

ABSTRACTS

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ABSTRACTS

2. LBP

Forward bending and LBP

Scand J Work Environ Health. 2016 Feb 1. pii: 3549. doi: 10.5271/sjweh.3549.

Social support modifies association between forward bending of the trunk and low-back pain: Cross-sectional field study of blue-collar workers.

Villumsen M¹, Holtermann A, Samani A, Madeleine P, Jørgensen MB.
Author information

Abstract

OBJECTIVES:

This study aimed to investigate the association between forward bending of the trunk and low-back pain intensity (LBPI) among blue-collar workers in Denmark as well as whether the level of social support modifies the association.

METHODS:

In total, 457 workers were included in the study. The forward bending of $\geq 30^\circ$ was computed from accelerometer recordings for several consecutive days during work, categorized into long (highest tertile) and short-moderate (remaining tertiles) duration. LBPI was measured on a 0-10 scale and categorized into low (≤ 5) and high (> 5) pain. Self-reported social support was categorized into low, moderate, and high levels. Multi-adjusted logistic regressions estimated the association between forward bending and LBPI and the effect modification by social support.

RESULTS:

Forward bending and LBPI were not significantly associated but modified by social support. Workers with low social support and long duration of forward bending had higher likelihood of high LBPI [odds ratio (OR) 2.97, 95% confidence interval (95% CI) 1.11-7.95] compared to workers with high social support and long duration of forward bending. Among workers with low social support, workers with long duration of forward bending had higher likelihood of high LBPI (OR 3.28, 95% CI 0.99-10.90) compared to workers with short-moderate duration of forward bending. Among workers with high social support, workers with short duration of forward bending had reduced likelihood of high LBPI (OR 0.39, 95% CI 0.16-0.95) compared to workers with short-moderate duration of forward bending.

CONCLUSIONS:

Social support modifies the association between objectively measured forward bending and LBPI among blue-collar workers.

PMID: 26828769

Brain areas of pain

Brain areas involved in anticipation of clinically-relevant pain in low back pain populations with high levels of pain behaviour

Donna M. Lloyd Torben Helbig Gordon Findlay Neil Roberts Turo Nurmikko

Highlights

- High levels of pain behaviour in chronic low back pain (cLBP) populations is associated with pain anticipation
- fMRI shows response to expected vs. unexpected pain co-varied as a function of anxiety in right insula and pregenual anterior cingulate cortex and catastrophizing in prefrontal and parietal cortex and hippocampus
- cLBP populations with the highest levels of pain-related distress are more likely to attend to and infer threat from innocuous cues, contributing to maintenance of pain behaviour
- This information could help clinicians and patients to understand how anticipation of pain may contribute to patient pain and disability

Abstract

The purpose of this study was to identify neural correlates of pain anticipation in people with non-specific low back pain (NSLBP) that correlated with pain-related distress and disability, thus providing evidence for mechanisms underlying pain behaviour in this population. Thirty NSLBP sufferers, with either high levels of pain behaviour (WS-H) or low levels (WS-L) based on Waddell Signs (WS), were scanned with functional Magnetic Resonance Imaging (fMRI) whilst a straight-leg raise (of the side deemed to cause moderate pain in the lower back) was performed. On each trial coloured stimuli were presented and used to indicate when the leg definitely would be raised (Green; 100% certainty), might be raised (Yellow; 50% certainty) or would definitely not be raised (Red; 100% certainty). In response to expected vs. unexpected pain the group difference in activation between WS-H and WS-L co-varied as a function of anxiety scores in right insula and pregenual anterior cingulate cortex and as a function of catastrophizing in prefrontal and parietal cortex and hippocampus. The results suggest NSLBP populations with the highest levels of pain-related distress are more likely to attend to and infer threat from innocuous cues, which may contribute to the maintenance of pain behaviour associated with some chronic pain states.

Perspective

This article demonstrates a likely neural network for exacerbating pain anticipation in NSLBP contributing to high levels of pain behaviour in some people. This information could potentially help clinicians and patients to understand how anticipation of pain may contribute to patient pain and disability.

Keywords: *anxiety, catastrophizing, non-specific low back pain (NSLBP), pain behaviour, Waddell Signs*

3. DISC

Disc progression

BMC Musculoskelet Disord. 2016 Jan 15;17(1):26. doi: 10.1186/s12891-016-0865-6.

Progression of lumbar disc herniations over an eight-year period in a group of adult Danes from the general population - a longitudinal MRI study using quantitative measures.

Kjaer P¹, Tunset A², Boyle E^{3,4}, Jensen TS^{5,6}.
Author information

Abstract**BACKGROUND:**

A lumbar disc herniation (LDH) is a localised displacement of disc material, which may initiate changes in the disc and adjacent structures such as the nerve root and the spinal canal. Knowledge about how morphological changes in the disc relate to changes in other spinal structures might give the clinician a better understanding of the natural history and consequences of lumbar disc herniations. However, few longitudinal studies have investigated this process using reliable measures from magnetic resonance imaging (MRI). The objectives of this study were to examine changes in and associations between the size of lumbar disc herniations, dural sac area and disc height over an eight-year period using MRI at three time-points.

METHODS:

Individuals from a population-based cohort, the 'Backs on Funen Cohort', had MRIs taken at age 41 years and again at 45 and 49 years. Only disc levels with MRI-confirmed disc herniations at 41 or 45 years were included. Cross-sectional areas (mm²) of the LDH, dural sac and disc height were calculated from measurements performed on sagittal T2-weighted images using a previously validated method. Changes over time for the three MRI findings were defined as "unchanged", "increased", "decreased", or "fluctuating". Only changes beyond 95 % limits of agreement of the same measurements were regarded as valid. Associations between the three types of measures were examined cross-sectionally and longitudinally.

RESULTS:

One hundred and forty disc levels, from 106 people (48 women and 58 men), were included. Over eight years, 65 % of the herniations remained unchanged, 17.5 % decreased, 12.5 % increased, and 5 % had a fluctuating pattern. Increased herniation size was associated with decreased dural sac area (β -0.25[-0.52;0.01]) and increased disc height (β 0.35[0.14;0.56]). Moreover, larger herniation size predicted a statistically significant reduction in both dural sac area (β -0.35[-0.58;-0.13]) and disc height (β -0.50[-0.81;-0.20]).

CONCLUSIONS:

On average, most LDHs do not change over a four- to eight-year period. However, larger herniation size predicts a reduction in both dural sac area and disc height. Further research should be done to determine the correlations between the progression of LDH and resolution of patient symptoms.

PMID: 26767364

Hypoxia

Osteoarthritis Cartilage. 2016 Jan 27. pii: S1063-4584(16)00153-9. doi: 10.1016/j.joca.2016.01.134.

Hypoxia regulates sumoylation pathways in intervertebral disc cells: implications for hypoxic adaptations.

Wang F¹, Cai F², Shi R³, Wei JN⁴, Wu XT⁵.
Author information

Abstract

OBJECTIVE:

To explore the hypoxic regulation of sumoylation pathways and cell viability in nucleus pulposus (NP) and annulus fibrosus (AF) cells.

DESIGN:

Expression of small ubiquitin-like modifier (SUMO) molecules, SUMO E1 activating enzymes SAE1 and SAE2, SUMO E2 conjugating enzyme UBC9, and de-sumoylation enzyme SENP1 was immunolocalized in rat intervertebral disc (IVD) cells. NP and AF cells were cultured in hypoxia and cell viability was evaluated by quantifying cell proliferation, cellular senescence, apoptosis, and cell cycle distribution. Hypoxic regulation of sumoylation pathways was studied by analyzing the transcription and expression of SUMO molecules and sumoylation enzymes. Loss of function study using SENP-1 siRNA was performed to investigate the regulatory role of sumoylation on the function of HIF-1 α and the hypoxic tolerance of IVD cells.

RESULTS:

Sumoylation pathways were expressed in IVD cells and localized predominantly in nuclei. Both NP and AF cells maintained viability under hypoxia and upregulated the expression of SENP1. In NP cells hypoxia transiently increased the expression of SUMO-1, SUMO-2/3, SAE2, and UBC9, whereas SUMO-1 was elevated while SUMO-2/3, SAE1, SAE2, and UBC9 was reduced by low oxygen tensions in AF cells. Although downregulation of SENP1 decreased the transcriptional activity of HIF-1 α , the viability of disc cells showed no significant loss under hypoxia.

CONCLUSIONS:

NP and AF cells equally tolerate oxygen deficiency, but differently regulate the sumoylation pathways under hypoxia. The distinct sumoylation dynamics may help extend our understanding of the cell-specific regulation of the molecular basis that promotes cell survival in the hypoxic intervertebral disc.

KEYWORDS: Hypoxia; Intervertebral Disc; Posttranslational Modulation; Sumoylation
PMID: 26826302

4. INJECTIONS**Cervical epidurals effective**

Medicine (Baltimore). 2016 Jan;95(4):e2568. doi: 10.1097/MD.0000000000002568.

Comparison of Clinical Efficacy Between Interlaminar and Transforaminal Epidural Injection in Patients With Axial Pain due to Cervical Disc Herniation.

Lee JH¹, Lee SH.
Author information

Abstract

Transforaminal (TF) approach is preferred by physician to interlaminar (IL) approach because it can deliver injectates directly around nerve root and dorsal root ganglion, which is regarded as main pain sources. Axial neck pain is originated from sinuvertebral nerve located in ventral epidural spaces, which has been described to be related to central or paramedian disc herniation. It is very questionable that TF injection is also more effective than IL injection in the patients with axial neck or interscapular pain. This study was to evaluate clinical efficacy of cervical epidural injection in patients with axial pain due to cervical disc herniation and to compare the clinical outcomes between TF and IL approaches. Fifty-six and 52 patients who underwent IL and TF epidural injections, respectively, for axial neck/interscapular pain due to central or paramedian cervical disc herniation were included. Numeric Rating Scale (NRS) and Neck Disability Index (NDI) were compared between both groups at 2 and 8 weeks after treatment. Successful pain relief was defined if a 50% or more reduction of NRS score was achieved in comparison with pretreatment one. Successful functional improvement was defined if at least a 40% reduction of NDI was obtained. Overall, 79 (73.1%) and 57 (52.8%) among 108 patients showed successful pain relief at 2 and 8 weeks, respectively. Seventy-six (70.4%) and 52 (48.1%) had successful functional improvement at 2 and 8 weeks, respectively. The IL and TF groups showed no significant difference in proportion of successful results of NRS 2 weeks (73.2% vs 67.3%) and 8 weeks (48.2% vs 48.1%). Also, no significant difference was obtained in proportion of successful NDI between 2 groups at 2 weeks (75.0% vs 71.2%) and 8 weeks (53.6% vs 51.9%).

Cervical epidural injection showed favorable results in 2 weeks and moderate results in 8 weeks in patients with axial pain due to cervical disc herniation. IL and TF showed no significant difference in clinical efficacy. Considering TF was relevant to more serious side effects, IL was more recommendable in these patients.
PMID: 26825899

6. PELVIC GIRDLE**SI PAIN**

Eur Spine J. 2016 Jan 14.

Psychometric properties including reliability, validity and responsiveness of the Majeed pelvic score in patients with chronic sacroiliac joint pain.

Bajada S¹, Mohanty K².
Author information

Abstract

PURPOSE:

The Majeed scoring system is a disease-specific outcome measure that was originally designed to assess pelvic injuries. The aim of this study was to determine the psychometric properties of the Majeed scoring system for chronic sacroiliac joint pain.

METHODS:

Internal consistency, content validity, criterion validity, construct validity and responsiveness to change was assessed prospectively for the Majeed scoring system in a cohort of 60 patients diagnosed with sacroiliac joint pain. This diagnosis was confirmed with CT-guided sacroiliac joint anaesthetic block.

RESULTS:

The overall Majeed score showed acceptable internal consistency (Cronbach alpha = 0.63). Similarly, it showed acceptable floor (0 %) and ceiling (0 %) effects. On the other hand, the domains of pain, work, sitting and sexual intercourse had high (>30 %) floor effects. Significant correlation with the physical component of the Short Form-36 ($p = 0.005$) and Oswestry disability index ($p \leq 0.001$) was found indicating acceptable criterion validity. The overall Majeed score showed acceptable construct validity with all five developed hypotheses showing significance ($p \leq 0.05$). The overall Majeed score showed acceptable responsiveness to change with a large (≥ 0.80) effect size and standardized response mean.

CONCLUSION:

Overall the Majeed scoring system demonstrated acceptable psychometric properties for outcome assessment in chronic sacroiliac joint pain. Thus, its use in this condition is adequate. However, some domains demonstrated suboptimal performance indicating that improvement might be achieved with the development of an outcome measure specific for sacroiliac joint dysfunction and degeneration.

KEYWORDS: Chronic pain; Outcome measures; Reliability; Sacroiliac joint; Validity
PMID:26769033

8. VISCERA**Abdominal massage for constipation**

Age Ageing. 2016 Jan 29. pii: afw005.

Abdominal massage for the alleviation of symptoms of constipation in people with Parkinson's: a randomised controlled pilot study.

McClurg D¹, Hagen S², Jamieson K², Dickinson L³, Paul L⁴, Cunnington A⁵.
Author information

Abstract

BACKGROUND:

constipation is one of the most common non-motor features of Parkinson's affecting up to 90% of patients. In severe cases, it can lead to hospitalisation and is usually managed with laxatives which in themselves can lead to side effects. Abdominal massage has been used as adjunct in the management of constipation in various populations, but not in those with Parkinson's.

OBJECTIVE:

the primary objective was to test the recruitment, retention and the appropriateness of the intervention methods and outcome measures.

METHODS:

thirty-two patients with Parkinson's were recruited from three movement disorder clinics and were randomised to receive either 6 weeks of daily abdominal massage plus lifestyle advice on managing constipation (Intervention Group, n = 16) or lifestyle advice (Control Group, n = 16). Data were collected prior to group allocation (Baseline), at Week 6 (following intervention) and 4 weeks later (Week 10). Outcome tools included the Gastrointestinal Rating Scale and a bowel diary.

RESULTS:

constipation has a negative impact on quality of life. The study recruited to target, retention was high and adherence to the study processes was good. The massage was undertaken as recommended during the 6 weeks of intervention with 50% continuing with the massage at 10 weeks. Participants in both groups demonstrated an improvement in symptoms, although this was not significantly different between the groups.

CONCLUSION:

abdominal massage, as an adjunct to management of constipation, offers an acceptable and potentially beneficial intervention to patients with Parkinson's.

