pain during childhood - a birth cohort study.

Olén O¹, Neuman A, Koopmann B, Ludvigsson JF, Ballardini N, Westman M, Melén E, Kull I, Simrén M, Bergström A.

Abstract**BACKGROUND:**

Allergy and immune dysregulation may have a role in the pathophysiology of recurrent abdominal pain of functional origin, but previous studies of allergy-related diseases and abdominal pain have contradictory results.

AIM:

To examine the association between allergy-related diseases or sensitisation during childhood and abdominal pain at age 12 years.

METHODS:

In this birth cohort study of 4089 children, parents answered questionnaires regarding asthma, allergic rhinitis, eczema and food hypersensitivity ('allergy-related diseases') at ages 0,1,2,4,8 and 12 years. Blood for analyses of allergen-specific IgE was sampled at 4 and 8 years. At 12 years, the children answered questions regarding abdominal pain. Children with coeliac disease or inflammatory bowel disease were excluded. Associations were examined using multivariable logistic regression.

RESULTS:

Among 2610 children with complete follow-up, 9% (n = 237) reported abdominal pain at 12 years. All allergy-related diseases were associated with concurrent abdominal pain at 12 years and the risk increased with increasing number of allergy-related diseases (P for trend <0.001). Asthma at 1 and 2 years and food hypersensitivity at 8 years were significantly associated with abdominal pain at 12 years. There was an increased risk of abdominal pain at 12 years in children sensitised to food allergens at 4 or 8 years, but in stratified analyses, this was confined to children whose parents had not reported food hypersensitivity at time of sensitisation.

CONCLUSION:

Allergy-related diseases as well as sensitisation to food allergens were associated with an elevated risk of abdominal pain, and the risk increased with the number of allergy-related diseases.

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PMID: 25270840

CERVICAL SPINE

Combined rx with C spine pain

Anesthesiology. 2014 Nov;121(5):1045-55. doi: 10.1097/ALN.0000000000000409.

Epidural Steroid Injections, Conservative Treatment, or Combination Treatment for Cervical Radicular Pain: A Multicenter, Randomized, Comparative-effectiveness Study.

Cohen SP¹, Hayek S, Semenov Y, Pasquina PF, White RL, Veizi E, Huang JH, Kurihara C, Zhao Z, Guthmiller KB, Griffith SR, Verdun AV, Giampetro DM, Vorobeychik Y.

Abstract

BACKGROUND:

Cervical radicular pain is a major cause of disability. No studies have been published comparing different types of nonsurgical therapy.

METHODS:

A comparative-effectiveness study was performed in 169 patients with cervical radicular pain less than 4 yr in duration. Participants received nortriptyline and/or gabapentin plus physical therapies, up to three cervical epidural steroid injections (ESI) or combination treatment over 6 months. The primary outcome measure was average arm pain on a 0 to 10 scale at 1 month.

RESULTS:

One-month arm pain scores were 3.5 (95% CI, 2.8 to 4.2) in the combination group, 4.2 (CI, 2.8 to 4.2) in ESI patients, and 4.3 (CI, 2.8 to 4.2) in individuals treated conservatively (P = 0.26). Combination group patients experienced a mean reduction of -3.1 (95% CI, -3.8 to -2.3) in average arm pain at 1 month versus -1.8 (CI, -2.5 to -1.2) in the conservative group and -2.0 (CI, -2.7 to -1.3) in ESI patients (P = 0.035). For neck pain, a mean reduction of -2.2 (95% CI, -3.0 to -1.5) was noted in combination patients versus -1.2 (CI, -1.9 to -0.5) in conservative group patients and -1.1 (CI, -1.8 to -0.4) in those who received ESI; P = 0.064). Three-month posttreatment, 56.9% of patients treated with combination therapy experienced a positive outcome versus 26.8% in the conservative group and 36.7% in ESI patients (P = 0.006).

CONCLUSIONS:

For the primary outcome measure, no significant differences were found between treatments, although combination therapy provided better improvement than stand-alone treatment on some measures. Whereas these results suggest an interdisciplinary approach to neck pain may improve outcomes, confirmatory studies are needed.

PMID: 25335172

Arm pain sensory

[Arch Phys Med Rehabil](#). 2014 Oct 6. pii: S0003-9993(14)01122-8. doi: 10.1016/j.apmr.2014.09.015.

Divergent Sensory Phenotypes in Non-Specific Arm Pain: Comparisons with Cervical Radiculopathy.

[Moloney N](#)¹, [Hall T](#)², [Doody C](#)³.

Abstract**OBJECTIVE:**

To investigate whether distinct sensory phenotypes were identifiable in individuals with non-specific arm pain (NSAP) and if they differed from people with cervical radiculopathy. A secondary question considered whether the frequency of features of neuropathic pain, kinesiophobia, high pain ratings, hyperalgesia and allodynia differed according to sub-groups of sensory phenotypes.

