

ABSTRACTS

Table of Contents	
LUMBAR SPINE	2
PELVIC GIRDLE	2
PELVIC ORGANS	5
VISCERA	Error! Bookmark not defined.
THORACIC SPINE	Error! Bookmark not defined.
CERVICAL SPINE	Error! Bookmark not defined.
CRANIUM/TMJ	11
HEADACHES	12
CONCUSSIONS	Error! Bookmark not defined.
SHOULDER GIRDLE	Error! Bookmark not defined.
GLENOHUMERAL/SHOULDER	Error! Bookmark not defined.
ELBOW	Error! Bookmark not defined.
WRIST AND HAND	Error! Bookmark not defined.
HIP	15
KNEE	19
FOOT AND ANKLE	25
MANUAL THERAPY/STRETCHING/MUSCLES STM	31
CFS/BET	Error! Bookmark not defined.
ATHLETICS	32
RUNNING GAIT	Error! Bookmark not defined.
PAIN	33
COMPLEX REGIONAL PAIN	Error! Bookmark not defined.
FIBROMYALGIA	34
NUTRITION/VITAMINS/MEDICATION/TOPICALS	35
NEUROLOGICAL CONDITIONS	Error! Bookmark not defined.

LUMBAR SPINE

LBP

PT for LBP

Phys Ther. 2015 Apr 9.

Pragmatic Implementation of a Stratified Primary Care Model for Low Back Pain Management in Outpatient Physical Therapy Settings: Two-Phase, Sequential Pilot Study.

Beneciuk JM¹, George SZ².

Author information

BACKGROUND: The effectiveness of risk stratification for low back pain (LBP) management has been demonstrated in primary care, but not in other healthcare settings.

OBJECTIVE: Assess implementation of a stratified care approach for LBP management in outpatient physical therapy settings by evaluating preliminary estimates of short term treatment effect and determine feasibility of conducting a larger scale study.

DESIGN: Two-phased, pilot study.

METHODS: Clinicians were randomly assigned to receive standard (n = 6) or stratified care (n = 6) training and education (Phase 1). Stratified care education included 8-hours of content focusing on psychological informed practice principles. Changes in LBP attitudes and beliefs were assessed using the Pain Attitudes and Beliefs Scale for Physiotherapists (PABS-PT) and the HealthCare Providers Pain and Impairment Relationship Scale (HC-PAIRS). Four week clinical outcomes were collected from the same group of physical therapists using the Numerical Pain Rating Scale (NPRS) and Oswestry Disability Index (ODI) (Phase 2). Stratified care clinicians were instructed to incorporate strategies learned during Phase 1 for management of subsequent patients, while standard care clinicians were instructed to not deviate from their normal strategies. Study feasibility (eg, recruitment rates, sample size estimation, implementation strategies) was assessed to identify potential barriers for completion of a larger scale study.

RESULTS: In the first phase of the study (February, 2013 to April, 2013) minimal changes were observed for PABS-PT and HC-PAIRS scores for standard care clinicians (Cohen's d = 0.00 to 0.28), however decreased biomedical (-4.5±2.5 points, d = 1.08) and increased biopsychosocial (+5.5±2.0 points, d = 2.86) treatment orientations were observed for stratified care clinicians and these positive changes were sustained 6-months later on the PABS-PT. In the second phase of the study (May, 2013 to February, 2014), follow-up data was provided from 100/109 (91.7%). Patients receiving stratified care (n = 67) had greater between-group improvements in NPRS (0.8 points, 95% CI: 0.1, 1.5, d = 0.40) and ODI (8.9 percentage points, 95% CI: 4.1, 13.6, d = 0.76) scores when compared to patients that received standard physical therapy care (n = 33).

LIMITATIONS: In the second phase of the study treatment was not randomly assigned and therapist adherence to treatment recommendations was not monitored. This study was not adequately powered to conduct subgroup analyses based on STarT Back risk.

CONCLUSIONS: This study demonstrates that physical therapist biomedical orientation can be modified and subsequent to that change risk stratified care for LBP can be effectively implemented outside the primary care setting. Findings from this study can be used for planning of larger studies investigating the impact of physical therapist delivered stratified care on patient LBP outcomes.

© 2015 American Physical Therapy Association. PMID: 25858972

Pain and disability

Pain. 2015 Mar 6.

How does pain lead to disability? A systematic review and meta-analysis of mediation studies in people with back and neck pain.

Lee H¹, Hübscher M, Moseley GL, Kamper SJ, Traeger AC, Mansell G, McAuley JH.
Author information

Abstract

Disability is an important outcome from a clinical and public health perspective.