KEYWORDS: abdominal massage; bowel; defaecation; laxative; older people
PMID: 26826459

HA and celiac's disease

Celiac disease in a large cohort of children and adolescents with recurrent headache: A retrospective study

Digestive and Liver Diseases, 02/01/2016 Nenna R, et al.

The authors aimed to establish the prevalence of celiac disease in children suffering from recurrent headache. The study demonstrates, on a large series, that celiac disease prevalence is doubled in patients with chronic headache. Screening for celiac disease could be advised as part of the diagnostic work-up in these paediatric patients, particularly among pharmacological non-responders.

Methods

- In the retrospective study the authors collected charts from 1131 children attending the tertiary care Centre for Paediatric Headache over the period 2001–2012.
- They were screened for celiac disease and positive patients were referred to the Operative Unit for Coeliac disease and confirmed positive children underwent upper endoscopy with multiple duodenal biopsies.
- Celiac children started a gluten-free diet.

Results

- 883 children (481 females; median age, 9.8 years, range 3–19) performed celiac disease screening, and among them, 11 children (7 females; median age, 8.2 years, range: 4.8–13.9) were diagnosed with celiac disease.
- Seven children (5 females, median age, 11.9 years, range: 10.3–13.9) had been diagnosed as celiac prior to the neurological evaluation.
- The prevalence of celiac disease in the sample is 2.04% vs. 1.2% of the general population ($p = 0.034$).

Mucosal healing

Mucosal healing is associated with improved long-term outcomes of patients with ulcerative colitis: a systematic review and meta-analysis

Clinical Gastroenterology and Hepatology, 02/01/2016 Shah SC, et al.

The authors performed a systematic review and meta-analysis to identify and analyze studies comparing long-term outcomes of patients with mucosal healing (MH) compared to those without MH. In a meta-analysis, they associated MH with long-term clinical remission, avoidance of colectomy, and corticosteroid-free clinical remission. MH is therefore appropriate goal of ulcerative colitis (UC) therapy.

Methods

- The authors performed a systematic search of 3 large databases to identify prospective studies of patients with active UC that included outcomes of patients found to have MH at the first endoscopic evaluation after initiation of UC therapy (MH1) compared to those without MH1.
- The primary outcome was clinical remission after at least 52 weeks.
- Secondary outcomes included proportions of patients who were free of colectomy or corticosteroids, and rate of MH, after at least 52 weeks.

Results

- The authors analyzed 13 studies comprising 2073 patients with active UC.
- Patients with MH1 had pooled odds-ratio of 4.50 for achieving long-term (after at least 52 weeks) clinical remission (95% confidence interval [CI], 2.12-9.52), 4.15 for remaining free of colectomy (95% CI, 2.53-6.81), 8.40 for achieving long-term MH (95% CI, 3.13-22.53), and 9.70 for achieving long-term corticosteroid-free clinical remission (95% CI, 0.94-99.67), compared to patients without MH1.
- They found no difference in outcomes if patients achieved MH1 while receiving biologic versus non-biologic therapy.

10 A. CERVICAL SPINE**Pain Mental rotation tasks****Influence of Subclinical Neck Pain on the Ability to Perform a Mental Rotation Task: A 4-Week Longitudinal Study With a Healthy Control Group Comparison**

Julianne K. Baarbé, MHSc Michael W.R. Holmes, PhD Heather E. Murphy, BHSc(Hons)
Heidi Haavik, BSc(Chiro), PhD Bernadette A. Murphy, DC, PhD

Abstract**Objective**

Mental rotation of objects and the frame of reference of those objects are critical for executing correct and skillful movements and are important for object recognition, spatial navigation, and movement planning. The purpose of this longitudinal study was to compare the mental rotation ability of those with subclinical neck pain (SCNP) to healthy controls at baseline and after 4 weeks.

Methods

Twenty-six volunteers (13 SCNP and 12 healthy controls) were recruited from a university student population. Subclinical neck pain participants had scores of mild to moderate on the Chronic Pain Grade Scale, and controls had minimal or no pain. For the mental rotation task, participants were presented with an object (letter "R") on a computer screen presented randomly in either normal or backwards parity at various orientations (0°, 45°, 90°, 135°, 180°, 225°, 270°, and 315°). Participants indicated the object's parity by pressing "N" for normal or "B" for backwards. Each orientation for normal and backward parities was presented 5 times, and the average response time for all letter presentations was calculated for each participant, at baseline and 4 weeks later.

Results

Both groups had overall improved response times from baseline to 4 weeks. Healthy participants had significantly improved response times compared to SCNP, both at baseline ($P < .05$) and 4 weeks ($P < .05$).

Conclusions

Healthy participants performed better than the SCNP group at both time points. Subclinical neck pain may impair the ability to perform a complex mental rotation task involving cerebellar connections, possibly due to altered body schema.

Key Indexing Terms: Cerebellum, Adult, Body Schema, Humans, Neuropsychological Tests, Space Perception, Visual Perception, Mental Processes

11. UPPER C SPINE**Haemodynamic headache**

Cephalalgia. 2016 Jan 28. pii: 0333102416629241.

Dynamics of a haemodynamic headache: A case report and literature review of headache secondary to flow inversion of the internal jugular vein.

Pereira L¹, Campos Costa E², Nunes T³, Saraiva P³, Ferreira J⁴, Cruz P⁴, Rodrigues M².
Author information

Abstract**BACKGROUND:**

Haemodialysis arteriovenous fistulas have common local and regional complications, but are rarely associated with neurological symptoms.

CASE REPORT:

A 43-year-old woman presented with short acute episodes of unilateral, non-throbbing, severe headache, vertigo and left lateropulsion. She had undergone renal transplantation and had a still-functioning left brachial arteriovenous fistula. No abnormality was detected on neurological examination or on brain parenchymal imaging. Colour Doppler ultrasonography showed a subclavian steal syndrome of the left vertebral artery and reversed flow in the left internal jugular vein. Ligation of the arteriovenous fistula had to be delayed as a result of renal graft dysfunction. Six months later she developed a headache attributed to intracranial hypertension. All symptoms subsided after ligation of the arteriovenous fistula.

LITERATURE REVIEW:

We identified 16 case reports of central neurological complications attributed to haemodialysis brachial fistulas. Headache descriptions were scarce and were not fully detailed.

CONCLUSIONS:

The case of our patient suggests that unilateral, episodic, non-throbbing, non-postural headache with transient neurological symptoms can be caused by combined arterial and venous flow abnormalities secondary to a high-flow arteriovenous brachial fistula. In this setting, this pattern of headache may precede overt signs of intracranial hypertension and may be used as a warning sign of cerebral venous congestion.

KEYWORDS: Unilateral headache; arteriovenous fistula; internal jugular vein flow inversion; intracranial hypertension; renal failure
PMID: 26826092

12 A. WHIPLASH**Cognitive function**

J Orthop Sports Phys Ther. 2016 Feb;46(2):87-95. doi: 10.2519/jospt.2016.6060. Epub 2016 Jan 11.

Exercise and Cognitive Functioning in People With Chronic Whiplash-Associated Disorders: A Controlled Laboratory Study.

Ickmans K, Meeus M, De Kooning M, De Backer A, Kooremans D, Hubloue I, Schmitz T, Van Loo M, Nijs J.

Abstract

Study Design Controlled laboratory study.

Background In addition to persistent pain, people with chronic whiplash-associated disorders (WAD) commonly deal with cognitive dysfunctions. In healthy individuals, aerobic exercise has a positive effect on cognitive performance, and preliminary evidence in other chronic pain conditions reveals promising results as well. However, there is evidence that people with chronic WAD may show a worsening of the symptom complex following physical exertion.

Objective To examine postexercise cognitive performance in people with chronic WAD. Methods People with chronic WAD (n = 27) and healthy, inactive, sex- and age-matched controls (n = 27) performed a single bout of an incremental submaximal cycling exercise. Before and after the exercise, participants completed 2 performance-based cognitive tests assessing selective and sustained attention, cognitive inhibition, and simple and choice reaction time.

Results At baseline, people with chronic WAD displayed significantly lower scores on sustained attention and simple reaction time (P<.001), but not on selective attention, cognitive inhibition, and choice reaction time (P>.05), compared with healthy controls. Postexercise, both groups showed significantly improved selective attention and choice reaction time (chronic WAD, P = .001; control, P<.001), while simple reaction time significantly increased (P = .037) only in the control group. In both groups, no other significant changes in sustained attention, cognitive inhibition, pain, and fatigue were observed (P>.05).

Conclusion In the short term, postexercise cognitive functioning, pain, and fatigue were not aggravated in people with chronic WAD. However, randomized controlled trials are required to study the longer-term and isolated effects of exercise on cognitive functioning. J Orthop Sports Phys Ther 2016;46(2):87-95. Epub 11 Jan 2016. doi:10.2519/jospt.2016.6060.

KEYWORDS: chronic pain; cognitive performance; exercise; neck; rehabilitation
PMID:26755408

Impact of diagnosis

BMC Musculoskelet Disord. 2016 Jan 14;17(1):24. doi: 10.1186/s12891-016-0877-2.

Whiplash(-like) injury diagnoses and co-morbidities - both before and after the injury: A national registry-based study.

Bendix T¹, Kjellberg J², Ibsen R³, Jennum PJ⁴.
Author information

Abstract**BACKGROUND:**

Previous studies suggest that a greater proportion of neck injury patients, whose injuries were sustained through whiplash accidents, become chronic due to a component of sickness-focusing. However, it is also possible that some of those with neck injuries were already more frail prior to the injury, resulting in more consequences from a certain intensity of injury. The objective of this study was to compare co-morbidity and mortality in people with a registered neck injury diagnosis, evaluated prior to and after the neck injury, to people without a registered neck injury evaluated at the same time-points.

METHODS:

From a hospital patient registry over a 12-year period, we identified those with the diagnosis 'cervical-column distortion' and matched four controls for each of them on sex, age, marital status and county of residence. For calculations of co-morbidity, those with an injury at year 1, who thus had no prior data, and for those at year 12 who did not have post data, were not included. The same applied to their individually matched controls. Health data for up to 3 years prior to and up to 3 years after the year of injury were recorded.

RESULTS:

We identified 94,224 cases and 373,341 controls. Those with registered neck injuries had 1.2-2.0 times more co-morbidities than controls after the injury, but had already had about the same (1.3-1.8 more co-morbidities) number of co-morbidities prior to the injury. Mortality up to 12 years was approximately the same in the two groups.

CONCLUSIONS:

Those people having a registered neck injury had more co-morbidity diagnoses both before and after the injury than those without a registered neck injury. This suggests that the co-morbidities observed after the injury may be partly related to already existing general high health care-seeking and/or a low health status, rather than being entirely the consequence of the injury.

PMID: 26767412

PMCID: PMC4712459

12 B. CERVICAL SURGERIES**Workman's comp and arthroplasties**

J Bone Joint Surg Am. 2016 Jan 20;98(2):93-9. doi: 10.2106/JBJS.O.00324.

The Effect of Workers' Compensation Status on Outcomes of Cervical Disc Arthroplasty: A Prospective, Comparative, Observational Study.

Gornet MF¹, Schranck FW², Copay AG³, Kopjar B⁴.
Author information

Abstract

BACKGROUND:

Receiving Workers' Compensation benefits has been associated with inferior outcomes after lumbar fusion. The purpose of our study was to compare the outcomes of cervical disc arthroplasty between patients receiving and those not receiving Workers' Compensation.

METHODS:

Patient-reported outcomes, reoperations, complications, and return-to-work status were analyzed at one year after surgery in an observational cohort of consecutive patients who underwent single-level or multilevel cervical disc arthroplasty for symptomatic cervical disc conditions, including radiculopathy or discogenic pain with or without radiculopathy, exclusive of myelopathy.

RESULTS:

Of the 189 patients who underwent cervical disc arthroplasty, 144 received Workers' Compensation and forty-five did not. The mean scores on all patient-reported measures improved significantly from preoperative baseline to one year after surgery ($p < 0.001$), and the improvement in patient-reported outcomes did not differ significantly between the Workers' Compensation and the non-Workers' Compensation group (respectively, 22.7 compared with 25.0 for the Neck Disability Index; 8.3 compared with 9.6 for the Short Form (SF)-36 physical component summary; 7.9 compared with 9.6 for the SF-36 mental component summary; 3.5 compared with 3.7 for neck pain; and 2.6 compared with 2.8 for arm pain). The two groups also did not differ significantly in the rate of reoperations (7.6% for those receiving Workers' Compensation compared with 13.3% for those not receiving Workers' Compensation) and complications (2.8% compared with 4.4%, respectively). At one year after surgery, the proportion of patients who had returned to work was comparable (77.7% in the Workers' Compensation group and 79.4% in the non-Workers' Compensation group); however, the patients receiving Workers' Compensation had significantly more days off before returning to work (a mean of 145.2 compared with 61.9 days; $p = 0.001$).

CONCLUSIONS:

After cervical disc arthroplasty, patients receiving Workers' Compensation had outcomes that were similar to those of patients not receiving Workers' Compensation in terms of patient-reported outcomes, surgery-related complications, reoperations, and return-to-work status. Patients receiving Workers' Compensation remained off work for a longer interval than did patients not receiving Workers' Compensation.

LEVEL OF EVIDENCE: Prognostic Level II. See Instructions for Authors for a complete description of levels of evidence.

PMID: 26791029

Fusion impact on neck control

Eur Spine J. 2016 Jan 13.

Identification of head control deficits following anterior cervical discectomy and fusion in patients with cervical spondyloitic myelopathy.

Cheng CH¹, Chien A^{2,3}, Hsu WL⁴, Lai DM⁵, Wang SF⁴, Wang JL^{6,7}.
Author information

Abstract

PURPOSE:

To investigate the presence of head control deficits and its course of recovery after anterior cervical discectomy and fusion (ACDF) surgery in cervical spondyloitic myelopathy (CSM) patients.

METHODS:

Thirty-seven CSM patients were assessed for their C2-C7 cervical lordosis, neck Range of Motion (ROM), repositioning accuracy, neck strength as well as surface electromyography of the neck muscle activities during slow head motions. Assessments were performed preoperatively and then at 3- and 6-month postoperatively.

RESULTS:

No significant difference was found for the C2-C7 cervical lordosis postoperatively at 6-month. ROM was restricted immediately after surgery but recovered over time, however, neck strength remained significantly reduced postoperatively. Reposition accuracy improved immediately after surgery but declined again at 6-month follow-up. In addition, muscle activities required to control head motions showed a continuous reduction postoperatively.