DESIGN:

A cross sectional study SETTING: Higher education institution PARTICIPANTS: Forty office people with NSAP, 17 with cervical radiculopathy, and 40 age- gender-matched healthy controls.

INTERVENTIONS:

Nil MAIN OUTCOME MEASURES: Participants were assessed using quantitative sensory testing (QST) comprising thermal and vibration detection thresholds, and thermal and pressure pain thresholds; clinical examination and relevant questionnaires. Sensory phenotypes were identified for each individual in the patient groups using z-score transformation of the QST data.

RESULTS:

Individuals with NSAP and cervical radiculopathy present with a spectrum of sensory abnormalities; a dominant sensory phenotype was not identifiable in individuals with NSAP. No distinct pattern between clinical features and questionnaire results across sensory phenotypes was identified in either group.

CONCLUSION:

When considering sensory phenotypes, neither individuals with NSAP nor cervical radiculopathy should be considered homogenous. Therefore, people with either condition may warrant different intervention approaches according to their individual sensory phenotype. Issues relating to the clinical identification of sensory hypersensitivity and the validity of QST are highlighted.

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KEYWORDS: Sensory threshold; cervical radiculopathy; musculoskeletal arm pain; non-specific arm pain (repetitive strain injury); pain threshold

PMID: 25301442

HEADACHES

Headache and boxers

Arch Phys Med Rehabil. 2014 Oct;95(10):1977-83. doi: 10.1016/j.apmr.2014.06.011. Epub 2014 Jul 1.

Risk of headache, temporomandibular dysfunction, and local sensitization in male professional boxers: a case-control study.

Mendoza-Puente M¹, Oliva-Pascual-Vaca A², Rodriguez-Blanco C³, Heredia-Rizo AM³, Torres-Lagares D⁴, Ordoñez FJ⁵.

Abstract

OBJECTIVE:

To evaluate differences in the incidence of headache, trigeminal nerve mechanosensitivity, and temporomandibular functionality in professional male boxers (exposed to repetitive craniofacial trauma) who were actively training and without severe previous injuries compared with handball players.

DESIGN:

Case-control study.

SETTING:

University-based physical therapy research clinic.

PARTICIPANTS:

Eighteen boxers (mean age, 23±4.61y) as the cases group, and 20 handball players as the comparison group (mean age, ±2y, and sex matched), were included. All participants (N=38) completed the assessment protocol.

INTERVENTIONS:

Not applicable.

MAIN OUTCOME MEASURES:

Measurements were taken of the headache impact (Headache Impact Test-6) and the pressure pain threshold over the trigeminal nerve sensory branches, the masseter muscle, and the tibialis anterior muscle. The secondary outcome measure included the temporomandibular function (Helkimo Clinic Index).

RESULTS:

The boxers showed slight mandibular function impairment, local muscular and neural sensitization, and a higher impact from headaches than did the handball players. The between-group comparison found significant differences in all outcome measures ($P<.05$), except in the tibialis anterior muscle pressure pain threshold on the dominant ($P=.958$) and the nondominant ($P=.453$) sides.

CONCLUSIONS:

Professional male boxers seem to suffer a greater headache impact and local sensitization of the craniomandibular region than do professional handball players. It cannot be determined whether these findings are short-lasting, as a result of the training activity, or long-lasting.

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KEYWORDS: Boxing; Case-control studies; Central nervous system sensitization; Headache; Rehabilitation; Sports PMID: 24996064

Cognitive function in cluster headaches

J Headache Pain. 2014 Oct 2;15(1):66. doi: 10.1186/1129-2377-15-66.

Cognitive processing of cluster headache patients: evidence from event-related potentials.

Wang R, Dong Z, Chen X, Liu R, Zhang M, Wu J¹, Yu S.

Abstract

BACKGROUND:

The peripheral and central origins of pain in cluster headache (CH) have been a matter of much debate. The development and application of functional imaging techniques have provided more evidence supporting the hypothesis that CH is not a disorder exclusively peripheral in origin, and in fact central regions might be more important. Event-related potentials confer advantages in the functional evaluation of the cortex, but few studies thus far have employed this method in cluster headache.

METHODS:

Seventeen cluster patients (15 males; mean age = 35.4 years) and 15 age-matched healthy participants (13 males; mean age = 34.6 years) were recruited. A visual oddball paradigm was employed to analyze target processing using event-related potentials. We investigated the P3/P3d components in the experiment.

RESULTS:

P3/P3d amplitudes were decreased in CH patients (P3, 3.82 μ V; P3d, 5.8 μ V) compared with controls (P3, 7.28 μ V; P3d, 8.95 μ V), $F(1,30) = 4.919$, $p < 0.05$, $\eta^2 = 0.141$ for P3 and $F(1,30) = 8.514$, $p < 0.05$, $\eta^2 = 0.221$ for P3d, respectively). Moreover, the amplitudes of P3/P3d were no significant difference in the side of pain as compared to contralateral one ($p > 0.05$).

CONCLUSIONS:

These results provide evidence of dysfunction in the cognitive processing of CH patients, which may also contribute to the pathophysiology of CH.