However, it is unclear how disability develops in people with low back pain or neck pain. More specifically, the mechanisms by which pain leads to disability are not well understood. Mediation analysis is a way of investigating these mechanisms by examining the extent to which an intermediate variable explains the effect of an exposure on an outcome. This systematic review and meta-analysis was aimed to identify and examine the extent to which putative mediators explain the effect of pain on disability in people with low back pain or neck pain. Five electronic databases were searched. We found 12 studies (N=2,961) that examined how pain leads to disability with mediation analysis. Standardized regression coefficients ($\hat{\alpha}$) of the indirect and total paths were pooled. We found evidence to show that self-efficacy ($\hat{\alpha} = 0.23$, 95% CI = 0.10-0.34), psychological distress ($\hat{\alpha} = 0.10$, 95% CI = 0.01-0.18), and fear ($\hat{\alpha} = 0.08$, 95% CI = 0.01-0.14) mediated the relationship between pain and disability, but catastrophizing did not ($\hat{\alpha} = 0.07$, 95% CI = -0.06-0.19). The methodological quality of these studies was low and we highlight potential areas for development.

Nonetheless, the results suggest that there are significant mediating effects of self-efficacy, psychological distress, and fear, which underpins the direct targeting of these constructs in treatment.

PMID: 25760473

Hip OA and LBP

Pain Med. 2015 Apr 3. doi: 10.1111/pme.12757.

Deconstructing Chronic Low Back Pain in the Older Adult-Step by Step Evidence and Expert-Based Recommendations for Evaluation and Treatment: Part I: Hip Osteoarthritis.

Weiner DK¹, Fang M, Gentili A, Kochersberger G, Marcum ZA, Rossi MI, Semla TP, Shega J.
Author information

Abstract

OBJECTIVE:

To present the first in a series of articles designed to deconstruct chronic low back pain (CLBP) in older adults. The series presents CLBP as a syndrome, a final common pathway for the expression of multiple contributors rather than a disease localized exclusively to the lumbosacral spine. Each article addresses one of twelve important contributors to pain and disability in older adults with CLBP. This article focuses on hip osteoarthritis (OA).

METHODS:

The evaluation and treatment algorithm, a table articulating the rationale for the individual algorithm components, and stepped-care drug recommendations were developed using a modified Delphi approach. The Principal Investigator, a five-member content expert panel and a nine-member primary care panel were involved in the iterative development of these materials. The algorithm was developed keeping in mind medications and other resources available within Veterans Health Administration (VHA) facilities. As panelists were not exclusive to the VHA, the materials can be applied in both VHA and civilian settings. The illustrative clinical case was taken from one of the contributor's clinical practice.

RESULTS:

We present an algorithm and supportive materials to help guide the care of older adults with hip OA, an important contributor to CLBP. The case illustrates an example of complex hip-spine syndrome, in which hip OA was an important contributor to disability in an older adult with CLBP.

CONCLUSIONS:

Hip OA is common and should be evaluated routinely in the older adult with CLBP so that appropriately targeted treatment can be designed.

© 2015 American Academy of Pain Medicine. KEYWORDS: Aged; Assessment; Chronic Pain; Chronic low back pain; Elderly; Hip Osteoarthritis; Low Back Pain; Primary Care PMID: 25846648

DISC

Modic changes and cytokines

Eur Spine J. 2015 Mar 27.

Osteoclast activators are elevated in intervertebral disks with Modic changes among patients operated for herniated nucleus pulposus.

Torkki M¹, Majuri ML, Wolff H, Koskelainen T, Haapea M, Niinimäki J, Alenius H, Lotz J, Karppinen J.

Author information

Abstract

PURPOSE:

Modic changes (MC) are associated with low back pain (LBP). Inflammation is considered as a key factor that triggers symptoms in especially type I MC, but so far of the potential inflammatory candidates only TNF α has been linked to MC. The objective of the study was to analyze a set of inflammatory mediators in human surgical disk samples and quantify their association with MC in the adjacent vertebral bodies.

METHODS:

The study sample consisted of 51 intervertebral disk tissue specimens; 20 'No MC' disks, 19 'Type I MC' disks, and 12 'Type II MC' disks. mRNA expression of 46 cytokines was quantified from isolated RNA. Tissue samples were stained using hematoxylin and eosin, toluidine blue, Herovici, CD68 and CD163.

RESULTS:

No significant differences were found in the amount of macrophages or presence of chondrocyte conglomerates between the MC groups. Of the multiple genes tested, statistically significant associations were observed for M-CSF1 ($p = 0.028$), RANKL ($p = 0.035$), RUNX1 ($p = 0.032$), and RUNX2 ($p = 0.047$) that were increased in 'Type II MC,' while OSCAR ($p = 0.042$) was increased in 'Type I MC' group compared to 'No MC.'

CONCLUSIONS:

Since these cytokines are related to differentiation and proliferation of osteoclasts, our data suggest that the stimulation of vertebral osteoclasts by factors secreted by disk tissue is involved in the pathophysiology of MC.

PMID: 25813008

Disc herniations in astronauts

Eur Spine J. 2015 Apr 18.

Disc herniations in astronauts: What causes them, and what does it tell us about herniation on earth?

Belavy DL¹, Adams M, Brisby H, Cagnie B, Danneels L, Fairbank J, Hargens AR, Judex S, Scheuring RA, Sovelius R, Urban J, van Dieën JH, Wilke HJ.