CONCLUSIONS:

Adequate C2-C7 cervical lordosis was maintained in the current study with improvement of slow head motion control and ROM at 6-month. However, improvement in head position sense was not maintained and neck strength showed continuous declination overtime. Assessment and monitoring of head control deficits should be routinely considered in CSM patients.

KEYWORDS: Anterior cervical discectomy and fusion; Cervical myelopathy; Head control; Neck strength; Repositioning
PMID: 26763010

13. CRANIUM/TMJ

Caffeine and teeth

Arch Oral Biol. 2016 Jan 4;64:51-60. doi: 10.1016/j.archoralbio.2015.12.009.

Caffeine may enhance orthodontic tooth movement through increasing osteoclastogenesis induced by periodontal ligament cells under compression.

Yi J¹, Yan B², Li M¹, Wang Y³, Zheng W⁴, Li Y⁵, Zhao Z¹.
Author information

Abstract

OBJECTIVE:

Caffeine is the kernel component of coffee and has multiple effects on bone metabolism. Here we aimed to investigate the effects of caffeine intake on orthodontic tooth movement (OTM).

DESIGN:

(1) In the in vivo study, two groups comprising 15 randomly assigned rats each underwent orthodontic treatment. One group ingested caffeine at 25mg/kg body weight per day and the other, plain water. After 3 weeks, the degree of tooth movement and effect on the periodontium were assessed. (2) In the in vitro study, we established a model mimicking the essential bioprocess of OTM, which contained a periodontal ligament tissue model (PDLtm), and a co-culture system of osteoblasts (OBs) and osteoclast precursors (pre-OCs). After being subjected to static compressive force with or without caffeine administration, the conditioned media from the PDLtm were used for the OB/pre-OC co-cultures to induce osteoclastogenesis.

RESULTS:

(1) In vivo, the caffeine group displayed a significantly greater rate of tooth movement than the control. The alveolar bone mineral density and bone volume fraction were similar between the two groups; however, immunohistochemical staining showed that the caffeine group had significantly more TRAP⁺ osteoclasts and higher RANKL expression in the compressed periodontium. (2) In vitro, caffeine at 0.01mM significantly enhanced the compression-induced expression of RANKL and COX-2, as well as prostaglandin E2 production in the PDLtm. Furthermore, the "caffeine-compression"-conditioned media induced significantly more TRAP⁺ OC formation when compared with compression alone.

CONCLUSIONS:

Daily intake of caffeine, at least at some specific dosage, may enhance OTM through increasing osteoclastogenesis.

KEYWORDS: Bone remodeling; Caffeine; Orthodontic tooth movement; Osteoclastogenesis; Periodontal ligament
PMID: 26773691

Palatal expansion

Prog Orthod. 2016 Dec;17(1):1. doi: 10.1186/s40510-015-0114-9. Epub 2016 Jan 8.

Rapid palatal expansion effects on mandibular transverse dimensions in unilateral posterior crossbite patients: a three-dimensional digital imaging study.

Ugolini A^{1,2}, Doldo T³, Ghislanzoni LT⁴, Mapelli A⁴, Giorgetti R³, Sforza C⁴.
Author information

Abstract

BACKGROUND:

The purpose of this controlled study was to investigate indirect effects on mandibular arch dimensions, 1 year after rapid palatal expansion (RPE) therapy.

METHODS:

Thirty-three patients in mixed dentition (mean age 8.8 years) showing unilateral posterior crossbite and maxillary deficiency were treated with a RPE (Haas type) cemented on the first permanent molars. Treatment protocol consisted of two turns per day until slight overcorrection of the molar transverse relationship occurred. The Haas expander was kept on the teeth as a passive retainer for an average of 6 months. Study models were taken prior (T1) and 15 months on average (T2) after expansion. A control group of 15 untreated subjects with maxillary deficiency (mean age 8.3 years) was also recorded with a 12-month interval. Stone casts were digitized with a 3D scanner (3Shape, DK).

RESULTS:

In the treated group, both mandibular intermolar distance (+1.9 mm) and mandibular molar angulation (+9°) increased. Mandibular incisor angulation showed an increase of 1.9°. There was little effect on intercanine distance and canine angulation. Controls showed a reduction in transverse arch dimension and a decrease in molar and canine angulation values.

CONCLUSIONS: RPE protocol has indirect widening effects on the mandibular incisors and first molars.

KEYWORDS: 3D digital models; Mandibular arch; Palatal expansion
PMID: 26746202

14. HEADACHES

Manual Therapy for tension HA

Manual Therapy for Tension-type Headache related to Quality of Work Life and Work Presenteeism: secondary analysis of a randomized controlled trial

Lucas Monzani Gemma Victoria Espí-López Rosario Zurriaga Lars L. Andersen
DOI: <http://dx.doi.org/10.1016/j.ctim.2016.01.008>

Highlights

- Manual Therapies are an efficient, non-invasive alternative to traditional treatments for Tensional Type headaches and restoring Quality of Work life.
- The frequency of Work Presenteeism behaviors moderate the efficacy of three types of manual techniques.
- For employees with a very high to high work presenteeism, an articular technique is more efficient than an inhibitory technique.
- Instead, for employees with a very low work presenteeism, an inhibitory technique is more efficient than an articular technique.
- Combining both techniques only leads to a higher Quality of Work Life when the frequency of work presenteeism is low.

Abstract**Objective**

The objective of this research is to evaluate the efficacy of manual therapy for tension-type headache (TTH) in restoring workers quality of work life, and how work presenteeism affects this relation.

Design

This study is a secondary analysis of a factorial, randomized clinical trial on manual therapy interventions. Altogether, 80 patients (85% women) with TTH and without current symptoms of any other concomitant disease participated.

Interventions

An experienced therapist delivered the treatment: myofascial inhibitory technique (IT), articular technique (AT), combined technique (IT and AT), and control group (no treatment).

Results

In general, all treatments as compared to our control group had a large effect (η^2 ; $> = .69$) in the improvement of participants' quality of work life. Work presenteeism interacted with TTH treatment type's efficacy on participant's quality of work life. The inhibitory technique led to higher reports of quality of work life than other treatment options only for participants with very low frequency of work presenteeism. In turn, TTH articular treatment techniques resulted in higher reports of quality of work life for a high to very high work presenteeism frequency.

Conclusion

Articular manipulation technique is the more efficient treatment to improve quality of work life when the frequency of work presenteeism is high. Implications for future research and practice are discussed.

Keywords:

Manual Therapy, Quality of work life, Tension-type Headache treatment, Work presenteeism

Changes in brain

J Headache Pain. 2015 Dec;17(1):4. doi: 10.1186/s10194-016-0593-1. Epub 2016 Feb 1.

Right fronto-insular white matter tracts link cognitive reserve and pain in migraine patients.

Gomez-Beldarrain M¹, Oroz I², Zapirain BG³, Ruanova BF⁴, Fernandez YG³, Cabrera A⁴, Anton-Ladislao A⁵, Aguirre-Larracochea U⁵, Garcia-Monco JC².

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

Structural white matter abnormalities in pain-modulating, regions are present in migraine. Whether they are associated with pain chronification and with cognitive reserve is unclear.

METHODS:

Prospective, cohort, six-month study of adult patients with episodic or chronic migraine, and controls. Cognitive reserve, quality of life, impact of pain on daily living, depression and anxiety were assessed. Participants underwent a diffusion-tensor MRI to establish the integrity of white matter tracts of three regions of interest (ROIs) implicated in pain modulation, emotion, cognition and resilience (anterior insula, anterior cingulate gyrus, and uncinatus fasciculus).

RESULTS:

Fifty-two individuals were enrolled: 19 episodic migraine patients, 18 chronic migraine patients, and 15 controls. The analysis of the fractional anisotropy in the ROIs showed that those patients with the poorest prognosis (i.e., those with chronic migraine despite therapy at six months -long-term chronic migraineurs) had a significantly lower fractional anisotropy in the right ROIs. Participants with higher cognitive reserve also had greater fractional anisotropy in the right anterior insula and both cingulate gyri. Multivariate analysis showed a significant association between cognitive reserve, migraine frequency, and fractional anisotropy in the right-sided regions of interest.

CONCLUSIONS:

Long-term chronic migraine patients show abnormalities in anterior white matter tracts, particularly of the right hemisphere, involved in pain modulation emotion, cognition and resilience. Robustness in these areas is associated with a higher cognitive reserve, which in turn might result in a lower tendency to migraine chronification.

KEYWORDS: Chronic migraine; Cingulate gyri; Cognitive reserve; Fractional anisotropy; Insula; Migraine; Uncinatus fasciculus
PMID: 26830863

20 A. ROTATOR CUFF**Impact of acromioplasty**

J Shoulder Elbow Surg. 2016 Jan 14. pii: S1058-2746(15)00593-5. doi: 10.1016/j.jse.2015.10.022.

The effect of coracoacromial ligament excision and acromioplasty on the amount of rotator cuff force production necessary to restore intact glenohumeral biomechanics.

Budoff JE¹, Lin CL², Hong CK³, Chiang FL⁴, Su WR⁵.
Author information

Abstract

HYPOTHESIS AND BACKGROUND:

Coracoacromial ligament (CAL) excision and acromioplasty increase superior and anterosuperior glenohumeral translation. It is unknown how much of an increase in rotator cuff force production is required to re-establish intact glenohumeral biomechanics after these surgical procedures. We hypothesized that, after CAL excision and acromioplasty, an increase in rotator cuff force production would not be necessary to reproduce the anterosuperior and superior translations of the intact specimens.

METHODS:

Nine cadaveric shoulders were subjected to loading in the superior and anterosuperior directions in the intact state after CAL excision, acromioplasty, and recording of the translations. The rotator cuff force was then increased to normalize glenohumeral biomechanics.

RESULTS:

After CAL excision at 150 and 200 N of loading, an increase in the rotator cuff force by 25% decreased anterosuperior translation to the point where there was no significant difference from the intact specimen's translation. After acromioplasty (and CAL excision) at 150 and 200 N, an increase in the rotator cuff force of 25% and 30%, respectively, decreased superior translation to the point where there was no significant difference from the intact specimen's translation.

CONCLUSIONS:

At 150 to 200 N of loading, CAL excision and acromioplasty increase the rotator cuff force required to maintain normal glenohumeral biomechanics by 25% to 30%.

CLINICAL RELEVANCE:

After a subacromial decompression, the rotator cuff has an increased force production requirement to maintain baseline glenohumeral mechanics. Under many circumstances, in vivo force requirements may be even greater after surgical attenuation of the coracoacromial arch.

LEVEL OF EVIDENCE: Basic Science Study; Biomechanics.

KEYWORDS: Rotator cuff; biomechanics; coracoacromial ligament; glenohumeral joint; subacromial decompression
PMID: 26775745

22 B. INSTABILITY**Dislocation and followup surgery**

Knee Surg Sports Traumatol Arthrosc. 2016 Jan 11.

Primary anterior dislocation of the shoulder: long-term prognosis at the age of 40 years or younger.

Hovelius L¹, Rahme H².
Author information

Abstract

PURPOSE:

We describe the long-term prognosis in 257 first-time anterior shoulder dislocations (255 patients, aged 12-40 years) registered at 27 Swedish emergency units between 1978 and 1979.

METHODS:

Half the shoulders were immobilised for 3-4 weeks after repositioning. Follow-ups were performed after two (questionnaire), five (questionnaire), 10 (questionnaire and radiology) and 25 (questionnaire and radiology) years in 227 patients (229 shoulders). Twenty-eight patients died during the 25 years of observation.

RESULTS:

Early movement or immobilisation after the primary dislocation resulted in the same long-term prognosis. Recurrences increased up to 10 years of follow-up, but, after 25 years, 29 % of the shoulders with ≥ 2 recurrences appeared to have stabilised over time. Arthropathy increased from 9 % moderate to severe and 11 % mild at 10 years, to 34 % moderate to severe and 27 % mild after 25 years. Alcoholics had a poorer prognosis with respect to dislocation arthropathy ($P < 0.001$). Age < 25 years and/or bilateral instability represent a poorer prognosis, where stabilising surgery is necessary in every second shoulder. Fracture of the greater tuberosity means a good prognosis, and we have found no evidence that athletic activity, gender, a Hill-Sachs lesion and minor rim fractures had any prognostic impact. During the 25 years in which these patients were followed, 28/255 died (11 %), representing a mortality rate (SMR) that was more than double that of the general Swedish population ($P < 0.001$).

CONCLUSION:

Almost half of all first-time dislocations at the age of < 25 years will have stabilising surgery and two-thirds will develop different stages of arthropathy within 25 years.

KEYWORDS: Dislocation; Dislocation arthropathy; Long-term prognosis; Shoulder
PMID: 26754859

ABSTRACTS

Median and ulnar nerves

J Hand Surg Eur Vol. 2016 Jan 12. pii: 1753193415622760.

From the brachial plexus to the hand, multiple connections between the median and ulnar nerves may serve as bypass routes for nerve fibres.

Yang H¹, Gil Y², Kim S¹, Bang J³, Choi H⁴, Lee HY⁵.
Author information

Abstract

Axons from the median and ulnar nerves can pass to each other through aberrant connections between them. Multiple interconnections between the nerves may provide a detour route for nerve fibres going to the hand. We investigated the incidence of variations and the associations between them in 90 cadaveric upper limbs. In 91% of upper limbs, one to five variations were found, with several statistically significant associations. The contribution of the C8 nerve to the lateral cord was positively associated with an accessory contribution of the lateral cord to the ulnar nerve. The latter variation showed positive association with the occurrence of any of the variations in the hand itself. Ulnar innervation of the superficial head of the flexor pollicis brevis was positively associated with the Riche-Cannieu communication. The co-existence of the variations and their associations may be the explanation for unusual clinical findings related to median and ulnar conduction, which appear contrary to anatomical knowledge.

KEYWORDS: Anatomy; Berrettini branch; Marinacci communication; Martin-Gruber communication; variation
PMID: 26763269

ABSTRACTS

25. WRIST AND HAND

Dupuytren's progression

J Hand Surg Am. 2016 Jan 16. pii: S0363-5023(15)01570-1. doi: 10.1016/j.jhsa.2015.10.027.

Clusters in Short-term Disease Course in Participants With Primary Dupuytren Disease.

Lanting R¹, van den Heuvel ER², Werker PM³.
Author information

Abstract

PURPOSE:

The course of Dupuytren disease (DD) is thought to be progressive; however, the course differs for each patient. The purpose of this study was to study the rate and pattern of progression of DD.