PMID: 25277954

Cognitive function

Cephalalgia. 2014 Oct 16. pii: 0333102414553823.

Cognitive dysfunction during migraine attacks: A study on migraine without aura.

Gil-Gouveia R¹, Oliveira AG², Martins IP³.

Abstract

BACKGROUND:

Cognitive difficulties contribute to patients' disability during migraine attacks and have been overlooked in migraine research. Neuropsychological studies performed during attacks have produced inconsistent findings due to design differences and limitations.

OBJECTIVE:

Our objective is to document changes in cognitive performance of migraine patients during migraine attacks with a comprehensive battery of cognitive/behavioral tests, while controlling for potential confounders.

METHOD:

A prospective two-period, randomized, cross-over study compared within-subject neuropsychological evaluation in two conditions-during a naturally occurring untreated migraine attack and a headache-free period.

RESULTS:

Thirty-nine patients with episodic migraine (37 females, average 38 years old) were included and 24 completed the study. Participants performed worse during the attack in the majority of cognitive tests, compared to the headache-free status, and significantly so in word reading speed ($p = 0.013$), verbal learning ($p = 0.01$), short-term verbal recall with ($p = 0.01$) and without ($p = 0.013$) semantic cueing and delayed recall with ($p = 0.003$) and without ($p = 0.05$) semantic cues. Differences found were unrelated to age, gender, literacy, condition order, interval between evaluations, anxiety, pain intensity or duration of the attack.

DISCUSSION:

Cognitive performance decreases during migraine attacks, especially in reading and processing speed, verbal memory and learning, supporting patients' subjective complaints. These findings suggest the existence of a reversible brain dysfunction during attacks of migraine without aura, which can relate specifically to migraine or be a consequence of acute pain processing by the brain.

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KEYWORDS: Migraine; cognitive symptoms; disease burden; executive dysfunction

PMID: 25324500

SHOULDER GIRDLE

Dyskinesia

Visual scapular dyskinesia: kinematics and muscle activity alterations in patients with subacromial impingement syndrome

Archives of Physical Medicine and Rehabilitation, 10/20/2014 Clinical Article

Lopes AD, et al.

Objectives

To characterize scapular kinematics and shoulder muscle activity in those with and without visually identified scapular dyskinesia in patients with subacromial impingement syndrome.

Design Cross-sectional study.

Setting Movement analysis laboratory.

Participants Participants with subacromial impingement syndrome (n=38) were visually classified using the scapular dyskinesia test (SDT) with obvious scapular dyskinesia (DYSK;n=19) or normal scapular motion (NO DYSK;n=19).

Interventions Not applicable

Main Outcome Measures

An electromagnetic motion capture system measured 3-dimensional kinematics of the thorax, humerus and scapula. Simultaneously, surface electromyography was used to measure muscle activity of upper, middle and lower trapezius, serratus anterior and infraspinatus during ascending and descending phases of weighted shoulder flexion. Separate mixed model ANOVAs for the ascending and descending phases of shoulder flexion compared kinematics and muscle activity between groups (DYSK, NO DYSK). Shoulder disability was assessed with the Pennsylvania Shoulder Score (Penn).

Results

The DYSK group reported 6-points (0-60 points) lower Penn shoulder function, exhibited a main group effect of less scapular external rotation of 2.1° during ascent and 2.5° during descent, and a 12.0% higher upper trapezius muscle activity during ascent in the 30°-60° interval.

Conclusions

Patients with obvious dyskinesia and subacromial impingement syndrome have reduced scapular external rotation and increased upper trapezius muscle activity, along with a greater loss of shoulder function as compared to those without dyskinesia. These biomechanical alterations may lead to or be caused by the scapular dyskinesia. Future studies should determine if correction of these deficits will eliminate scapular dyskinesia and improve patient-rated shoulder use.

KNEE/ACL**Emotional issues**

Br J Sports Med. 2014 Oct 7. pii: bjsports-2014-093842. doi: 10.1136/bjsports-2014-093842.

The impact of psychological readiness to return to sport and recreational activities after anterior cruciate ligament reconstruction.

Ardern CL¹, Osterberg A², Tagesson S³, Gauffin H⁴, Webster KE⁵, Kvist J³.

Abstract**BACKGROUND:**

This cross-sectional study aimed to examine whether appraisal of knee function, psychological and demographic factors were related to returning to the preinjury sport and recreational activity following anterior cruciate ligament (ACL) reconstruction.

METHOD:

164 participants completed a questionnaire battery at 1-7 years after primary ACL reconstruction. The battery included questionnaires evaluating knee self-efficacy, health locus of control, psychological readiness to return to sport and recreational activity, and fear of reinjury; and self-reported knee function in sport-specific tasks, knee-related quality of life and satisfaction with knee function. The primary outcome was returning to the preinjury sport or recreational activity.