Author information

Abstract

PURPOSE:

Recent work showed an increased risk of cervical and lumbar intervertebral disc (IVD) herniations in astronauts. The European Space Agency asked the authors to advise on the underlying pathophysiology of this increased risk, to identify predisposing factors and possible interventions and to suggest research priorities.

METHODS:

The authors performed a narrative literature review of the possible mechanisms, and conducted a survey within the team to prioritize research and prevention approaches.

RESULTS AND CONCLUSIONS:

Based on literature review the most likely cause for lumbar IVD herniations was concluded to be swelling of the IVD in the unloaded condition during spaceflight. For the cervical IVDs, the knowledge base is too limited to postulate a likely mechanism or recommend approaches for prevention. Basic research on the impact of (un)loading on the cervical IVD and translational research is needed. The highest priority prevention approach for the lumbar spine was post-flight care avoiding activities involving spinal flexion, followed by passive spinal loading in spaceflight and exercises to reduce IVD hyper-hydration post-flight.

PMID: 25893331

SURGERY**Spondylo and disc degeneration**

J Orthop Surg Res. 2015 Mar 26;10(1):39. doi: 10.1186/s13018-015-0186-8.

Does pre-existing L5-S1 degeneration affect outcomes after isolated L4-5 fusion for spondylolisthesis?

Choi KC¹, Shim HK², Kim JS³, Lee SH⁴.

Author information

Abstract

BACKGROUND:

Concerns have been raised regarding residual symptoms of caudal segment (L5-S1) degeneration that may affect clinical outcomes or require additional surgery after isolated L4-5 fusion, especially if there is pre-existing L5-S1 degeneration. This study aimed to evaluate the L5-S1 segment after minimally invasive lumbar interbody fusion at the L4-5 segment, as well as the influence of pre-existing L5-S1 degeneration on radiologic and clinical outcomes.

METHODS:

This retrospective study evaluated patients with isthmic spondylolisthesis and degenerative spondylolisthesis who underwent mini-open anterior lumbar interbody fusion with percutaneous pedicle screw fixation (PSF) or minimally invasive transforaminal interbody fusion with PSF at the L4-5 segment. The minimum follow-up period was 7 years, and radiographic evaluations were conducted via magnetic resonance imaging, computed tomography, and plain radiography at the 5-year follow-up. Clinical outcomes were assessed using the Visual Analog Score, Oswestry Disability Index, and surgical satisfaction rate. Patients were divided into two groups, those with and without pre-existing L5-S1 degeneration, and their final outcomes and incidence of radiographic and clinical adjacent segment disease (ASD) were compared.

RESULTS:

Among 70 patients who underwent the procedures at our institution, 12 (17.1%) were lost to follow-up. Therefore, this study evaluated 58 patients, with a mean follow-up period of 9.4 ± 2.1 years. Among these patients, 22 patients had pre-existing L5-S1 degeneration, while 36 patients did not have pre-existing L5-S1 segmental degeneration. There were no significant differences in the clinical outcomes at the final follow-up when the two groups were compared. However, radiographic ASD at L5-S1 occurred in seven patients (12.1%), clinical ASD at L5-S1 occurred in three patients (5.2%), and one patient (1.7%) required surgery. In the group with pre-existing degeneration, L5-S1 degeneration was radiographically accelerated in four patients (18.2%) and clinical ASD developed in one patient (4.5%). In the group without pre-existing degeneration, L5-S1 degeneration was radiographically accelerated in three patients (8.3%) and clinical ASD developed in two patients (5.7%). There were no differences in the incidence of ASD when we compared the two groups.

CONCLUSIONS:

Pre-existing L5-S1 degeneration does not affect clinical and radiographical outcomes after isolated L4-5 fusion.

PMID: 25889310

Outcomes and selection

Int Orthop. 2015 Apr 1.

Predictors of pain and disability outcomes in one thousand, one hundred and eight patients who underwent lumbar discectomy surgery.

Cook CE¹, Arnold PM, Passias PG, Frempong-Boadu AK, Radcliff K, Isaacs R; Association for Collaborative Spine Research (ACSR).

Author information

Abstract

BACKGROUND:

A key component toward improving surgical outcomes is proper patient selection. Improved selection can occur through exploration of prognostic studies that identify variables which are associated with good or poorer outcomes with a specific intervention, such as lumbar discectomy. To date there are no guidelines identifying key prognostic variables that assist surgeons in proper patient selection for lumbar discectomy. The purpose of this study was to identify baseline characteristics that were related to poor or favourable outcomes for patients who undergo lumbar discectomy. In particular, we were interested in prognostic factors that were unique to those commonly reported in the musculoskeletal literature, regardless of intervention type.