METHODS:

We prospectively analyzed the course of DD at intervals of 3 to 6 months in 247 Dutch participants with primary DD by measuring the surface area of nodules and cords and the total passive extension deficit. The association between surface area and Tubiana stage was tested with generalized estimating equations. Latent class models were used to study different clusters in changes regarding the course of the disease.

RESULTS:

The variance in disease course between participants was large. Regarding the change in surface area (in all fingers) and total passive extension deficit (in the ring and little finger), different clusters were observed. Progression of disease was seen but there were also signs of stability and even regression. Patients with a smaller surface area at baseline were more likely to exhibit regression.

CONCLUSIONS:

This study showed that DD is not always progressive and that up to 75% of patients have a different short-term disease course, such as stability or even regression of disease. This should be taken into account when evaluating the effects of treatment for early-phase DD and in the design of future studies. Furthermore, this information may be useful when counseling patients.

TYPE OF STUDY/LEVEL OF EVIDENCE: Prognostic II.

KEYWORDS: Disease course; Dupuytren contracture; Dupuytren disease; disease progression; disease regression
PMID: 26787409

Deep ulnar nerve

J Hand Surg Eur Vol. 2016 Jan 12. pii: 1753193415622188.

Anatomy of the deep branch of the ulnar nerve.

Gil YC¹, Shin KJ¹, Lee SH¹, Koh KS¹, Song WC².
Author information

Abstract

The aim of this study was to provide a clear description of the course, precise branching pattern and distribution of the deep branch of the ulnar nerve. A total of 36 hands from 18 preserved cadavers were dissected. The vertical distance from the pisoscaphoid line to the crossing points between the deep branch of the ulnar nerve and each metacarpal was about 4 cm. The deep branch of the ulnar nerve gave off two types of muscular branches: (1) trunks that innervate more than two intrinsic hand muscles; and (2) multiple separate branches innervating only a single muscle. The median numbers of trunks and separate branches were 5 and 6, respectively.

KEYWORDS: Ulnar nerve; deep branch of the ulnar nerve; intrinsic hand muscles; metacarpal fracture; surface landmark; traumatic injury
PMID: 26763273

27. HIP**Femoral Torsion**

J Bone Joint Surg Am. 2016 Jan 20;98(2):127-34. doi: 10.2106/JBJS.O.00334.

Passive Hip Range of Motion Predicts Femoral Torsion and Acetabular Version.

Chadayammuri V¹, Garabekyan T¹, Bedi A², Pascual-Garrido C¹, Rhodes J³, O'Hara J⁴, Mei-Dan O⁵.

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

Orientation abnormalities of the acetabulum and femur have been implicated in early-onset coxarthrosis. The purpose of this study was to identify clinical examination findings predictive of such hip morphologies.

METHODS:

A consecutive cohort of 221 patients (442 hips) undergoing hip arthroscopy was included. Demographic characteristics including age, diagnosis, sex, height, weight, body mass index (BMI), and physical activity level were recorded. Passive range of motion was measured for all hips. Preoperative computed tomography scans were utilized to measure femoral torsion and central acetabular version, and a combined femoral torsion-acetabular version (COTAV) index was defined as their sum.

RESULTS:

The study cohort comprised 221 patients (sixty-four males, 157 females) with a mean age of 32.5 years and mean BMI of 24.2 kg/m². Overall, hips with femoral antetorsion and acetabular anteversion exhibited the greatest internal rotation range of motion at a neutral hip position (mean, 44.2°), whereas hips with femoral retrotorsion and acetabular retroversion demonstrated the lowest corresponding value (20.1°; $p < 0.001$). Femoral torsion was significantly associated with female sex ($p < 0.001$), BMI ($p < 0.001$), and presence of pathology corresponding to cam-type femoroacetabular impingement (FAI) ($p = 0.044$). Central acetabular version was significantly associated with age ($p = 0.021$), female sex ($p < 0.001$), and absence of mixed-type FAI pathology ($p = 0.025$). Increasing age and internal rotation range of motion at a neutral hip position were the most significant predictors of an increased COTAV index.

CONCLUSIONS:

This study confirmed that passive hip range of motion significantly predicts combined femoral torsion and central acetabular version. Accurate clinical assessment of the COTAV index may inform surgical decision-making in hip preservation surgery.

PMID: 26791033

Validity of the lower extremity functional scale

Measurement Properties of the Lower Extremity Functional Scale: A Systematic Review

Authors: Saurabh P. Mehta, PT, PhD^{1,2}, Allison Fulton, PT, MSc³, Cedric Quach, PT, MSc³, Megan Thistle, PT, MSc³, Cesar Toledo, PT, MSc³, Neil A. Evans, DPT, OCS, CSCS^{1,4}

Systematic review of measurement properties.

Background

Many primary studies have examined the measurement properties such as reliability, validity, and sensitivity to change for the LEFS in different clinical populations, a systematic review summarizing these properties for the LEFS can provide an important resource.

Objective

To locate and synthesize the evidence on the measurement properties of the Lower Extremity Functional Scale (LEFS) and discuss clinical implications of the evidence.

Methods

Literature search was conducted for 4 databases (PubMed, MEDLINE, Embase, CINAHL) using pre-defined search terms. Critical appraisal of the included studies was performed by 2 reviewers using standardized assessment form.

Results

A total of 27 studies were included in the review, of which 18 articles reached good methodological quality level. The LEFS scores demonstrated excellent test retest reliability (Intraclass Correlation Coefficient ranging between 0.85-0.99) and had expected relationships with measures assessing similar constructs (Pearson Correlation Coefficient values of >0.7). The responsiveness of the LEFS scores was excellent as suggested by consistently high ES (>0.8) in patients with different lower extremity conditions. Minimal detectable change at 90% confidence interval (MDC₉₀) for the LEFS scores varied between 8.1-15.3 across different reassessment intervals in wide range of patient populations. Pooled estimate of the MDC₉₀ was 6 points and the minimal clinically important difference was 9 points in patients with lower extremity MSK conditions which are indicative of true change and clinically meaningful change respectively.

Conclusion

The results of this review support the reliability, validity, and responsiveness of the LEFS scores for assessing functional impairment in a wide array of patient groups with lower extremity musculoskeletal conditions. J Orthop Sports Phys Ther, Epub 26 Jan 2016.

doi:10.2519/jospt.2016.6165

Keyword: clinimetrics, Lower Extremity Functional Scale, psychometric properties, systematic review

30 A. IMPINGEMENT**Hip degeneration and impingement**

J Bone Joint Surg Am. 2016 Jan 20;98(2):135-41. doi: 10.2106/JBJS.O.00443.

Inflammation and Degeneration in Cartilage Samples from Patients with Femoroacetabular Impingement.

Chinzei N¹, Hashimoto S², Fujishiro T³, Hayashi S⁴, Kanzaki N⁵, Uchida S⁶, Kuroda R⁷, Kurosaka M⁸.

Author information

Abstract**BACKGROUND:**

Femoroacetabular impingement (FAI) has been reported as a cause of hip pain in young patients and is suggested as the trigger for hip osteoarthritis (OA). The goal of this study was to quantify the metabolic profiles of articular tissues (cartilage, synovium, and labrum) harvested from patients with FAI and with end-stage OA. In addition, we sought to investigate the development of secondary OA in hips with FAI.

METHODS:

Tissue samples were obtained from thirty hips undergoing arthroscopic surgery for FAI with or without labral tear and thirty hips undergoing total hip arthroplasty for OA. Quantitative real-time polymerase chain reaction (PCR) was performed to determine the gene expression of inflammatory cytokines and metabolic (anabolic and catabolic) enzymes. The differences in gene expression in articular tissues from the patients with FAI were also evaluated on the basis of clinical parameters (age range and alpha angle).

RESULTS:

The messenger RNA (mRNA) expression of the inflammatory cytokines interleukin-1 beta (IL-1 β) and IL-8 and of matrix metalloproteinase (MMP)-3 (a catabolic gene) in both the synovium and the labrum, and the expression of collagen type I alpha 1 (an anabolic gene) in the labrum, was higher in the samples from hips with OA than in those from hips with FAI ($p < 0.05$). In cartilage, however, the mRNA expression of the inflammatory cytokines and the catabolic genes MMP-13 and ADAMTS-4 (a disintegrin and metalloproteinase with thrombospondin motifs-4) was higher in the FAI samples compared with the OA samples ($p < 0.01$). When the expression of inflammatory cytokines was evaluated among the three types of tissues within each disease group, the expression levels were the highest in cartilage within the FAI samples ($p < 0.01$). In FAI cartilage, we found higher gene expression of aggrecan (ACAN) and ADAMTS-4 in the samples from patients with larger alpha angles ($\geq 60^\circ$) ($p < 0.01$).

CONCLUSIONS:

Our results indicate that the metabolic conditions of articular cartilage in FAI and OA are different and that the expression of genes associated with inflammation is greater in the articular cartilage of patients with FAI compared with the synovium and the labrum. The metabolic changes were heightened by mechanical impingement.

CLINICAL RELEVANCE:

The articular cartilage from the impingement lesion in patients with FAI showed biologically higher inflammation and degeneration, supporting the concept that FAI may be a trigger for joint degeneration.

Management

Arthroscopy. 2016 Jan 14. pii: S0749-8063(15)00856-7. doi: 10.1016/j.arthro.2015.10.011.

Femoroacetabular Impingement: Have We Hit a Global Tipping Point in Diagnosis and Treatment? Results From the InterNational Femoroacetabular Impingement Optimal Care Update Survey (IN FOCUS).

Khan M¹, Ayeni OR², Madden K³, Bedi A⁴, Ranawat A⁵, Kelly BT⁵, Sancheti P⁶, Ejnisman L⁷, Tsiridis E⁸, Bhandari M⁹.
Author information

Abstract**PURPOSE:**

This international survey was conducted to assess the perceptions of orthopaedic surgeons regarding the diagnosis and management of femoroacetabular impingement (FAI) as well as to explore the current demographic characteristics of surgeons performing FAI surgery.

METHODS:

A survey was developed using previous literature, focus groups, and a sample-to-redundancy strategy. The survey contained 46 questions and was e-mailed to national orthopaedic associations and orthopaedic sports medicine societies for member responses. Members were contacted on multiple occasions to increase the response rate.

RESULTS:

Nine hundred orthopaedic surgeons from 20 national and international organizations completed the survey. Surgeons responded across six continents, 58.2% from developed nations, with 35.4% having sports fellowship training. North American and European surgeons reported significantly greater exposure to hip arthroscopy during residency and fellowship training in comparison to international respondents (48.0% and 44.5% respectively, v 25.6%; $P < .001$). Surgeons performing a higher volume of FAI surgery (> 100 cases per year) were significantly more likely to have practiced for more than 20 years (odds ratio [OR], 1.91; 95% confidence interval [CI], 1.01 to 3.63), to be practicing at an academic hospital (OR, 2.25; 95% CI, 1.22 to 4.15), and to have formal arthroscopy training (OR, 46.17; 95% CI, 20.28 to 105.15). High-volume surgeons were over two-fold more likely to practice in North America and Europe (OR, 2.26; 95% CI, 1.08 to 4.72).

CONCLUSIONS:

The exponential rise in the diagnosis and surgical management of FAI appears to be driven largely by experienced surgeons in developed nations. Significant variability exists regarding the diagnosis and management of FAI. Our analysis suggests that although FAI management is early in the innovation cycle, we are at a tipping point toward wider uptake and use.

PMID: 26775733

32 A. KNEE/ACL**Use of opposite hamstring tendon**

Arch Orthop Trauma Surg. 2016 Jan 14.

Can graft choice affect return to sport following revision anterior cruciate ligament reconstruction surgery?

Legnani C¹, Zini S², Borgo E³, Ventura A³.
Author information

Abstract**INTRODUCTION:**

With the increasing number of primary anterior cruciate ligament (ACL) reconstructions, revision surgery has become more frequent. The purpose of the present study is to retrospectively compare the clinical outcome of contralateral hamstring tendon autografts vs. allografts for ACL revision surgery, specifically with regard to patient satisfaction, return to preinjury activity level, and postoperative functional outcomes.

MATERIALS AND METHODS:

Between 2004 and 2011, 59 patients underwent ACL revision surgery. 44 were successfully recontacted and retrospectively reviewed at an average follow-up of 5.2 years. 23 subjects underwent revision ACL reconstruction with contralateral autogenous hamstring tendon grafts; 21 underwent allograft revision ACL surgery. Clinical, arthrometric, and functional evaluations were performed. The Tegner, Knee Injury and Osteoarthritis Outcome Score (KOOS), International Knee Documentation Committee (IKDC) Subjective Knee Form were used. Objective evaluation included range of motion, Lachman test, pivot-shift test and KT-1000 instrumented laxity testing.

RESULTS:

No major complications were reported. Follow-up examination showed that there were no significant differences IKDC and KOOS scores between the groups. The percentage of patients returning to pre-injury level was high in both groups. Anterior tibial translation according to manual laxity testing and as measured with KT-1000 arthrometer was not statistically different in the two groups. With regard to return to sports, patients undergoing revision surgery with autografts experienced a quicker return to sports compared to patients who underwent allograft revision surgery.

CONCLUSIONS:

The use of contralateral hamstring tendon autografts for ACL revision surgery produced similar subjective and objective outcomes at 5.2 years follow-up compared to revision with allograft patellar or Achilles tendon. Patients undergoing revision surgery with autografts experienced a quicker return to sports compared to patients who underwent allograft revision surgery.

KEYWORDS: ACL revision surgery; Allograft; Anterior cruciate ligament; Return to sports
PMID: 26768744

33. MENISCUS

Joint loading

Changes in knee joint load indices from before to 12 months after arthroscopic partial meniscectomy: A prospective cohort study

Jonas B. Thorlund, MSc, PhD Anders Holsgaard-Larsen, MSc, PhD Mark W. Creaby, BSc Hons, PhD Gitte M. Jørgensen, MD Nis Nissen, MD, PhD Martin Englund, MD, PhD L. Stefan Lohmander, MD, PhD (Associate Professor)

Summary

Objective

Patients undergoing arthroscopic partial meniscectomy (APM) are at increased risk of knee osteoarthritis. Meniscal damage and/or surgery may alter knee joint loading to increase osteoarthritis risk. We investigated changes in knee joint loading following medial APM surgery, compared with the contra-lateral leg.