RESULTS:

At follow-up, 40% (66/164) had returned to their preinjury activity. Those who returned had more positive psychological responses, reported better knee function in sport and recreational activities, perceived a higher knee-related quality of life and were more satisfied with their current knee function. The main reasons for not returning were not trusting the knee (28%), fear of a new injury (24%) and poor knee function (22%). Psychological readiness to return to sport and recreational activity, measured with the ACL-Return to Sport after Injury scale (was most strongly associated with returning to the preinjury activity). Age, sex and preinjury activity level were not related.

CONCLUSIONS:

Less than 50% returned to their preinjury sport or recreational activity after ACL reconstruction. Psychological readiness to return to sport and recreation was the factor most strongly associated with returning to the preinjury activity. Including interventions aimed at improving this in postoperative rehabilitation programmes could be warranted to improve the rate of return to sport and recreational activities.

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KEYWORDS: ACL; Knee ACL; Sport and exercise psychology PMID: 25293342

MENISCUS

Surgery vs. conservative

CMAJ. 2014 Oct 7;186(14):1057-64. doi: 10.1503/cmaj.140433. Epub 2014 Aug 25.

Arthroscopic surgery for degenerative tears of the meniscus: a systematic review and meta-analysis.

Khan M¹, Evaniew N², Bedi A², Ayeni OR², Bhandari M².

Abstract

BACKGROUND:

Arthroscopic surgery for degenerative meniscal tears is a commonly performed procedure, yet the role of conservative treatment for these patients is unclear. This systematic review and meta-analysis evaluates the efficacy of arthroscopic meniscal débridement in patients with knee pain in the setting of mild or no concurrent osteoarthritis of the knee in comparison with nonoperative or sham treatments.

METHODS:

We searched MEDLINE, Embase and the Cochrane databases for randomized controlled trials (RCTs) published from 1946 to Jan. 20, 2014. Two reviewers independently screened all titles and abstracts for eligibility. We assessed risk of bias for all included studies and pooled outcomes using a random-effects model. Outcomes (i.e., function and pain relief) were dichotomized to short-term (< 6 mo) and long-term (< 2 yr) data.

RESULTS:

Seven RCTs (n = 805 patients) were included in this review. The pooled treatment effect of arthroscopic surgery did not show a significant or minimally important difference (MID) between treatment arms for long-term functional outcomes (standardized mean difference [SMD] 0.07, 95% confidence interval [CI] -0.10 to 0.23). Short-term functional outcomes between groups were significant but did not exceed the threshold for MID (SMD 0.25, 95% CI 0.02 to 0.48). Arthroscopic surgery did not result in a significant improvement in pain scores in the short term (mean difference [MD] 0.20, 95% CI -0.67 to 0.26) or in the long term (MD -0.06, 95% CI -0.28 to 0.15). Statistical heterogeneity was low to moderate for the outcomes.

INTERPRETATION:

There is moderate evidence to suggest that there is no benefit to arthroscopic meniscal débridement for degenerative meniscal tears in comparison with nonoperative or sham treatments in middle-aged patients with mild or no concomitant osteoarthritis. A trial of nonoperative management should be the first-line treatment for such patients.

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PMID: 25157057

OSTEOARTHRITIS/KNEE

Muscle strength and limitations

Decrease of muscle strength is associated with increase of activity limitations in early knee osteoarthritis: 3-year results from the cohort hip and cohort knee study

Archives of Physical Medicine and Rehabilitation, 10/22/2014 Clinical Article

Van der Esch M, et al.

The aim of this study is to determine whether a decrease in muscle strength over 3 years is associated with an increase in activity limitations in persons with early symptomatic knee osteoarthritis (OA), and to examine whether the longitudinal association between muscle strength and activity limitations is moderated by knee joint proprioception and laxity. In patients with early knee OA, decreased muscle strength is associated with an increase in activity limitations.

The results are a step toward understanding the role of muscle weakness in the development of activity limitations in knee OA. Further well-designed experimental studies are indicated to establish the causal role of muscle weakness in activity limitations.

MUSCLES

Dynamometers reliability

Arch Phys Med Rehabil. 2014 Jun 5. pii: S0003-9993(14)00414-6. doi: 10.1016/j.apmr.2014.05.019.

Intraexaminer Reliability of Hand-Held Dynamometry in the Upper Extremity: A Systematic Review.

Schrama PP¹, Stenneberg MS², Lucas C³, van Trijffel E⁴.

Abstract

OBJECTIVE:

To summarize and appraise the literature on the intraexaminer reliability of hand-held dynamometry (HHD) in the upper extremity.

DATA SOURCES:

MEDLINE, CINAHL, and EMBASE were searched for relevant studies published up to December 2011. In addition, experts were contacted, and journals and reference lists were hand searched.

STUDY SELECTION:

To be included in the review, articles needed to (1) use a repeated-measures, within-examiner(s) design; (2) include symptomatic or asymptomatic individuals, or both; (3) use HHD to measure muscle strength in any of the joints of the shoulder, elbow, or wrist with the "make" or the "break" technique; (4) report measurements in kilogram, pound, or torque; (5) use a device that is placed between the examiner's hand and the subject's body; and (6) present estimates of intraexaminer reliability.