METHODS:

This retrospective study analysed data from 1,108 patients who underwent lumbar discectomy and had one year outcomes for pain and disability. All patient data was part of a multicentre, multi-national spine repository. Ten relatively commonly captured data variables were used as predictors for the study: (1) age, (2) body mass index, (3) gender, (4) previous back surgery history, (5) baseline disability, unique baseline scores for pain for both (6) low back and (7) leg pain, (8) baseline SF-12 Physical Component Summary (PCS) scores, (9) baseline SF-12 Mental Component Summary (MCS) scores, and (10) leg pain greater than back pain. Univariate and multivariate logistic regression analyses were run against one year outcome variables of pain and disability.

RESULTS:

For the multivariate analyses associated with the outcome of pain, older patients, those with higher baseline back pain, those with lesser reported disability and higher SF-12 MCS quality of life scores were associated with improved outcomes. For the multivariate analyses associated with the outcome of disability, presence of leg pain greater than back pain and no previous surgery suggested a better outcome.

CONCLUSIONS:

For this study, several predictive variables were either unique or conflicted with those advocated in general prognostic literature, suggesting they may have value for clinical decision making for lumbar discectomy surgery. In particular, leg pain greater than back pain and older age may yield promising value. Other significant findings such as quality of life scores and prior surgery may yield less value since these findings are similar to those that are considered to be prognostic regardless of intervention type.

PMID: 25823517

PELVIC GIRDLE

SI joint motion

J Rheumatol. 2015 May 1. pii: jrheum.140806.

Metric Properties of the SPARCC Score of the Sacroiliac Joints - Data from Baseline, 3-month, and 12-month Followup in the SPACE Cohort.

van den Berg R¹, de Hooge M¹, Bakker PA¹, van Gaalen F¹, Navarro-Compán V¹, Fagerli KM¹, Landewé R¹, van Oosterhout M¹, Ramonda R¹, Reijnen M¹, van der Heijde D¹.
Author information

Abstract

OBJECTIVE:

To evaluate metric properties of the SpondyloArthritis Research Consortium of Canada (SPARCC) score of the sacroiliac (SI) joints.

METHODS:

Patients with back pain (≥ 3 months, ≤ 2 years, onset < 45 years) were included in the SPACE cohort (SpondyloArthritis Caught Early). Patients with (possible) axial spondyloarthritis had followup visits after 3 and 12 months and were treated according to clinical practice. Magnetic resonance imaging (MRI) of the SI joints (MRI-SI) was scored in 2 independent campaigns (campaign 1: at baseline and 3 months; campaign 2: at baseline, 3 months, and 12 months) by 2 different blinded reader pairs, applying the Assessment of Spondyloarthritis International Society (ASAS) definition (MRI-SI+ vs MRI-SI-; discordant cases were adjudicated by a third reader) and SPARCC score (mean of 2 agreeing readers). Calculations were made for agreement between SPARCC score cutoff values and a consensus judgment of MRI-SI+ (ASAS definition) as external standard, change in SPARCC score, and smallest detectable changes (SDC) over 3 and 12 months.

RESULTS:

SPARCC score ≥ 2 showed best agreement with MRI-SI+ in both campaigns. Regarding observed changes in relation to SDC, SPARCC score changed in 70/151 patients; 26/70 patients changed $> SDC$ (3.4), of whom 20 patients received stable treatment over 3 months in campaign 1. Over 3 months, 20/68 patients showed changes in SPARCC score; 11/20 $> SDC$ (2.1), of whom 8 patients received stable treatment. Over 1 year, 23/74 patients changed their SPARCC score; 14/23 changed $> SDC$ (2.4), of whom 7 received stable treatment in campaign 2.

CONCLUSION:

SPARCC score ≥ 2 can be used as surrogate for a consensus judgment of MRI-SI+ (ASAS definition) in clinical trials. The SDC ranged from 2.1-3.4 dependent on reader pair and were close to the proposed minimum important change of 2.5.

PMID: 25934824

Pelvic pain with pregnancy and after

Eur Spine J. 2015 Apr 22.

Pelvic girdle pain 3-6 months after delivery in an unselected cohort of Norwegian women.

Gausel AM¹, Kjærmann I, Malmqvist S, Dalen I, Larsen JP, Økland I.

Author information

Abstract

PURPOSE:

Persistent pelvic girdle pain (PGP) after delivery is considered uncommon. The aim of this study was to assess the frequency of persistent PGP after delivery in an unselected population, its influence on the women's daily life, and potential risk factors.

METHODS:

The study population was drawn from a previous retrospective study of pelvic pain (PP) during pregnancy. The women were followed until 3-6 months after delivery in a prospective cohort study. All women were contacted by telephone and those with persistent PP were invited to fill in questionnaires and undergo a clinical examination.

RESULTS:

68 of 330 women reported persistent pain in the pelvic area 3-6 months after delivery. 47 underwent a clinical examination, after which 36 women were diagnosed with either PGP alone (n = 25), or PGP combined with low back pain (LBP) (n = 11). Affected women reported a poor subjective health status, but the pain did not have a major impact on their daily life activities. Women with 3 independent risk factors: age ≥ 30 years, a moderate or high Oswestry Disability Index in pregnancy, and combined PP and LBP during pregnancy, had a 27-fold increased risk for persistent PGP compared with women without these risk factors.