Methods

We estimated indices of knee joint loading (external peak knee adduction moment (KAM), KAM impulse and peak knee flexion moments) normalized to body size (i.e. body mass (BM) and height (HT)) using 3D gait analysis in 23 patients (17 men, mean (SD) 46.2 (6.4) years, BMI 25.8 (3.4) kg/m²) without radiographic knee osteoarthritis before and 12 months after medial APM. Static alignment was assessed by radiography and self-reported outcomes by Knee Injury and Osteoarthritis Outcome Score (KOOS).

Results

Peak KAM and KAM impulse increased in the APM leg compared to the contra-lateral leg from before to 12 months after surgery (change difference: 0.38 Nm/BM*HT% 95% CI 0.01 to 0.76 (p=0.049) and 0.20 Nm*s/BM*HT% 95% CI 0.10 to 0.30 (p<0.001)). Patients self-reported improvements on all KOOS subscales (KOOS pain improvement: 22.8 95% CI 14.5 to 31.0 (p<0.01)).

Conclusions

A relative increase in indices of medial compartment loading was observed in the leg undergoing APM compared with the contra-lateral leg from before to 12 months after surgery. This increase may contribute to the elevated risk of knee OA in these patients. Randomized trials including a non-surgical control group are needed to determine if changes in joint loading following APM are caused by surgery or by changes in symptoms.

Keywords: Osteoarthritis, Meniscectomy, joint load, knee adduction moment, arthroscopy, biomechanics

34. PATELLA

Degeneration

Osteoarthritis Cartilage. 2016 Jan 30. pii: S1063-4584(16)01000-1. doi: 10.1016/j.joca.2016.01.981.

Changes in Patellofemoral and Tibiofemoral Joint Cartilage Damage and Bone Marrow Lesions over 7 Years: The Multicenter Osteoarthritis Study.

Stefanik JJ¹, Guermazi A², Roemer FW³, Peat G⁴, Niu J⁵, Segal NA⁶, Lewis CE⁷, Nevitt M⁸, Felson DT⁹.
Author information

Abstract

OBJECTIVES:

To investigate changes in cartilage damage and bone marrow lesions (BMLs) on MRI in the patellofemoral and tibiofemoral joints over 7 years.

METHODS:

The Multicenter Osteoarthritis (MOST) Study is a cohort study of persons aged 50-79 years at baseline with or at high risk for knee osteoarthritis. Knees were eligible for the current study if they had knee MRI (1.0T) assessed for cartilage damage and BMLs at the baseline and 84-month visits. Knees were categorized as having MRI-detected structural damage (cartilage and BMLs) isolated to the patellofemoral joint (PFJ), isolated to the tibiofemoral joint (TFJ), mixed or no damage at baseline and 84-months. We determined the changes in PFJ and TFJ structural damage over 7 years and used logistic regression to assess the relation of baseline compartment distribution to incident isolated PFJ, isolated TFJ and mixed damage.

RESULTS:

Among 339 knees that had full-thickness cartilage loss isolated to the PFJ or TFJ at baseline, only 68 (20.1%) developed full-thickness cartilage loss in the other compartment while 271 (79.9%) continued to only have the initial compartment affected. Compared to knees without full-thickness cartilage damage (n=582), those with isolated TFJ and PFJ full-thickness cartilage damage had 2.7 (1.5, 4.9) and 5.8 (3.6, 9.6) times the odds of incident mixed full-thickness cartilage damage, respectively. Similar results were seen when using other definitions of MRI-defined structural damage.

CONCLUSIONS:

Most knees with structural damage at baseline do not develop it in the other compartment. Knees that develop mixed structural damage are more likely to start with it isolated to the PFJ.

KEYWORDS: MRI; knee osteoarthritis; pain

PMID: 26836287

37. OSTEOARTHRITIS/KNEE

Locations of pain

Osteoarthritis Cartilage. 2016 Jan 30. pii: S1063-4584(16)01005-0. doi: 10.1016/j.joca.2016.01.986.

Location of knee pain in medial knee osteoarthritis: Patterns and associations with self-reported clinical symptoms.

Van Ginckel A¹, Bennell KL², Campbell PK³, Wrigley TV⁴, Hunter DJ⁵, Hinman RS⁶.
Author information

Abstract

OBJECTIVES:

To i) document pain location in medial tibiofemoral osteoarthritis (OA) using the patient-administered Photographic Knee Pain Map (PKPM); ii) compare pain severity, nature and likelihood of neuropathic-like symptoms, physical dysfunction and presence of symptoms at other sites across the most common pain patterns.

DESIGN:

Baseline data were analysed from 164 participants with medial tibiofemoral OA participating in a randomised controlled trial. Participants completed the PKPM indicating all relevant pain zones of their most painful knee. Pain zones were collapsed into regions to determine patterns of pain. Symptoms were quantified using numeric rating scales (NRS) of pain severity, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), Intermittent and Constant Osteoarthritis Pain (ICOAP) and painDETECT questionnaires. Symptoms at other joints were categorised as present/absent.

RESULTS:

The medial joint line (n= 123, 75%), patellar tendon (n= 62, 38%) and posterior knee (n=61, 37%) were the most frequently reported pain zones. The most frequent patterns were diffuse (41%), isolated medial (16%), anterior-medial (12%) and medial-posterior (11%) pain. WOMAC and ICOAP scores were higher in the diffuse compared to anterior-medial patterns. Mean PainDETECT scores were higher with both diffuse and medial-posterior pain relative to anterior-medial pain.

CONCLUSION:

Only 16% of the cohort indicated isolated medial knee pain, whilst a diffuse pain pattern was most common. People with diffuse knee pain reported more severe pain and physical dysfunction than those with anterior-medial pain. Prevalence of possible/likely neuropathic-like symptoms tended to be more frequent in diffuse and posterior-medial patterns compared to anterior-medial pain.

KEYWORDS: knee; osteoarthritis; pain; pain map; physical function

PMID: 26836285

Osteoarthritis and osteoporosis

Curr Opin Rheumatol. 2016 Mar;28(2):97-103. doi: 10.1097/BOR.0000000000000256.

Osteoporosis and osteoarthritis: shared mechanisms and epidemiology.

Geusens PP¹, van den Bergh JP.
Author information

Abstract

PURPOSE OF REVIEW:

Osteoporosis and osteoarthritis are different diseases, with differences in risk factors, bone mineral density (BMD), BMI, phenotype, morbidity and mortality. We review new data on the role of bone metabolism in osteoporosis and osteoarthritis.

RECENT FINDINGS:

The insights in the common convergent and divergent risk factors between osteoarthritis and osteoporosis have resulted in new findings on the role of BMD, BMI, falls, genetics and epigenetics in the pathophysiology of both diseases and on the increased fracture risk in osteoporosis and osteoarthritis. The relation between BMD, BMI and fracture risk in osteoarthritis is dependent on the stage, definition and location of the osteoarthritis and method of BMD measurement. It has been suggested that osteoarthritis should be further specified in terms of bone involvement.

SUMMARY:

These new findings open the way to better understand the bone subtypes of osteoarthritis (osteoporotic, bone forming and erosive) and the common and different ways bone is involved in osteoporosis and osteoarthritis. Much can be expected from further prospective studies, when taking into account the heterogeneous nature of both osteoporosis and osteoarthritis.

PMID: 26780427

Glucoid injections

The OA Trial Bank: Meta-analysis of individual patient data from knee and hip osteoarthritis trials show that patients with severe pain exhibit greater benefit from intra-articular glucocorticoids

M. Van Middelkoop, PhD W. Zhang S.M.A. Bierma-Zeinstra

Abstract**Objective**

To evaluate the efficacy of intra-articular (IA) glucocorticoids for knee or hip osteoarthritis in specific subgroups of patients with severe pain and inflammatory signs using individual patient data (IPD) from existing trials.

Design

Randomized trials evaluating one or more IA glucocorticoid preparation in patients with knee or hip osteoarthritis, published from 1995 up to June 2012 were selected from the literature. Individual patient data obtained from original trials included patient and disease characteristics and outcomes measured. The primary outcome was pain severity at short-term follow-up (up to 4 weeks). The subgroup factors assessed included severe pain (≥ 70 points, 0 to 100 scale) and signs of inflammation (dichotomized in present or not) at baseline. Multilevel regression analyses were applied to estimate the magnitude of the effects in the subgroups with the individuals nested within each study.

Results

Seven out of 43 published randomized clinical trials ($n=620$) were included. Patients with severe baseline pain had a significantly larger reduction in short-term pain, but not in mid- and long-term pain, compared to those with less severe pain at baseline (Mean Difference 13.91; 95% 1.50 to 26.31) when receiving IA glucocorticoid injection compared to placebo. No statistical significant interaction effects were found between inflammatory signs and IA glucocorticoid injections compared to placebo and to tidal irrigation at all follow-up points.

Conclusions

This IPD meta-analysis demonstrates that patients with severe knee pain at baseline derive more benefit from IA glucocorticoid injection at short term follow-up than those with less severe pain at baseline.

Keywords: IPD analysis, osteoarthritis, knee, hip, IA glucocorticoid, injection

Early OA changes

Knee contact forces are not altered in early knee osteoarthritis

Gait and Posture, 02/02/2016 Meireles S, et al.

This study calculated knee contact forces (KCF) and its relations with knee external knee adduction moments (KAM) and/or flexion moments (KFM) during the stance phase of gait in patients with early osteoarthritis (OA), classified based on early joint degeneration on Magnetic Resonance Imaging (MRI). Researchers assessed whether altered KCF are already present in early structural degeneration. KAM is not sufficient to predict joint loading at the end of the stance, where KFM contributes substantially to the loading, especially in early OA, concluded researchers.

Methods

- Researchers used three-dimensional motion and ground reaction force data in 59 patients with medial compartment knee OA ($n=23$ established OA, $n=16$ early OA, $n=20$ controls) as input for a musculoskeletal model.
- KAM and KFM, and KCF were estimated using an open source multi-platform, multi-user 3D application server.

Results

- Researchers did not note any significant differences between controls and patients with early OA.
- In early OA patients, KAM significantly explained 69% of the variance associated with the first peaks KCF but only KFM contributed to the second peaks KCF.
- The multiple correlation, combining KAM and KFM, showed to be higher.
- Only 20% of the variance of second peak KCF was explained by both moments in established OA.

Cartilage supplements help

Nutr J. 2016 Jan 29;15(1):14. doi: 10.1186/s12937-016-0130-8.

Efficacy and tolerability of an undenatured type II collagen supplement in modulating knee osteoarthritis symptoms: a multicenter randomized, double-blind, placebo-controlled study.

Lugo JP¹, Saiyed ZM², Lane NE³.
Author information

Abstract

BACKGROUND:

Undenatured type II collagen (UC-II) is a nutritional supplement derived from chicken sternum cartilage. The purpose of this study was to evaluate the efficacy and tolerability of UC-II for knee osteoarthritis (OA) pain and associated symptoms compared to placebo and to glucosamine hydrochloride plus chondroitin sulfate (GC).

METHODS:

One hundred ninety one volunteers were randomized into three groups receiving a daily dose of UC-II (40 mg), GC (1500 mg G & 1200 mg C), or placebo for a 180-day period. The primary endpoint was the change in total Western Ontario McMaster Universities Osteoarthritis Index (WOMAC) from baseline through day 180 for the UC-II group versus placebo and GC. Secondary endpoints included the Lequesne Functional Index (LFI), the Visual Analog Scale (VAS) for pain and the WOMAC subscales. Modified intent-to-treat analysis were performed for all endpoints using analysis of covariance and mixed model repeated measures, while incremental area under the curve was calculated by the intent-to-treat method.

RESULTS:

At day 180, the UC-II group demonstrated a significant reduction in overall WOMAC score compared to placebo ($p = 0.002$) and GC ($p = 0.04$). Supplementation with UC-II also resulted in significant changes for all three WOMAC subscales: pain ($p = 0.0003$ vs. placebo; $p = 0.016$ vs. GC); stiffness ($p = 0.004$ vs. placebo; $p = 0.044$ vs. GC); physical function ($p = 0.007$ vs. placebo). Safety outcomes did not differ among the groups.

CONCLUSION:

UC-II improved knee joint symptoms in knee OA subjects and was well-tolerated. Additional studies that elucidate the mechanism for this supplement's actions are warranted.

TRIAL REGISTRATION:

CTRI/2013/05/003663 ; CTRI/2013/02/003348 .
PMID: 26822714

38 A. FOOT AND ANKLE

Motor control and injuries in adolescents

Med Sci Sports Exerc. 2016 Jan 13.

Motor Performance as Risk Factor for Lower Extremity Injuries in Children.

Runge Larsen L¹, Kristensen PL, Junge T, Fuglkjær Møller S, Juul-Kristensen B, Wedderkopp N.
Author information

Abstract

PURPOSE:

Physical activity related injuries in children constitute a costly public health matter. The influence of motor performance on injury risk is unclear. The purpose was to examine if motor performance was a risk factor of traumatic and overuse lower extremity injuries in a normal population of children.

METHODS:

This study included 1244 participants from 8 to 14-years-old at baseline, all participating in "the Childhood Health, Activity and Motor Performance School Study Denmark". The follow-up period was up to 15 months. The motor performance tests were static balance, single leg hop for distance, core stability tests, vertical jump, shuttle run, and a cardiorespiratory fitness test. Lower extremity injuries were registered by clinicians by weekly questionnaires and classified according to the ICD-10 system.

RESULTS:

Poor balance increased risk for traumatic injury in the foot region (IRR=1.09-1.15), and good performance in single leg hop for distance protected against traumatic knee injuries (IRR=0.66-0.68). Good performance in core stability tests and vertical jump increased the risk for traumatic injuries in the foot region (IRR=1.12-1.16). Poor balance increased the risk for overuse injuries in the foot region (IRR=1.65), as did good performance in core stability tests and shuttle run, especially for knee injuries (IRR=1.07-1.18).

CONCLUSIONS:

Poor balance (sway) performance was a consistent predictor of traumatic injuries, in particular for traumatic ankle injuries. Good motor performance (core stability, vertical jump, shuttle run) was positively associated with traumatic and overuse injuries, and negatively (single leg hop) associated with traumatic injuries, indicating different influence on injury risk. Previous injury was a confounder affecting the effect size and the significance. More studies are needed to consolidate the findings, to clarify the influence of different performance tests on different types of injuries and to examine the influence of behaviour in relation to injury risk.
PMID: 26765628

40. ANKLE SPRAINS AND INSTABILITY

Changes in plantar sensation

J Orthop Sports Phys Ther. 2016 Jan 26;1-24.

Plantar Cutaneous Sensitivity With and Without Cognitive Loading in People With Chronic Ankle Instability, Copers, and Uninjured Controls.