DATA EXTRACTION:

Quality assessment and data extraction were performed by 2 reviewers independently.

DATA SYNTHESIS:

Fifty-four studies were included, of which 26 (48%) demonstrated acceptable intraexaminer reliability. Seven high-quality studies showed acceptable reliability for flexion and extension of the elbow in healthy subjects. Conflicting results were found for shoulder external rotation and abduction. Reliability for all other movements was unacceptable. Higher estimates were reached for within-sessions reliability and if means of trials were used.

CONCLUSIONS:

Intraexaminer reliability of HHD in upper extremity muscle strength was acceptable only for elbow measurements in healthy subjects. We provide specific recommendations for future research. Physical therapists should not rely on HHD measurements for evaluation of treatment effects in patients with upper extremity disorders.

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KEYWORDS: Extremities; Isometric contraction; Muscle strength dynamometer; Observer variation; Rehabilitation; Reproducibility of results

PMID: 24909587

Eccentric training and hamstring tears

[Br J Sports Med.](#) 2014 Sep 16. pii: bjsports-2014-093466. doi: 10.1136/bjsports-2014-093466.

Eccentric training for prevention of hamstring injuries may depend on intervention compliance: a systematic review and meta-analysis.

[Goode AP¹](#), [Reiman MP¹](#), [Harris L¹](#), [DeLisa L¹](#), [Kauffman A¹](#), [Beltramo D¹](#), [Poole C²](#), [Ledbetter L³](#), [Taylor AB¹](#).

Abstract

BACKGROUND:

Hamstring injury is a prevalent muscle injury in sports. Inconclusive evidence exists for eccentric hamstring strengthening to prevent hamstring injuries. One reason for this discrepancy may be the influence intervention non-compliance has on individual study estimates, and therefore pooled estimates.

OBJECTIVE:

This systematic review aims to determine the effect of eccentric hamstring strengthening on the risk of hamstring injury and quantitatively explores the impact of intervention non-compliance on the precision, heterogeneity and strength of pooled estimates.

METHODS:

A computer-assisted literature search of Medline, CINAHL, Cochrane, EMBASE, AMED, SportDiscus and PEDro databases was conducted with keywords related to eccentric strengthening and hamstring injury. The search was conducted from the end of a previous comprehensive review forward (1 December 2008 to 31 December 2013). Random-effects models were used for both main effects and a sensitivity analysis. Pooled estimate precision was measured with a confidence limit ratio (confidence limit ratio (CLR); upper limit divided by the lower limit) and heterogeneity was assessed with I^2 , Cochrane's-Q and τ^2 . A protocol was not registered for this review.

RESULTS:

Four out of 349 studies met the inclusion criteria. In main effects analysis, eccentric hamstring training did not reduce the risk of hamstring injury (risk ratio [RR]=0.59 ((95% CI 0.24 to 1.44)). This estimate was imprecise (CLR=6.0) with significant heterogeneity (p value 0.02, 69.6% variation and $t^2=0.57$). Subjects compliant with eccentric strengthening had a significant (RR=0.35 ((95% CI 0.23 to 0.55)) reduction in hamstring injuries. This estimate was precise (CLR=2.4) and homogenous (p value=0.38, 2.8% variation and $t^2=0.007$).

CONCLUSIONS:

The null-biased effect in using intent-to-treat methods from intervention non-compliance has a substantial impact on the precision, heterogeneity and the direction and strength of pooled estimates. Eccentric strengthening, with good compliance, appears to be successful in prevention of hamstring injury.

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KEYWORDS: Eccentric; Exercise; Hamstring; Injury

PMID: 25227125

CORE**Multifidus and fat infiltration**

[Arch Phys Med Rehabil.](#) 2014 Oct;95(10):1846-52. doi: 10.1016/j.apmr.2014.04.019. Epub 2014 May 9.

Morphology versus function: the relationship between lumbar multifidus intramuscular adipose tissue and muscle function among patients with low back pain.

Le Cara EC¹, Marcus RL², Dempsey AR³, Hoffman MD⁴, Hebert JJ⁵.

Abstract**OBJECTIVE:**

To explore the bivariate and multivariate relations between fatty degeneration of the lumbar multifidus muscle (LMM) and LMM function among patients with low back pain (LBP).

DESIGN: Cross-sectional clinical study.

SETTING: Hospital.

PARTICIPANTS: Patients with LBP (N=70) referred for lumbar spine magnetic resonance imaging.

INTERVENTIONS: Not applicable.

MAIN OUTCOME MEASURES:

LMM morphology and function were measured at the L4/L5 and L5/S1 spinal levels bilaterally. Quantitative measures of LMM intramuscular adipose tissue (IMAT) were derived from T1-weighted magnetic resonance images. Function was assessed with ultrasound imaging by measuring change in LMM thickness during a submaximal contraction task. The study participants self-reported their level of LBP-related disability (Modified Oswestry Index), pain intensity (numerical pain rating scale), and physical activity (International Physical Activity Questionnaire). Bivariate and multivariate relations between LMM morphology and function were explored with correlational and hierarchical linear regression analyses, respectively. Additionally, we explored for possible covariates with potential to modify the relation between LMM IMAT and function.