CONCLUSION:

16 % of women that reported PP during pregnancy were found to have persistent PGP 3-6 months after the delivery. Women with risk factors for persistent PGP should be identified while pregnant, and offered a follow-up examination 3 months after delivery.

PMID: 25900296

CRANIUM/TMJ

Botox and TMJ

Botulinum toxin therapy for temporomandibular joint disorders: A systematic review of randomized controlled trials

International Journal of Oral and Maxillofacial Surgery, 05/07/2015 Chen YW, et al. –

Researchers undertook this systematic review to assess the efficacy of botulinum toxin therapy (BTX) for temporomandibular joint disorders (TMDs), but because of considerable variations in study methods and evaluation of results, meta-analysis could not be performed. Based on this review, they could reach no consensus on the therapeutic benefits of BTX on TMDs, and called for more rigorous designing of trials in the future.

Methods

- Researchers conducted a comprehensive search of major databases through PubMed, EMBASE, and Cochrane CENTRAL to identify all relevant articles published from inception to October 2014.
- Eligible studies were selected based on inclusion criteria and included English language, peer-reviewed publications of randomized controlled trials comparing BTX versus any alternative intervention or placebo.
- Researchers also conducted quality assessment and data extraction according to the Cochrane risk of bias tool and recommendations.
- The entire systematic search and selection process was done independently by two reviewers.

Results

- Only 5 relevant study trials were identified, involving 117 participants.
- Two trials revealed a significant between-group difference in myofascial pain reduction.
- Another trial that compared BTX with fascial manipulation showed equal efficacy of pain relief on TMDs.
- The remaining two trials showed no significant difference between the BTX and placebo groups.

HEADACHES**Migraine variability**

Cephalalgia. 2015 May 5. pii: 0333102415584601.

Variability of clinical features in attacks of migraine with aura.

Hansen JM¹, Goadsby PJ², Charles AC³.

Author information

Abstract

BACKGROUND:

There is significant variability in the clinical presentation of migraine, both among patients, and between attacks in an individual patient. We examined clinical features of migraine with aura in a large group of patients enrolled in a clinical trial, and compared retrospective migraine attack characteristics reported upon enrollment in the trial with those recorded prospectively in the trial.

METHODS:

Patients with migraine (n = 267) with typical visual aura in more than 30% of their attacks were enrolled from 16 centers for a clinical trial. Upon enrollment, patients provided a detailed retrospective description of the clinical features of their attacks of migraine. During the trial, clinical symptoms in migraine attacks starting with aura were recorded prospectively in 861 attacks.

RESULTS:

Retrospectively reported visual aura symptoms were variable and often overlapping; the most common symptoms were dots or flashing lights, wavy or jagged lines, blind spots, and tunnel vision. Multiple patients reported more than one visual phenomenon. Approximately half of the patients reported nonvisual aura symptoms, the most common were numbness and tingling, followed by difficulty in recalling or speaking words. A significant percentage of patients also reported a change in olfaction. There were several inconsistencies between the features of prospectively recorded and retrospectively reported attacks. Headache, nausea, photophobia, and phonophobia were all less common in prospectively recorded attacks as compared with retrospective reporting. Nausea was prospectively recorded in only 51% of attacks and mostly with mild intensity. The occurrence and severity of nausea was reduced with advancing patient age. Phonophobia was not consistently recorded in conjunction with photophobia.

CONCLUSION:

These findings are consistent with variable involvement of different brain regions during a migraine attack. The variable occurrence of nausea, and phonophobia in conjunction with photophobia, both defining features of migraine, may be an important consideration in designing clinical studies of migraine in which prospectively recorded attacks are diagnosed based on these clinical features.

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KEYWORDS: *Migraine aura; RCT; clinical characteristics; cohort study; cortical spreading depression; prospective recordings PMID: 25944814*

CLAVICLE**AC joint pain**

Knee Surg Sports Traumatol Arthrosc. 2015 Apr 21.

Association between acromioclavicular joint pain and capsular bulging in adolescent baseball players.

Hatta T¹, Yamamoto N, Sano H, Nagamoto H, Kurokawa D, Takahashi H, Tanaka M, Koike Y, Itoi E.

Author information

Abstract

PURPOSE:

The purpose of this study was to investigate the association between acromioclavicular (AC) joint pain and superior capsular bulging assessed by ultrasound in adolescent baseball players.

METHODS:

One hundred and fifty players (1st-8th graders) were examined. All subjects underwent physical examinations, including assessment of tenderness on the AC joint and provocative tests (the Buchberger's test and the cross-body adduction stress test). Bilateral AC joints with the arm in both the resting and the cross-body positions were examined by ultrasound.