Burcal CJ¹, Wikstrom EA².
Author information

Abstract

Study Design Controlled laboratory study.

Background Deficits in light touch have recently been identified on the plantar surface of the foot in those with chronic ankle instability (CAI) relative to uninjured controls but it is unknown whether or not copers display similar deficits. Similarly, cognitive loading (COG) has been shown to impact postural control in different populations but it is unclear how it impacts sensory perception.

Objectives To evaluate the difference in cutaneous sensation thresholds at rest and under cognitive loading COG using Semmes-Weinstein Monofilaments (SWMs) among uninjured controls, copers, and those with CAI.

Methods A total of 45 participants (age: 20.2±2.8 years; height: 167.6±9.8 cm; mass: 66.3±14.7 kg) were recruited and categorized to CAI, coper or control groups based on Ankle Instability Instrument scores. Participants were assessed with SWMs for cutaneous thresholds using a 4-2-1 stepping algorithm at the head of the 1st metatarsal (1MT), base of the 5th metatarsal (5MT), calcaneus (CAL), and sinus tarsi (ST). Each participant was then retested while generating random digits to the beat of a metronome in order to simulate COG.

Results Participants with CAI displayed significantly higher SWM thresholds than controls at 1MT, 5MT, and ST and significantly higher thresholds at 5MT and CAL relative to copers (all $p < 0.05$). Copers showed higher thresholds than controls at ST only ($p < 0.05$). A main effect of COG was identified at all 4 sites ($p < 0.05$).

Conclusions People with CAI have deficits in plantar sensation relative to controls and copers. Cognitive loading increases plantar cutaneous sensation thresholds irrespective of CAI status. J Orthop Sports Phys Ther, Epub 26 Jan 2016. doi:10.2519/jospt.2016.6351.

KEYWORDS: deafferentation; dual task interference; light touch; mechanoreceptor
PMID: 26813754

41 A. ACHILLES TENDON AND CALF

Addition of heel lift

J Orthop Sports Phys Ther. 2016 Feb;46(2):79-86. doi: 10.2519/jospt.2016.6030. Epub 2016 Jan 11.

The Effect of an In-shoe Orthotic Heel Lift on Loading of the Achilles Tendon During Shod Walking.

Wulf M, Wearing SC, Hooper SL, Bartold S, Reed L, Brauner T.

Abstract

Study Design Controlled laboratory study.

Background Orthotic heel lifts are thought to lower tension in the Achilles tendon, but evidence for this effect is equivocal.

Objective To investigate the effect of a 12-mm, in-shoe orthotic heel lift on Achilles tendon loading during shod walking using transmission-mode ultrasonography.

Methods The propagation speed of ultrasound, which is governed by the elastic modulus and density of tendon and proportional to the tensile load to which it is exposed, was measured in the right Achilles tendon of 12 recreationally active men during shod treadmill walking at matched speeds (3.4 ± 0.7 km/h), with and without addition of a heel lift. Vertical ground reaction force and spatiotemporal gait parameters were simultaneously recorded. Data were acquired at 100 Hz during 10 seconds of steady-state walking. Statistical comparisons were made using paired t tests ($\alpha = .05$).

Results Ultrasound transmission speed in the Achilles tendon was characterized by 2 maxima (P1, P2) and minima (M1, M2) during walking. Addition of a heel lift to footwear resulted in a 2% increase and 2% decrease in the first vertical ground reaction force peak and the local minimum, respectively ($P < .05$). Ultrasonic velocity in the Achilles tendon (P1, P2, M2) was significantly lower with the addition of an orthotic heel lift ($P < .05$).

Conclusion Peak ultrasound transmission speed in the Achilles tendon was lower with the addition of a 12-mm orthotic heel lift, indicating that the heel lift reduced tensile load in the Achilles tendon, thereby counteracting the effect of footwear observed in previous studies. These findings support the addition of orthotic heel lifts to footwear in the rehabilitation of Achilles tendon disorders where management aims to lower tension within the tendon. J Orthop Sports Phys Ther 2016;46(2):79-86. Epub 11 Jan 2016. doi:10.2519/jospt.2016.6030.

45 A. MANUAL THERAPY LUMBAR & GENERAL

Mechanical traction

J Orthop Sports Phys Ther. 2016 Jan 26:1-31.

The Effectiveness of Mechanical Traction Among Subgroups of Patients With Low Back and Leg Pain: A Randomized Trial.

Thackeray A^{1,2}, Fritz JM¹, Childs JD¹, Brennan GP¹.
Author information

Abstract

Study Design Randomized clinical trial.

Background The recommended initial management strategy for these patients with low back pain and signs of nerve root compression is conservative treatment but there is little evidence to guide the most appropriate management strategy. Preliminary research suggests a treatment protocol of mechanical traction and extension-oriented exercises may be effective management, particularly in a specific sub-group of patients.

Objective To examine the effectiveness of mechanical traction in patients with lumbar nerve root compression and within a pre-defined sub-group.

Methods 120 patients with low back pain with nerve root compression were recruited from physical therapy clinics. Using pre-defined sub-grouping criteria, patients were stratified at baseline and randomized to receive an extension-oriented treatment approach (EOTA) with or without the addition of mechanical traction. During a 6-week period, patients received up to 12 treatment visits. Primary outcomes of pain and disability were collected at 6 weeks, 6 months and 1 year by assessors blinded to group allocation. Outcomes were examined using linear mixed model analyses examining change over time by treatment and the interaction between treatment and sub-grouping status.

Results The mean age of participants was 41.1 (SD 11.3) years, median duration of symptoms was 62 days, and 57% were male. No significant differences in disability or pain outcomes were noted between treatment groups at any time point, nor was any interaction found between subgroup status and treatment.

Conclusion Patients with lumbar nerve root compression presenting for physical can expect significant changes in disability and pain over a 6-week treatment period. There is no evidence mechanical lumbar traction in combination with an extension-oriented treatment is superior to extension-oriented exercises in management of these patients, nor within a predefined subgroups of patients. Level of Evidence Therapy, level 2b. J Orthop Sports Phys Ther, Epub 26 Jan 2016. doi:10.2519/jospt.2016.6238.

KEYWORDS: exercise therapy; herniated disc; lumbar radiculopathy; mechanical traction; randomized trial; sciatica
PMID: 26813755

McKenzie and centralization

Orthop Sports Phys Ther. 2016 Jan 26:1-29.

The Influence of Centralization and Directional Preference on Spinal Control in Patients With Nonspecific Low Back Pain.

Apeldoorn AT¹, van Helvoirt H², Meihuizen H², Tempelman H³, Vandeput D⁴, Knol DL², Kamper SJ⁶, Ostelo RW⁷.

Author information

Abstract

Study Design Prospective cohort, test-retest design.

Background DP/CEN and DP/non-CEN are common pain pattern responses assessed by Mechanical Diagnosis & Therapy (MDT). Although there is evidence that MDT can reduce pain and disability in the short term by treating the patient with direction-specific exercises concordant with the patient's DP, the mechanism responsible for this is unclear.

Objective To determine if clinical signs of impaired spinal control improve immediately after eliciting a directional preference with centralization response (DP/CEN), or a directional preference without centralization response (DP/non-CEN), in patients with nonspecific low back pain (LBP).

Methods Participants underwent a standardized MDT assessment and were classified in a pain pattern subgroup: DP/CEN, DP/non-CEN, or no-DP. Clinical signs of impaired spinal control were assessed pre- and post-MDT assessment by an independent examiner. Four spinal control tests were conducted: aberrant lumbar movements while bending forward, the active straight leg raise (ASLR) test, the Trendelenburg test and the prone instability test. Differences in spinal control pre- and post-MDT assessment were calculated for the three pain pattern subgroups and compared with Chi-square tests. We hypothesized that a larger proportion of patients in the DP/CEN subgroup would improve on spinal control than patients categorized as DP/non-CEN or no-DP.

Results Of 114 patients recruited, 51 patients (44.7%) were categorized as DP/CEN, 23 (20.2%) as DP/non-CEN, and 40 (35.1%) as no-DP. Before MDT assessment between 28.9% (Trendelenburg test) and 63.7% (ASLR test) of patients showed impaired spinal control. After MDT assessment a larger proportion of patients in the DP/CEN subgroup (43%) showed improvement than those in the no-DP subgroup (7%) on aberrant lumbar movements ($P = .02$). Likewise, more patients in the DP/CEN subgroup (50%) improved on the ASLR test than in the no-DP subgroup (8%, $P < .01$) or the DP/non-CEN subgroup (7%, $P = .01$). Changes in Trendelenburg and prone instability tests did not reach statistical significance.

Conclusions Immediately following MDT assessment, a larger proportion of patients with a DP/CEN pain pattern showed improvement in clinical signs of spinal control compared to patients with a DP/non-CEN or no-DP pain pattern. Level of Evidence 2b. J Orthop Sports Phys Ther, Epub 26 Jan 2016. doi:10.2519/jospt.2016.6158.

KEYWORDS: Mechanical Diagnosis and Therapy; motor control; physical therapy
PMID: 26813757

45 B. MANUAL THERAPY CERVICAL

Tension HA's

Manual Therapy for Tension-type Headache related to Quality of Work Life and Work Presenteeism: secondary analysis of a randomized controlled trial

Lucas Monzani Gemma Victoria Espí-López Rosario Zurriaga Lars L. Andersen

Highlights

- Manual Therapies are an efficient, non-invasive alternative to traditional treatments for Tensional Type headaches and restoring Quality of Work life.
- The frequency of Work Presenteeism behaviors moderate the efficacy of three types of manual techniques.
- For employees with a very high to high work presenteeism, an articular technique is more efficient than an inhibitory technique.
- Instead, for employees with a very low work presenteeism, an inhibitory technique is more efficient than an articular technique.
- Combining both techniques only leads to a higher Quality of Work Life when the frequency of work presenteeism is low.

Abstract**Objective**

The objective of this research is to evaluate the efficacy of manual therapy for tension-type headache (TTH) in restoring workers quality of work life, and how work presenteeism affects this relation.

Design

This study is a secondary analysis of a factorial, randomized clinical trial on manual therapy interventions. Altogether, 80 patients (85% women) with TTH and without current symptoms of any other concomitant disease participated.

Interventions

An experienced therapist delivered the treatment: myofascial inhibitory technique (IT), articular technique (AT), combined technique (IT and AT), and control group (no treatment).

Results

In general, all treatments as compared to our control group had a large effect (η^2 ; $> .69$) in the improvement of participants' quality of work life. Work presenteeism interacted with TTH treatment type's efficacy on participant's quality of work life. The inhibitory technique lead to higher reports of quality of work life than other treatment options only for participants with very low frequency of work presenteeism. In turn, TTH articular treatment techniques resulted in higher reports of quality of work life for a high to very high work presenteeism frequency.

Conclusion

Articular manipulation technique is the more efficient treatment to improve quality of work life when the frequency of work presenteeism is high. Implications for future research and practice are discussed.

45 D. MANUAL THERAPY EXTREMITIES

Hip internal rotation MWM

The Effects of Caudal Mobilisation with Movement (MWM) and Caudal Self-Mobilisation with Movement (SMWM) in Relation to Restricted Internal Rotation in the Hip: A Randomized Control Pilot Study

Riche Walsh Sharon Kinsella

DOI: <http://dx.doi.org/10.1016/j.math.2016.01.007>

Highlights

- Pilot study comparing self-MWMs to MWMs for internal rotation of the hip.
- MWMs improved functional ROM of the hip by 10.1%.
- Caudle MWMs with adduction improves hip internal rotational ROM.
- Self-MWMs no worse than MWMS of the hip.
- Self-MWMs may augment MWM treatments.

Background

A loss of internal rotation (IR) of the hip is associated with hip pathology. Improving IR may improve hip range of motion (ROM) or prevent hip pathology.

Objectives

The purpose of this study was to compare the immediate effects of caudal mobilisation with movement (MWM) and caudal self-mobilisation with movement (SMWM) on young healthy male subjects with reduced IR of the hip.

Design

A randomized controlled trial was performed. Twenty-Two subjects were randomized into a MWM group (n=6), SMWM group (n=8) or a control group (n=8).

Method

The primary outcome measures included the functional internal rotation test (FIRT) for the hip and the passive seated internal rotation test (SIRT) for the hip. Outcomes were captured at baseline and immediately after one treatment of MWMs, SMWMs or control.

Results

A two-way analysis of variance (ANOVA), group X time interaction was conducted. The ANOVA revealed the only significant improvement was in the MWM group for the FIRT ($p=0.01$), over the control group. Subjects with reduced IR of the hip who receive a single session of MWMs exhibited significantly improved functional IR of their hip than the control group.

Conclusions

From the data presented, it can be suggested that caudal MWMs of the hip appear to have a positive effect on functional IR of healthy young hips. This may be due to addressing the positional fault theory or the arthrogenic muscular inhibition theory. SMWMs may be effective in augmenting treatments for patients waiting for hip operations.

48 A. STM

Trigger points in shoulder

Myofascial Triggerpoint Release (MTR) for Treating Chronic Shoulder Pain: A New Approach

Christopher-Marc Gordon, PT, hpcp.UK, HP Frank Andrasik, PhD Robert Schleip, PhD
Niels Birbaumer, PhD Massimiliano Rea, PhD

Abstract**Background**

This study comprehensively evaluated a myofascial triggerpoint release (MTR) technique for shoulder pain.

Methods

Twenty-three (from an initial sample of 25) patients experiencing shoulder pain received MTR, in four 10-minute sessions over a period of 2 weeks, applied exclusively on the more painful shoulder, with assessments being recorded both before and after treatment (and for pain at 1 and 13 months). Measures of stiffness and elasticity were collected to monitor the process of therapy, while subjective measures of pain and objective measures of pressure pain thresholds tracked primary outcomes. Secondary outcomes focused on suffering, stress, and quality of life.

Results

A statistically significant decrease in stiffness and increase in elasticity was observed post intervention for the treated side only, while pressure pain thresholds improved on the untreated side as well. Reports of pain significantly decreased after treatment, with gains being maintained at 1 and 13 months following treatment. Levels of suffering, stress, and quality of life revealed statistically significant improvement as well.

Conclusions

MTR resulted in clinically significant improvements in the primary measures of pain, objective mechanical tissue properties, and secondary measures in patients with chronic shoulder pain.

Keywords:

Myofascial triggerpoint release, Myometer, Algometer, Chronic shoulder pain, Quality of life, Stress

Lymphatic drainage

Arch Phys Med Rehabil. 2016 Jan 29. pii: S0003-9993(16)00041-1. doi: 10.1016/j.apmr.2016.01.006.