RESULTS:

There were 70 participants (12 women) enrolled in the study (mean age, 45.4±11.9y). A high level of physical activity was reported by 45.5% of participants. Age, sex, and physical activity level demonstrated variable relations with LMM IMAT and LMM function. There were no significant bivariate or multivariate relations between LMM IMAT and LMM function.

CONCLUSIONS:

We observed higher levels of physical activity and LMM function and less LMM IMAT than previous studies involving patients with LBP. There was no relation between LMM morphology and function in this cohort of patients with LBP. Issues specific to LMM measurement and recommendations for future research are discussed.

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KEYWORDS: Adipose tissue; Low back pain; Magnetic resonance imaging; Paraspinal muscles; Rehabilitation; Ultrasonography PMID: 24814564

ATHLETICS**Rowers and LBP**

Br J Sports Med. 2014 Nov;48(21):1534-1537. doi: 10.1136/bjsports-2014-093968. Epub 2014 Sep 25.

Ergometer training volume and previous injury predict back pain in rowing; strategies for injury prevention and rehabilitation.

Wilson F¹, Gissane C², McGregor A³.

Abstract

The most commonly reported injury site in rowers is the lower back. Research in recent years has focused on epidemiology and biomechanical analyses to try and understand mechanisms that contribute to this injury's onset. Injury surveillance mainly comprises retrospective questionnaires and reviews of medical records with a lack of prospective data. Of studies that reported 12-month data, the incidence of low back pain ranged from 31.8 to 51% of the cohort. Of the limited studies that specifically examined low back pain in rowers, (1) history of lumbar spine injury and (2) volume of ergometer training were the most significant risk factors for injury onset. Studies of technique on the rowing ergometer have indicated the importance of lumbopelvic rotation during rowing. Greater pelvic rotation at either end of the stroke is ideal-as opposed to lumbar flexion and extension; this tends to be poorly demonstrated in novice rowers on ergometers. Furthermore, technique can deteriorate with the demands of rowing intensity and duration, which puts the rower returning from injury at additional risk.

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KEYWORDS: Biomechanics; Epidemiology; Injury; Rowing

PMID: 25257230

PAIN**Chronic pain and QOL**

Pain Manag Nurs. 2014 Sep;15(3):641-51. doi: 10.1016/j.pmn.2013.07.005. Epub 2013 Oct 19.

The relationship between chronic pain pattern, interference with life and health-related quality of life in a nationwide community sample.

Jonsdottir T¹, Aspelund T², Jonsdottir H³, Gunnarsdottir S⁴.

Abstract

To establish the scope of the problem of chronic pain in the population, we need to extend the focus on prevalence, the most frequently studied factor. Among other important factors is the complex relationship between the temporal characteristics of pain and their impact on peoples' lives.

The purpose of the present study was to describe the characteristics of chronic pain, including pattern, severity, location, spread, and duration, in a population-based sample and to investigate the relationships between pain pattern and impact on the individual's life measured by interference with life and health-related quality of life (HRQoL). In this cross-sectional study, a postal questionnaire measuring pain characteristics, life interference (Brief Pain Inventory), and HRQoL (Short Form 36 Health Survey), was sent to a sample of 4,500 individuals, randomly drawn from the Icelandic National Register. The total response rate was 36.9% and was significantly higher among native Icelanders (40.6%) than individuals of non-Icelandic origin (8.6%). The prevalence of chronic pain (≥ 3 months) was 47.5% with mean duration of 9.3 years, and 31.9% reported constant pain.

Participants with constant pain reported higher life interference scores and less HRQoL than participants with intermittent or periodic pain. Hierarchical stepwise regression analyses showed that pain pattern and severity accounted for 44.4% variance for life interference. The range of the variances for these variables for the five domains of HRQoL was from 7.3% (mental health) to 53.3% (bodily pain). Pain pattern and severity are the most significant predictors of the impact of chronic pain on individual's daily life.

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PMID: 24144571

Adolescence with CFS

BMJ Open. 2014 Oct 6;4(9):e005920. doi: 10.1136/bmjopen-2014-005920.

Pain and pressure pain thresholds in adolescents with chronic fatigue syndrome and healthy controls: a cross-sectional study.

Winger A¹, Kvarstein G², Wyller VB³, Sulheim D⁴, Fagermoen E⁵, Småstuen MC¹, Helseth S¹.

Abstract**OBJECTIVES:**

Although pain is a significant symptom in chronic fatigue syndrome (CFS), pain is poorly understood in adolescents with CFS. The aim of this study was to explore pain distribution and prevalence, pain intensity and its functional interference in everyday life, as well as pressure pain thresholds (PPT) in adolescents with CFS and compare this with a control group of healthy adolescents (HC).