RESULTS:

Twelve of 150 players (8 %) had AC symptoms with both positive tenderness and positive provocative tests. Interestingly, their prevalence increased with age-one of the 70 (1.4 %) 1st-3rd graders, six of 46 (13 %) 4th-6th graders and five of 34 (15 %) 7th-8th graders. Ultrasonography of AC joints in the cross-body position showed that the difference in superior capsular bulging between the throwing and non-throwing sides was significantly greater in symptomatic players (1.6 ± 1.2 mm) than in asymptomatic players (0.2 ± 0.8 mm) ($p = 0.002$).

CONCLUSION:

The prevalence of superior capsular bulging was significantly higher in adolescent baseball players with AC joint pain than in those without it. In adolescent baseball players with shoulder pain, AC joint symptoms should be considered amongst potential causes. Careful observation of these patients is suggested in cases of superior capsular bulging of the AC joint as determined by ultrasonography.

LEVEL OF EVIDENCE: III. PMID: 25895833

ROTATOR CUFF**Cytokine levels**

Int J Rheum Dis. 2015 Apr 30. doi: 10.1111/1756-185X.12581.

Shoulder pain and intra-articular interleukin-8 levels in patients with rotator cuff tears.

Okamura K¹, Kobayashi T, Yamamoto A, Shitara H, Osawa T, Ichinose T, Takagishi K.

Author information

Abstract

AIM:

Rotator cuff disease (RCD) is one of the most common disorders in the shoulder joint and causes joint pain and functional disability. In this study, we investigated the associations among cytokine levels and clinical symptoms in patients with RCD.

METHOD:

Joint fluid specimens of the shoulder joint were obtained from 38 patients with RCD before arthroscopic surgery. The levels of inflammatory cytokines, including interleukin (IL)-1 β , IL-6 and IL-8, were evaluated using enzyme-linked immunosorbent assay kits, and the associations between these cytokine levels and the clinical symptoms were determined. A multiple linear regression analysis was performed to identify the parameters accounting for the visual analogue scale (VAS) score at rest.

RESULTS:

IL-8 level was correlated with IL-6 ($r = 0.434$, $P = 0.006$) and IL-1 β ($r = 0.575$, $P < 0.001$) levels. The cuff tear size was inversely correlated with the VAS score at rest. A multiple stepwise linear regression analysis revealed that the VAS score at rest could be explained by the VAS score at night, the VAS score during movement and the intra-articular IL-8 level (adjusted $R^2 = 0.544$, $P < 0.001$). The intra-articular IL-8 level is associated with resting pain in rotator cuff tear patients.

CONCLUSION:

These results suggest that an increased concentration of IL-8 is associated with resting pain in rotator cuff tear patients.

© 2015 Asia Pacific League of Associations for Rheumatology and Wiley Publishing Asia Pty Ltd. **KEYWORDS:** cytokine; interleukin; rotator cuff disease; shoulder disorder; shoulder pain

PMID: 25930944

CARPAL TUNNEL SYNDROME

CTS and HA's

Plast Reconstr Surg Glob Open. 2015 Apr 7;3(3):e333. doi: 10.1097/GOX.0000000000000257.
eCollection 2015.

An Association between Carpal Tunnel Syndrome and Migraine Headaches-National Health Interview Survey, 2010.

Law HZ¹, Amirlak B¹, Cheng J¹, Sammer DM¹.

Author information

Abstract**BACKGROUND:**

Migraine headaches have not historically been considered a compression neuropathy. Recent studies suggest that some migraines are successfully treated by targeted peripheral nerve decompression. Other compression neuropathies have previously been associated with one another. The goal of this study is to evaluate whether an association exists between migraines and carpal tunnel syndrome (CTS), the most common compression neuropathy.

METHODS:

Data from 25,880 respondents of the cross-sectional 2010 National Health Interview Survey were used to calculate nationally representative prevalence estimates and 95% confidence intervals (95% CIs) of CTS and migraine headaches. Logistic regression was used to calculate adjusted odds ratios (aORs) and 95% CI for the degree of association between migraines and CTS after controlling for known demographic and health-related factors.

RESULTS:

CTS was associated with older age, female gender, obesity, diabetes, and smoking. CTS was less common in Hispanics and Asians. Migraine was associated with younger age, female gender, obesity, diabetes, and current smoking. Migraine was less common in Asians. Migraine prevalence was 34% in those with CTS compared with 16% in those without CTS (aOR, 2.60; 95% CI, 2.16-3.13). CTS prevalence in patients with migraine headache was 8% compared with 3% in those without migraine headache (aOR, 2.67; 95% CI, 2.22-3.22).

CONCLUSIONS:

This study is the first to demonstrate an association between CTS and migraine headache. Longitudinal and genetic studies with physician verification of migraine headaches and CTS are needed to further define this association.

PMID: 25878944

HIP

Stability of hip/ligaments

Bone Joint J. 2015 Apr;97-B(4):484-91. doi: 10.1302/0301-620X.97B4.34638.

The capsular ligaments provide more hip rotational restraint than the acetabular labrum and the ligamentum teres : an experimental study.

van Arkel RJ¹, Amis AA¹, Cobb JP², Jeffers JR¹.