The effect of manual lymphatic drainage following total knee arthroplasty: a randomized controlled trial.

Pichonnaz C¹, Bassin JP², Lécureux E³, Christe G², Currat D², Aminian K⁴, Jolles BM⁵.
Author information

Abstract**OBJECTIVE:**

To evaluate the effects of manual lymph drainage (MLD) on knee swelling and the swelling's assumed consequences following total knee arthroplasty (TKA).

DESIGN:

Randomized controlled trial.

SETTING:

Primary care hospital.

PARTICIPANTS:

Two groups of 30 patients were randomized before TKA surgery (65% ♀, age 70.7±8.8 y.o., weight 77.8±11.3 kg., size 1.64±0.08 m., BMI 29.9±4.1 kg·m⁻²) INTERVENTION: Participants received either five treatments of MLD or a placebo, added to rehabilitation, in between the second (D2) and the seventh (D7) postsurgical days.

OUTCOME MEASURES:

Swelling was measured by blinded evaluators before surgery, at D2, D7 and 3 months (3M) using bioimpedance spectroscopy and volume. Secondary outcomes were active and passive ROM, pain, knee function and gait parameters.

RESULTS:

At D7 and 3M, no outcome was significantly different between groups, except for the knee passive flexion contracture at 3M which was smaller and less frequent in the MLD group (-2.6° [95%CI -5.0° to -0.21], P=0.04; absolute risk reduction 26.6% [95% CI 0.9 to 52.3%]; NNT = 4). Pain decreased between 5.8 and 8.2 mm on the VAS immediately after MLD, which was significant after four out of five MLD treatments.

CONCLUSION:

The MLD applied early following TKA surgery did not reduce swelling. It reduced pain immediately after treatment. Further studies, should investigate if the positive effect of MLD on knee extension is replicable.

KEYWORDS: Therapy; edema; knee joint; level 1b; physical therapy specialty; rehabilitation; replacement; treatment outcome

PMID:26829760

Abdominal massage for constipation

Age Ageing. 2016 Jan 29. pii: afw005.

Abdominal massage for the alleviation of symptoms of constipation in people with Parkinson's: a randomised controlled pilot study.

McClurg D¹, Hagen S², Jamieson K², Dickinson L³, Paul L⁴, Cunnington A⁵.
Author information

Abstract

BACKGROUND:

constipation is one of the most common non-motor features of Parkinson's affecting up to 90% of patients. In severe cases, it can lead to hospitalisation and is usually managed with laxatives which in themselves can lead to side effects. Abdominal massage has been used as adjunct in the management of constipation in various populations, but not in those with Parkinson's.

OBJECTIVE:

the primary objective was to test the recruitment, retention and the appropriateness of the intervention methods and outcome measures.

METHODS:

thirty-two patients with Parkinson's were recruited from three movement disorder clinics and were randomised to receive either 6 weeks of daily abdominal massage plus lifestyle advice on managing constipation (Intervention Group, n = 16) or lifestyle advice (Control Group, n = 16). Data were collected prior to group allocation (Baseline), at Week 6 (following intervention) and 4 weeks later (Week 10). Outcome tools included the Gastrointestinal Rating Scale and a bowel diary.

RESULTS:

constipation has a negative impact on quality of life. The study recruited to target, retention was high and adherence to the study processes was good. The massage was undertaken as recommended during the 6 weeks of intervention with 50% continuing with the massage at 10 weeks. Participants in both groups demonstrated an improvement in symptoms, although this was not significantly different between the groups.

CONCLUSION:

abdominal massage, as an adjunct to management of constipation, offers an acceptable and potentially beneficial intervention to patients with Parkinson's.

KEYWORDS: abdominal massage; bowel; defaecation; laxative; older people
PMID: 26826459

52. EXERCISE**Rectus abdominus**

J Orthop Sports Phys Ther. 2016 Jan 26:1-23.

Immediate Effect of Active Abdominal Contraction on Inter-Recti Distance.

Chiarello CM¹, McAuley JA², Hartigan EH³.
Author information

Abstract

Study Design Controlled laboratory study.

Background Inter-recti distance is the measurement of the linear distance between the medial aspects of the rectus abdominis muscle. Inter-recti distance has been reported to decrease in postpartum women during a curl-up maneuver.

Objective To determine if inter-recti distance (IRD) decreases with active abdominal contraction in males, and nulliparous and parous females.

Methods Fifty-six subjects (males = 11, nulliparous females = 22, parous females = 23) participated. Inter-recti distance was measured while abdominal muscles were at rest and during active contraction (curl-up) at two locations (above and below the umbilicus) using ultrasound imaging. Two mixed model RM-ANCOVAs were used, one for each location, to determine whether IRD differed between contraction state among the 3 groups with age and umbilicus circumference as covariates. When significant differences were found, planned t-tests comparisons were made.

Results There was a significant main effect of group for both locations. The parous group's IRD significantly decreased from rest to contraction at both locations. Nulliparous group's IRD was significantly narrower than the other groups at rest at both locations, and than the parous group during active contraction.

Conclusions Parous females had a narrower IRD in curl-up condition than at rest as hypothesized. However, the lack of significant within group change in IRD in the nulliparous and male groups, and that males' IRD only differed from nulliparous females was unexpected. J Orthop Sports Phys Ther, Epub 26 Jan 2016. doi:10.2519/jospt.2016.6102.

KEYWORDS: abdominal muscle; abdominis; diastasis recti; linea alba; ultrasound imaging
PMID: 26813756

53. CORE

Multifidus weakness

Eur Spine J. 2016 Jan 14.

Are lumbar multifidus fatigue and transversus abdominis activation similar in patients with lumbar disc herniation and healthy controls? A case control study.

Ramos LA^{1,2}, França FJ³, Callegari B⁴, Burke TN³, Magalhães MO³, Marques AP³.
Author information

Abstract

PURPOSE:

The aims of this study were to assess lumbar multifidus fatigue (LM) and transversus abdominis activation (TrA) in individuals with lumbar disc herniation associated with low back pain.

METHODS:

Sixty individuals were divided into the lumbar herniation (LHG, n = 30) and control groups (CG, n = 30). Fatigue of the LM was assessed using surface electromyography during the Sorensen effort test, and activation of the TrA with a pressure biofeedback unit. Pain intensity was determined using a visual analog scale and the McGill pain questionnaire. The Oswestry disability questionnaire and the Borg scale for self-evaluating exertion were used to assess functional disability.

RESULTS:

Fatigue was significantly more intense and the TrA activation was insufficient ($p < 0.01$) in individuals with disc herniation relative to the control group. The LHG had mild functional disability and moderate pain. There were differences in the initial exertion self-evaluation between groups, which were not observed in the final exertion evaluation.

CONCLUSION:

Individuals with lumbar disc herniation associated with low back pain have increased fatigue of the LM and decreased activation of the TrA, when compared to the control group.

KEYWORDS: Intervertebral disc displacement; Low back pain; Muscle fatigue
PMID:26769037

56. ATHLETICS

Visual motor training in football players

J Sport Rehabil. 2015 Jan 18.

Assessment and Training of Visuomotor Reaction Time for Football Injury Prevention.

Wilkerson GB¹, Simpson KA, Clark RA.
Author information

Abstract

CONTEXT:

Neurocognitive reaction time has been associated with musculoskeletal injury risk, but visuomotor reaction time (VMRT) derived from tests that present greater challenges to visual stimulus detection and motor response execution may have a stronger association.

OBJECTIVE:

The purposes of this study were to assess VMRT as a predictor of injury and the extent to which improvement may result from VMRT training.

DESIGN:

Cohort study.

SETTING:

University athletic performance center.

PARTICIPANTS:

Seventy-six NCAA Division-I FCS football players (19.5 ± 1.4 years; 1.85 ± 0.06 m; 102.98 ± 19.06 kg).

INTERVENTIONS:

Pre-participation and post-season assessments. A subset of players who exhibited slowest VMRT in relation to the cohort's post-season median value participated in a 6-week training program.

MAIN OUTCOME MEASURES:

Injury occurrence was related to pre-participation VMRT, which was represented by both number of target hits in 60 s and average elapsed time between hits (ms). Receiver operating characteristic analysis identified the optimum cut point for a binary injury risk classification. A non-parametric repeated measures analysis of ranks procedure was used to compare post-training VMRT values for slow players who completed at least half of the training sessions (n=15) to those for untrained fast players (n=27).

RESULTS:

A pre-participation cut point of ≤ 85 hits (≥ 705 ms) discriminated injured from non-injured players with OR = 2.30 (90% CI: 1.05, 5.06). Slow players who completed the training exhibited significant improvement in visuomotor performance compared to baseline (SRM = 2.53), whereas untrained players exhibited a small performance decrement (group x trial interaction effect, L2 = 28.74; P < .001).

CONCLUSIONS:

Slow VMRT appears to be an important and modifiable injury risk factor for college football players. More research is needed to refine visuomotor reaction time screening and training methods and to determine the extent to which improved performance values can reduce injury incidence.

Strength and performance

Review Article

Sports Medicine

pp 1-31

First online: 02 February 2016

The Importance of Muscular Strength in Athletic Performance**Abstract**

This review discusses previous literature that has examined the influence of muscular strength on various

Bottom of Form

factors associated with athletic performance and the benefits of achieving greater muscular strength.

Greater muscular strength is strongly associated with improved force-time characteristics that contribute

to an athlete's overall performance. Much research supports the notion that greater muscular strength can

enhance the ability to perform general sport skills such as jumping, sprinting, and change of direction tasks.

Further research indicates that stronger athletes produce superior performances during sport specific tasks.

Greater muscular strength allows an individual to potentiate earlier and to a greater extent, but also decreases

the risk of injury. Sport scientists and practitioners may monitor an individual's strength characteristics using isometric,

dynamic, and reactive strength tests and variables. Relative strength may be classified into strength deficit,

strength association, or strength reserve phases. The phase an individual falls into may directly affect their level of

performance or training emphasis. Based on the extant literature, it appears that there may be no substitute for

greater muscular strength when it comes to improving an individual's performance across a wide range of both

general and sport specific skills while simultaneously reducing their risk of injury when performing these skills.

Therefore, sport scientists and practitioners should implement long-term training strategies that promote the

greatest muscular strength within the required context of each sport/event. Future research should examine

how force-time characteristics, general and specific sport skills, potentiation ability, and injury rates change as

individuals transition from certain standards or the suggested phases of strength to another.

58. RUNNING

Tibial acceleration

J Sport Rehabil. 2016 Jan 18.

Tibial Acceleration and Spatiotemporal Mechanics in Distance Runners During Reduced Body Weight Conditions.Moran MF¹, Rickert BJ, Greer BK.

Author information

Abstract

CONTEXT:

Treadmills that unload runners via a differential air pressure bladder (DAP; e.g. AlterG Anti-Gravity Treadmill) are commonly used to reduce effective body weight in a clinical setting, however, the relationship between the level of unloading and tibial stress is currently unknown.

OBJECTIVE:

To determine the relationship between tibial impact acceleration and level of body weight (BW) unloading during running.

DESIGN:

Cross-sectional.

SETTING:

University motion-analysis laboratory.

PARTICIPANTS:

15 distance runners (9M, 6F; 20.4 ± 2.4 years; 60.1 ± 12.6 kg).

INTERVENTIONS:

None.

MAIN OUTCOME MEASURES:

Peak tibial acceleration and peak-to-peak tibial acceleration was measured via a uniaxial accelerometer attached to the tibia during a 37-min continuous treadmill run that simulated reduced BW conditions via a DAP bladder. The trial began with a 10-min run at 100% BW followed by nine 3-min stages where BW was systematically reduced from 95% to 60% in 5% increments.

RESULTS:

There was no significant relationship between level of BW and either peak tibial acceleration or peak-to-peak tibial acceleration ($p > .05$). Both heart rate and step rate were significantly reduced with each 5% reduction in BW level ($p < .01$).

CONCLUSIONS:

Although ground reaction forces are reduced when running in reduced BW conditions on a DAP treadmill, tibial shock magnitudes are unchanged as an alteration in spatiotemporal running mechanics (e.g. reduced step rate) may nullify the unloading effect.

PMID:26797694

59. PAIN**Pain following body contour surgery****Prevalence and factors associated with persistent pain following body contouring surgery**

Harold CHATEL, M.D, Yoni MADAR, M.D, M.D Claire BONNEAU, M.D, C. BARRAT, M.D, Ph.D, Julien QUILICHINI, M.D

Summary**Background**

Persistent postsurgical pain has been reported by patients following various surgeries. Body contouring procedures are being performed more frequently, but no data are available regarding the effects of these procedures. Long-term disability occurring after “functional” procedures performed on healthy subjects is a particular concern. The aim of this study was to describe the risk factors, prevalence, characteristics, and effects of persistent pain after body contouring procedures.

Methods

Patients who underwent body contouring surgery (e.g., abdominoplasty, lower bodylift, medial thigh lift, brachioplasty and abdominal liposuction) between January 1 2009 to December 31 2013 were included in this retrospective, monocentric cohort study. Pain evaluation was performed using a visual analogic pain scale and the Douleur Neuropathique 4 questionnaire. Major risk factors previously identified in the literature were evaluated.

Results

a hundred and ninety nine patients were included in the study. Pain was reported by 42 patients (21%). Seventy-one percent (n=30) of these 42 patients presented with neuropathic pain. Risk factors that were significantly associated with persistent postsurgical pain were acute postoperative pain (p=0.0003), medical history of bariatric surgery (p=0.002), longer period of hospitalization (p=0,04), depressive status during the operative period (p=0,03), substantial stress before surgery (p=0,03), and major complications after surgery (p=0,03).

Conclusion

Persistent chronic pain is frequent after body contouring procedures. Preemptive approaches and early postoperative diagnosis are important measures that can be used to limit the effects of this complication on the patient’s quality of life.

Communications and pain

BMC Complement Altern Med. 2016 Jan 25;16(1):30. doi: 10.1186/s12906-016-1005-4.

Primary care physicians, acupuncture and chiropractic clinicians, and chronic pain patients: a qualitative analysis of communication and care coordination patterns.

Penney LS¹, Ritenbaugh C², Elder C³, Schneider J⁴, Deyo RA⁵, DeBar LL⁶.
Author information

Abstract**BACKGROUND:**

A variety of people, with multiple perspectives, make up the system comprising chronic musculoskeletal pain (CMP) treatment. While there are frequently problems in communication and coordination of care within conventional health systems, more opportunities for communicative disruptions seem possible when providers use different explanatory models and are not within the same health management system. We sought to describe the communication system surrounding the management of chronic pain from the perspectives of allopathic providers, acupuncture and chiropractor (A/C) providers, and CMP patients.