METHODS:

This is a case-control, cross-sectional study on pain including 120 adolescents with CFS and 39 HCs, aged 12-18 years. We measured pain frequency, pain severity and pain interference using self-reporting questionnaires. PPT was measured using pressure algometry. Data were collected from March 2010 until October 2012 as part of the Norwegian Study of Chronic Fatigue Syndrome in Adolescents: Pathophysiology and Intervention Trial.

RESULTS:

Adolescents with CFS had significantly lower PPTs compared with HCs ($p < 0.001$). The Pain Severity Score and the Pain Interference Score were significantly higher in adolescents with CFS compared with HCs ($p < 0.001$). Almost all adolescents with CFS experienced headache, abdominal pain and/or pain in muscles and joints. Moreover, in all sites, the pain intensity levels were significantly higher than in HCs ($p < 0.001$).

CONCLUSIONS:

We found a higher prevalence of severe pain among adolescents with CFS and lowered pain thresholds compared with HCs. The mechanisms, however, are still obscure. Large longitudinal population surveys are warranted measuring pain thresholds prior to the onset of CFS.

TRIAL REGISTRATION NUMBER:

Clinical Trials, NCT01040429; The Norwegian Study of Chronic Fatigue Syndrome in Adolescents: Pathophysiology and Intervention Trial (NorCAPITAL)
<http://www.clinicaltrials.gov>.

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KEYWORDS: PAIN MANAGEMENT; PUBLIC HEALTH

PMID: 25287104

Cryotherapy

Arch Phys Med Rehabil. 2014 Sep 3. pii: S0003-9993(14)01017-X. doi: 10.1016/j.apmr.2014.08.011

Effect of Cryotherapy after Elbow Arthrolysis: A Prospective, Single-blinded, Randomized Controlled Study.

Yu SY¹, Chen S¹, Yan HD¹, Fan CY².

Abstract**OBJECTIVE:**

To investigate the effect of cryotherapy after elbow arthrolysis on elbow pain, blood loss, analgesic consumption, range of motion and long-term elbow function.

DESIGN:

A prospective, single-blinded, and randomized controlled study.

SETTING:

An orthopedic unit at a university hospital.

PARTICIPANTS:

Fifty-nine patients (27 females and 32 males) received elbow arthrolysis.

INTERVENTIONS:

Patients were randomly assigned into a cryotherapy group (n = 31, cryotherapy plus standard care) and a control group (n=28, standard care).

MAIN OUTCOME MEASURES:

Elbow pain at rest and on motion was measured using visual analogue scale (VAS) on postoperative day (POD) 1 to POD 7, and at 2 weeks and 3 months after surgery. Blood loss and analgesic consumption were recorded postoperatively. Elbow range of motion (ROM) was measured before surgery and on POD 1, POD 7 and at 3 months after surgery. The Mayo Elbow Performance Score (MEPS) was evaluated preoperatively and 3 months postoperatively.

RESULTS:

VAS scores were significantly lower in the cryotherapy group during the first 7 postoperative days, both at rest and on motion ($P < 0.05$). There were no significant differences between the two groups in VAS scores at 2 weeks and 3 months after surgery. Less sufentanil was consumed by the cryotherapy group than by the control group for pain relief ($P < 0.01$). No significant differences were found in blood loss, ROM and MEPS between the two groups ($P > 0.05$).

CONCLUSION:

Cryotherapy is effective in relieving pain and reducing analgesic consumption for patients received elbow arthrolysis. The application of cryotherapy will not affect blood loss, ROM or elbow function.

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KEYWORDS: Cryotherapy; arthrolysis; cold; elbow stiffness; pain

PMID: 25194452

COMPLEX REGIONAL PAIN

Skin temp and pain

[Korean J Pain](#). 2014 Oct;27(4):339-44. doi: 10.3344/kjp.2014.27.4.339. Epub 2014 Oct 1.

Do severity score and skin temperature asymmetry correlate with the subjective pain score in the patients with complex regional pain syndrome?

[Jeon SG](#)¹, [Choi EJ](#)², [Lee PB](#)², [Lee YJ](#)³, [Kim MS](#)², [Seo JH](#)⁴, [Nahm FS](#)².

Abstract

BACKGROUND:

The diagnostic criteria of complex regional pain syndrome (CRPS) have mainly focused on dichotomous (yes/no) categorization, which makes it difficult to compare the inter-patient's condition and to evaluate the intra-patient's subtle severity over the course of time. To overcome this limitation, many efforts have been made to create laboratory methods or scoring systems to reflect the severity of CRPS; measurement of the skin temperature asymmetry is one of the former, and the CRPS severity score (CSS) is one of the latter. However, there has been no study on the correlations among the CSS, temperature asymmetry and subjective pain score. The purpose of this study was to evaluate whether there is any correlation between the CSS, skin temperature asymmetry and subjective pain score.