Author information

Abstract

In this in vitro study of the hip joint we examined which soft tissues act as primary and secondary passive rotational restraints when the hip joint is functionally loaded.

A total of nine cadaveric left hips were mounted in a testing rig that allowed the application of forces, torques and rotations in all six degrees of freedom. The hip was rotated throughout a complete range of movement (ROM) and the contributions of the iliofemoral (medial and lateral arms), pubofemoral and ischiofemoral ligaments and the ligamentum teres to rotational restraint was determined by resecting a ligament and measuring the reduced torque required to achieve the same angular position as before resection. The contribution from the acetabular labrum was also measured. Each of the capsular ligaments acted as the primary hip rotation restraint somewhere within the complete ROM, and the ligamentum teres acted as a secondary restraint in high flexion, adduction and external rotation.

The iliofemoral lateral arm and the ischiofemoral ligaments were primary restraints in two-thirds of the positions tested. Appreciation of the importance of these structures in preventing excessive hip rotation and subsequent impingement/instability may be relevant for surgeons undertaking both hip joint preserving surgery and hip arthroplasty. Cite this article: Bone Joint J 2015; 97-B:484-91.

©2015 The British Editorial Society of Bone & Joint Surgery. KEYWORDS: capsule; hip; labrum; ligamentum teres; primary restraints PMID: 25820886

REPLACEMENTS

With spinal stenosis

J Arthroplasty. 2015 Mar 31. pii: S0883-5403(15)00215-6. doi: 10.1016/j.arth.2015.03.017.

Does Co-Existing Lumbar Spinal Canal Stenosis Impair Functional Outcomes and Activity Levels after Primary Total Hip Arthroplasty?

Jauregui JJ¹, Banerjee S², Issa K³, Cherian JJ¹, Mont MA¹.

Author information

Abstract

Degenerative lumbar spinal stenosis (LSS) is a cause for substantial morbidity in the elderly population: many often undergo total hip arthroplasty for associated hip arthritis. With a matched cohort we investigated the effect of co-existing LSS on aseptic survivorship, functional outcomes, activity levels, overall subjective physical and mental health status, and satisfaction rates in patients undergoing primary THA. T

he aseptic-implant survivorship was similar in LSS and non-stenosis cohort. Although both cohorts significantly improved, the LSS cohort achieved lower improvements in HHS, UCLA, SF-36 physical, and satisfaction rates than the matched non-stenotic cohort.

Surgeons should consider cautioning patients with LSS that although they can expect relief of their arthritic symptoms following THA, they may continue to expect limitations in function, physical-status, activity-levels, and satisfaction rates.

Copyright © 2015. Published by Elsevier Inc. KEYWORDS: activity level; functional outcomes; lumbar spinal stenosis; satisfaction; total hip arthroplasty PMID: 25865814

IMPINGEMENT

Coxa profunda

Bone Joint J. 2015 Apr;97-B(4):478-83. doi: 10.1302/0301-620X.97B4.34577.

Coxa profunda in the diagnosis of pincer-type femoroacetabular impingement and its prevalence in asymptomatic subjects.

Diesel CV¹, Ribeiro TA², Coussirat C¹, Scheidt RB³, Macedo CA¹, Galia CR¹.

Author information

Abstract

In many papers, the diagnosis of pincer-type femoroacetabular impingement (FAI) is attributed to the presence of coxa profunda. However, little is known about the prevalence of coxa profunda in the general population and its clinical relevance. In order to ascertain its prevalence in asymptomatic subjects and whether it is a reliable indicator of pincer-type FAI, we undertook a cross-sectional study between July and December 2013. A total of 226 subjects (452 hips) were initially screened. According to strict inclusion criteria, 129 asymptomatic patients (257 hips) were included in the study. The coxa profunda sign, the crossover sign, the acetabular index (AI) and lateral centre-edge (LCE) angle were measured on the radiographs. The median age of the patients was 36.5 years (28 to 50) and 138 (53.7%) were women. Coxa profunda was present in 199 hips (77.4%). There was a significantly increased prevalence of coxa profunda in women ($p < 0.05$) and a significant association between coxa profunda and female gender ($p < 0.001$) (92% vs 60.5%). The crossover sign was seen in 36 hips (14%), an LCE $> 40^\circ$ in 28 hips (10.9%) and an AI $< 0^\circ$ in 79 hips (30.7%). A total of 221 normal hips (79.2%) (normal considering the crossover) had coxa profunda, a total of 229 normal hips (75.5%) (normal considering the LCE) had coxa profunda and a total of 178 normal hips (75.3%) (normal considering AI) had coxa profunda. When the presence of all radiological signs in the same subject was considered, pincer-type FAI was found in only two hips (one subject).

We therefore consider that the coxa profunda sign should not be used as a radiological indicator of pincer-type FAI. We consider profunda to be a benign alteration in the morphology of the hip with low prevalence and a lack of association with other radiological markers of FAI. We suggest that the diagnosis of pincer-type FAI should be based on objective measures, in association with clinical findings. Cite this article: Bone Joint J 2015; 97-B:478-83.