METHODS:

We collected qualitative data from CMP patients (n = 90) and primary care physicians (PCPs) (n = 25) in a managed care system, and community acupuncture and chiropractic care providers (n = 14) who received high levels of referrals from the system, in the context of a longitudinal study of CMP patients' experience.

RESULTS:

Multiple points of divergence and communicative barriers were identified among the main stakeholders in the system. Those that were most frequently mentioned included issues surrounding the referral process (requesting, approving) and lack of consistent information flow back to providers that impairs overall management of patient care. We found that because of these problems, CMP patients were frequently tasked and sometimes overwhelmed with integrating and coordinating their own care, with little help from the system.

CONCLUSIONS:

Patients, PCPs, and A/C providers desire more communication; thus systems need to be created to facilitate more open communication which could positively benefit patient outcomes.

PMID: 26810302

Vit D

BMC Musculoskelet Disord. 2016 Jan 16;17(1):32. doi: 10.1186/s12891-016-0881-6.

Low vitamin D and the risk of developing chronic widespread pain: results from the European male ageing study.

McCabe PS¹, Pye SR², Beth JM^{3,4}, Lee DM⁵, Tajar A⁶, Bartfai G⁷, Boonen S⁸, Bouillon R⁹, Casanueva F¹⁰, Finn JD¹¹, Forti G¹², Giwercman A¹³, Huhtaniemi IT¹⁴, Kula K¹⁵, Pendleton N¹⁶, Punab M¹⁷, Vanderschueren D¹⁸, Wu FC¹⁹, O'Neill TW^{20,21}; EMAS Study Group. Author information

Abstract

BACKGROUND:

The association between low levels of vitamin D and the occurrence of chronic widespread pain (CWP) remains unclear. The aim of our analysis was to determine the relationship between low vitamin D levels and the risk of developing CWP in a population sample of middle age and elderly men.

METHODS:

Three thousand three hundred sixty nine men aged 40-79 were recruited from 8 European centres for a longitudinal study of male ageing, the European Male Ageing Study. At baseline participants underwent assessment of lifestyle, health factors, physical characteristics and gave a fasting blood sample. The occurrence of pain was assessed at baseline and follow up (a mean of 4.3 years later) by shading painful sites on a body manikin. The presence of CWP was determined using the ACR criteria for fibromyalgia. Serum 25-hydroxyvitamin D (25-(OH) D) was assessed by radioimmunoassay. Logistic regression was used to determine the relationship between baseline vitamin D levels and the new occurrence of CWP.

RESULTS:

Two thousand three hundred thirteen men, mean age 58.8 years (SD = 10.6), had complete pain and vitamin data available and contributed to this analysis. 151 (6.5 %) developed new CWP at follow up and 577 (24.9 %) were pain free at both time points, the comparator group. After adjustment for age and centre, physical performance and number of comorbidities, compared to those in upper quintile of 25-(OH) D (≥ 36.3 ng/mL), those in the lowest quintile (< 15.6 ng/mL) were more likely to develop CWP (Odds Ratio [OR] = 1.93; 95 % CI = 1.0-3.6). Further adjustment for BMI (OR = 1.67; 95 % CI = 0.93-3.02) or depression (OR = 1.77; 95 % CI = 0.98-3.21), however rendered the association non-significant.

CONCLUSIONS:

Low vitamin D is linked with the new occurrence of CWP, although this may be explained by underlying adverse health factors, particularly obesity and depression.

PMID: 26774507

61. FIBROMYALGIA

Strengthening

The effect of extremity strength training on fibromyalgia symptoms and disease impact in an existing multidisciplinary treatment program

Journal of Bodywork & Movement Therapies , 02/04/2016 Vaughn D, et al.

The purpose of this study was to examine the effect of upper and lower body extremity strengthening exercise in patients with Fibromyalgia (FM) within an existing multidisciplinary treatment program. This study appears to validate the success of a multidisciplinary approach in treating patients with FM, with the possibility for further benefit with the addition of extremity strengthening.

Methods

- Comparative study design.
- The control and experimental group received the same multidisciplinary treatment except that the experimental group performed upper and lower extremity strengthening exercises.
- The Fibromyalgia Impact Questionnaire (FIQ) was administered at evaluation and discharge from the program in order to measure change in quality of life (QOL).

Results

- Statistically significant changes in FIQ scores were found for both groups.
- The addition of extremity strengthening in the experimental group produced an average 4 points greater reduction in FIQ score, however, these results are not considered statistically significant.

Men vs. women

Pain Pract. 2016 Feb;16(2):E23-E34. doi: 10.1111/papr.12411.

Gender Differences in Patients with Fibromyalgia Undergoing Cognitive-Behavioral Therapy for Insomnia: Preliminary Data.

Lami MJ¹, Martínez MP², Sánchez AI², Miró E², Diener FN¹, Prados G³, Guzmán MA³.
Author information

Abstract

Fibromyalgia (FM) is a chronic musculoskeletal pain syndrome that significantly affects patients' quality of life. Its main symptoms are pain, fatigue, and sleep disturbances.

AIM:

The aim of this study was to assess the efficacy of cognitive-behavioral therapy for insomnia (CBT-I) in men and women with FM and compare sleep and clinical features between both genders.

METHODS:

Fifteen women and 13 men were selected to participate in nine weekly CBT-I sessions that involved completing several self-reported questionnaires at pretreatment, post-treatment, and follow-up. Patients were recruited from the Rheumatology Service and Pain Unit of Hospital and a fibromyalgia association. Group psychotherapy was performed at clinical unit of the Faculty of Psychology.

RESULTS:

Both groups showed significant clinical and statistical improvements in sleep quality and the main symptoms associated with FM (ie, pain intensity, fatigue, anxiety, pain catastrophizing, and pain-related anxiety). Differential treatment responsiveness between sexes was observed. Male group exhibited significant changes at post-treatment in sleep disturbances and pain-related anxiety and catastrophizing. The female group showed post-treatment improvements in sleep latency, general fatigue, and depression, which persisted at follow-up.

CONCLUSIONS:

Differential responses to treatment between men and women were observed in some sleep- and pain-related variables. Outcomes show the need to design different treatments for men and women with FM is discussed.

KEYWORDS: cognitive-behavioral therapy; fibromyalgia; gender differences; insomnia
PMID:26841198

Gait and FM

March 2016 Volume 45, Pages 41–44

Variability of gait, bilateral coordination, and asymmetry in women with fibromyalgia

J. Heredia-Jimenez E. Orantes-Gonzalez V.M. Soto-Hermoso

Highlights

- Gait variability, bilateral coordination, and asymmetry were analyzed in fibromyalgia women.
- Gait was characterized by its variability and reflected fibromyalgia's gait coordination.
- The fibromyalgia group showed more gait asymmetry when walking quickly.
- The variability and the bilateral coordination could complement the evaluation of fibromyalgia symptoms.

Abstract

Purpose

To analyze how fibromyalgia affected the variability, asymmetry, and bilateral coordination of gait walking at comfortable and fast speeds.

Methods

65 fibromyalgia (FM) patients and 50 healthy women were analyzed. Gait analysis was performed using an instrumented walkway (GAITRite system). Average walking speed, coefficient of variation (CV) of stride length, swing time, and step width data were obtained and bilateral coordination and gait asymmetry were analyzed.

Results

FM patients presented significantly lower speeds than the healthy group. FM patients obtained significantly higher values of CV_StrideLength ($p = 0.04$; $p < 0.001$), CV_SwingTime ($p < 0.001$; $p < 0.001$), CV_StepWidth ($p = 0.004$; $p < 0.001$), phase coordination index ($p = 0.01$; $p = 0.03$), and p_CV ($p < 0.001$; $p = 0.001$) than the control group, walking at comfortable or fast speeds. Gait asymmetry only showed significant differences in the fast condition.

Conclusion

FM patients walked more slowly and presented a greater variability of gait and worse bilateral coordination than healthy subjects. Gait asymmetry only showed differences in the fast condition. The variability and the bilateral coordination were particularly affected by FM in women. Therefore, variability and bilateral coordination of gait could be analyzed to complement the gait evaluation of FM patients.

Keywords: Gait, Fibromyalgia, Bilateral coordination, Asymmetry, Variability

62 A. NUTRITION/VITAMINS**Fish oils decreases BP**

J Nutr. 2016 Jan 27. pii: jn220475.

Consumption of Fish Oil Providing Amounts of Eicosapentaenoic Acid and Docosahexaenoic Acid That Can Be Obtained from the Diet Reduces Blood Pressure in Adults with Systolic Hypertension: A Retrospective Analysis.

Minihane AM¹, Armah CK², Miles EA³, Madden JM³, Clark AB⁴, Caslake MJ⁵, Packard CJ⁵, Kofler BM², Lietz G⁶, Curtis PJ⁴, Mathers JC⁶, Williams CM², Calder PC⁷.
Author information

Abstract

BACKGROUND:

Although many randomized controlled trials (RCTs) have examined the effects of the n-3 (ω-3) fatty acids eicosapentaenoic acid (EPA; 20:5n-3) and docosahexaenoic acid (DHA; 22:6n-3) on blood pressure (BP) and vascular function, the majority have used doses of EPA+DHA of >3 g/d, which are unlikely to be achieved by dietary manipulation.

OBJECTIVE:

The objective was to examine, by using a retrospective analysis from a multicenter RCT, the impact of recommended EPA+DHA intakes achievable through diet on systolic and diastolic BPs and microvascular function in adults in the United Kingdom.

METHODS:

In a double-blind, placebo-controlled RCT, healthy men and women (n = 312) consumed a control oil or fish oil (FO) providing 0.7 or 1.8 g EPA+DHA/d, in random order, each for 8 wk. Fasting BP and microvascular function (using laser Doppler iontophoresis) were assessed and plasma collected for the quantification of markers of vascular function. Participants were retrospectively genotyped for the endothelial nitric oxide synthase (eNOS) rs1799983 variant.

RESULTS:

No effects of n-3 fatty acid treatment or any treatment × eNOS genotype interactions were evident in the group as a whole for any of the clinical or biochemical outcomes. Assessment of response according to hypertension status at baseline indicated a significant (P = 0.046) FO-induced reduction (mean: 5 mm Hg) in systolic BP, specifically in those with isolated systolic hypertension (n = 31). No dose response was observed.

CONCLUSIONS:

These findings indicate that in adults with isolated systolic hypertension, daily doses of EPA+DHA as low as 0.7 g show clinically meaningful BP reductions, which, at a population level, could be associated with lower cardiovascular disease risk. Confirmation of findings in an RCT in which participants are prospectively recruited on the basis of BP status is required to draw definite conclusions.

KEYWORDS: adhesion molecules; blood pressure; eNOS genotype; fish oils; nitric oxide; n-3 PUFA; vascular function
PMID:26817716

Coffee and longer life

Circulation. 2015 Dec 15;132(24):2305-15. doi: 10.1161/CIRCULATIONAHA.115.017341. Epub 2015 Nov 16.

Association of Coffee Consumption With Total and Cause-Specific Mortality in 3 Large Prospective Cohorts.

Ding M¹, Satija A¹, Bhupathiraju SN¹, Hu Y¹, Sun Q¹, Han J¹, Lopez-Garcia E¹, Willett W¹, van Dam RM¹, Hu FB².
Author information

Abstract

BACKGROUND:

The association between consumption of caffeinated and decaffeinated coffee and risk of mortality remains inconclusive.

METHODS AND RESULTS:

We examined the associations of consumption of total, caffeinated, and decaffeinated coffee with risk of subsequent total and cause-specific mortality among 74 890 women in the Nurses' Health Study (NHS), 93 054 women in the Nurses' Health Study II, and 40 557 men in the Health Professionals Follow-up Study. Coffee consumption was assessed at baseline using a semiquantitative food frequency questionnaire. During 4 690 072 person-years of follow-up, 19 524 women and 12 432 men died. Consumption of total, caffeinated, and decaffeinated coffee were nonlinearly associated with mortality. Compared with nondrinkers, coffee consumption of 1 to 5 cups per day was associated with lower risk of mortality, whereas coffee consumption of more than 5 cups per day was not associated with risk of mortality. However, when restricting to never smokers compared with nondrinkers, the hazard ratios (and 95% confidence intervals) of mortality were 0.94 (0.89-0.99) for 1.0 or less cup per day, 0.92 (0.87-0.97) for 1.1 to 3.0 cups per day, 0.85 (0.79-0.92) for 3.1 to 5.0 cup per day, and 0.88 (0.78-0.99) for more than 5.0 cup per day (P value for nonlinearity = 0.32; P value for trend < 0.001). Significant inverse associations were observed for caffeinated (P value for trend < 0.001) and decaffeinated coffee (P value for trend = 0.022). Significant inverse associations were observed between coffee consumption and deaths attributed to cardiovascular disease, neurologic diseases, and suicide. No significant association between coffee consumption and total cancer mortality was found.

CONCLUSIONS:

Higher consumption of total coffee, caffeinated coffee, and decaffeinated coffee was associated with lower risk of total mortality.

KEYWORDS: coffee; mortality; smoking
PMID: 26572796

63. PHARMACOLOGY**Opioid use****Trends in opioid dosing among of washington state medicaid patients before and after opioid dosing guideline implementation**

The Journal of Pain, 02/01/2016 Sullivan MD, et al.

Some fear that opioid dosing guidelines might restrict access to opioid therapy for patients who could benefit. However, there is evidence that high-dose opioid therapy entails significant risks without demonstrated benefit. These findings indicate that high-dose opioid therapy can be reduced without altering median opioid dose in a Medicaid population.

Methods

- The authors report here on opioid dosing in the WA Medicaid fee-for-service population for 273,200 adults with a paid claim for an opioid prescription between 4-1-2006 and 12-31-2010.
- Linear regression was used to test for trends in dosing over that time period, with quarter-year as the independent variable and median daily dose as the dependent variable.

Results

- Prescription opioid use among WA Medicaid adults peaked in 2009, as evidenced by the unique number of opioid users (105,232), the total number of prescriptions (556,712), and the total person-years of prescription opioid use (29,442).
- Median opioid dose was unchanged from 2006-2010 at 37.5mg MED, but doses at the 75th, 90th, 95th, and 99th percentiles declined significantly ($p < .001$).
- These results suggest that opioid treatment guidelines with dosing guidance may be able to reduce high-dose opioid use without affecting the median dose used