METHODS:

Patients affected with CRPS in a unilateral limb were included in this study. After making a diagnosis of CRPS according to the Budapest criteria, the CSS and skin temperature difference between the affected and unaffected limb (ΔT) was measured in each patient. Finally, we conducted a correlation analysis among the CSS, ΔT and visual analogue scale (VAS) score of the patients.

RESULTS:

A total of 42 patients were included in this study. There was no significant correlation between the ΔT and VAS score (Spearman's rho = 0.066, P = 0.677). Also, the CSS and VAS score showed no significant correlation (Spearman's rho = 0.163, P = 0.303).

CONCLUSIONS:

The ΔT and CSS do not seem to reflect the degree of subjective pain in CRPS patients.

KEYWORDS:

complex regional pain syndrome; infrared thermography; severity of illness index; visual analogue pain scale

PMID: 25317283

PHARMACOLOGY

Cox 2

[PLoS One](#). 2014 Jun 2;9(6):e98165. doi: 10.1371/journal.pone.0098165. eCollection 2014.

COX-2 protects against atherosclerosis independently of local vascular prostacyclin: identification of COX-2 associated pathways implicate Rgl1 and lymphocyte networks.

[Kirkby NS](#)¹, [Lundberg MH](#)¹, [Wright WR](#)², [Warner TD](#)³, [Paul-Clark MJ](#)², [Mitchell JA](#)².

Author information

Abstract

Cyclo-oxygenase (COX)-2 inhibitors, including traditional nonsteroidal anti-inflammatory drugs (NSAIDs) are associated with increased cardiovascular side effects, including myocardial infarction. We and others have shown that COX-1 and not COX-2 drives vascular prostacyclin in the healthy cardiovascular system, re-opening the question of how COX-2 might regulate cardiovascular health. In diseased, atherosclerotic vessels, the relative contribution of COX-2 to prostacyclin formation is not clear. Here we have used apoE(-)/COX-2(-) mice to show that, whilst COX-2 profoundly limits atherosclerosis, this protection is independent of local prostacyclin release. These data further illustrate the need to look for new explanations, targets and pathways to define the COX/NSAID/cardiovascular risk axis. Gene expression profiles in tissues from apoE(-)/COX-2(-) mice showed increased lymphocyte pathways that were validated by showing increased T-lymphocytes in plaques and elevated plasma Th1-type cytokines. In addition, we identified a novel target gene, *rgl1*, whose expression was strongly reduced by COX-2 deletion across all examined tissues.

This study is the first to demonstrate that COX-2 protects vessels against atherosclerotic lesions independently of local vascular prostacyclin and uses systems biology approaches to identify new mechanisms relevant to development of next generation NSAIDs.

PMID: 24887395

NEUROLOGICAL CONDITIONS

Stroke and painful shoulder

Arch Phys Med Rehabil. 2014 Sep 25. pii: S0003-9993(14)01072-7. doi: 10.1016/j.apmr.2014.09.007.

Incidence and Associations of Hemiplegic Shoulder Pain Post Stroke: A prospective population based study.

Adey-Wakeling Z¹, Arima H², Crotty M³, Leyden J⁴, Kleinig T⁴, Anderson CS², Newbury J⁵; SEARCH study collaborative.

Abstract

OBJECTIVE:

To provide an epidemiological perspective of the clinical profile, frequency and determinants of post stroke hemiplegic shoulder pain.

DESIGN:

A prospective population-based study of an inception cohort of participants with 12 months follow up period.

PARTICIPANTS:

Multiple ascertainment techniques were used to identify 318 confirmed stroke events in 301 individuals. Among 301 adults with stroke, data on shoulder pain were available for 198 (83% of survivors) at baseline, and 156 and 148 at 4 and 12 months, respectively.

SETTING:

Participants were recruited within a geographically defined metropolitan region with estimated population of 148,000 in Adelaide, Australia. Ascertainment and follow up included both general community and hospital settings.

INTERVENTIONS:

not applicable
MAIN OUTCOME MEASURES: Subjective reports of onset, severity and aggravating factors for pain, and three passive range of motion measures were collected at baseline, and follow-up at 4 and 12 months.

RESULTS:

10% of participants reported shoulder pain at baseline, whilst 21% reported pain at each follow-up assessment. Overall, 29% of all assessed participants reported shoulder pain during 12 months follow up, with the median pain score (VAS = 40) highest at 4 months and more often associated with movement at later time points. Objective passive range of motion tests elicited higher frequencies of pain than self-report, and predicted later subjective shoulder pain (crude relative risk of 3.22 (95%CI 1.01-10.27)).

CONCLUSIONS:

The frequency of post-stroke shoulder pain is almost 30%. Peak onset and severity of hemiplegic shoulder pain in this study was at 4 months, outside of rehabilitation admission timeframes. Systematic use of objective assessment tools may aid in early identification and management of stroke survivors at risk of this common complication of stroke.

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KEYWORDS: Stroke; epidemiology; hemiplegia; pain; shoulder PMID: 25264111