©2015 The British Editorial Society of Bone & Joint Surgery. KEYWORDS: asymptomatic; coxa profunda; crossover sign; femoroacetabular impingement; lateral center-edge angle; over-coverage acetabulum PMID: 25820885

KNEE

Inflammation in normal knees

Rheumatology (Oxford). 2015 Apr 13. pii: kev032.

Does subclinical inflammation contribute to impairment of function of knee joints in aged individuals? High prevalence of ultrasound inflammatory findings.

D'Agostino MA¹, Iagnocco A², Aegerter P¹, Kleyer A¹, Zwerina J³, Perricone C¹, Lorenzini R¹, Aschenbrenner F¹, Willeit J¹, Kiechl S¹, Schett G¹.

Author information

Abstract

OBJECTIVES:

To investigate the prevalence of knee US findings of inflammation and structural damage in aged individuals (≥ 60 years) of a long-term population-based cohort and to correlate these findings with demographic, clinical and laboratory parameters.

METHODS:

Cross-sectional clinical and US investigation of both knee joints during the 2010 follow-up of the prospective population-based Bruneck Study. Demographic variables, physical activity, comorbidities, medications, pain, and functional scales related to the knee joints were recorded. US-assessed parameters were synovial hypertrophy, power Doppler signal, joint effusion, cartilage abnormalities, osteophytes, enthesopathy and bursitis. Statistics included univariate and multivariate regression analysis.

RESULTS:

A total of 488 subjects (mean age 72.5 years; 53.5% females, 46.5% males) were examined by clinical assessment, and 433 of these underwent US examination of both knees. Both inflammatory and structural abnormalities were found in 296 (68.8%) subjects. Inflammatory abnormalities were significantly associated with age in years, male gender, diabetes and the presence of knee joint symptoms. In the multivariate analysis, age, male gender and knee swelling emerged as independent predictors of inflammation [odds ratio (OR) (95% CI) = 1.06 (1.03, 1.09), 2.55 (1.55, 4.21) and 5.92 (1.99, 17.58), respectively].

CONCLUSION:

The present study showed a high prevalence of US inflammatory abnormalities in the knee joints of a normal aged population. These data suggest a substantial contribution of inflammation in progressive impairment of joint function with age.

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journals.permissions@oup.com. KEYWORDS: age; arthritis; diabetes; imaging; subclinical disease; ultrasound PMID:25870315

Landing mechanics

Knee. 2015 Apr 21. pii: S0968-0160(15)00064-2. doi: 10.1016/j.knee.2015.03.012.

Sex differences in unilateral landing mechanics from absolute and relative heights.

Weinhandl JT¹, Irmischer BS², Sievert ZA².

Author information

Abstract

BACKGROUND:

The prevalence of anterior cruciate ligament injuries in athletic populations and the sex disparity in injury rates are well documented. It is also recognized that landing from a jump is a common noncontact injury mechanism. Yet, most studies utilize absolute landing heights, and few have utilized landing heights equal to participants' maximal jumping ability. The purpose of this study was to examine unilateral landing mechanics from relative and absolute heights.

METHODS:

Twenty-one female and twenty male participants completed a series of landings from absolute heights of 30, 40, and 50cm, as well as a height equal to their maximum jumping ability. Right leg three-dimensional kinematics, kinetics, and energetics were calculated from initial contact to maximum knee flexion.

RESULTS:

Females landed with greater peak posterior ground reaction force compared to males. Additionally, both female and male participants utilized the knee as the primary energy absorber, but females appear to emphasize greater ankle energy absorption compared to males. Females also displayed increased peak knee adduction moment, while males displayed decreased peak hip abduction moment as landing height increased.

CONCLUSIONS:

It appears that females and males respond to increasing landing heights differently. However, landings from 40 and 50cm may have represented an unrealistic mechanical demand for females, and influence subsequent inferences regarding ACL injury risk. Therefore, we suggest that comparisons between studies utilizing different landing heights be made with caution, and participants jumping ability be taken into account whenever possible.

CLINICAL RELEVANCE:

The findings of this study offer novel insights with regard to landing height and lower extremity mechanics with the potential to inform anterior cruciate ligament injury intervention programs.

Copyright © 2015 Elsevier B.V. All rights reserved. **KEYWORDS:** Anterior cruciate ligament; Energetics; Kinematics; Kinetics; Knee PMID: 25910453

KNEE/ACL**Eccentric ex and rehab**

Knee. 2014 Dec 10. pii: S0968-0160(14)00281-6. doi: 10.1016/j.knee.2014.11.013.

Combination of eccentric exercise and neuromuscular electrical stimulation to improve quadriceps function post-ACL reconstruction.

Lepley LK¹, Wojtys EM², Palmieri-Smith RM³.

Author information

Abstract

BACKGROUND:

Neuromuscular electrical stimulation (NMES) has been shown to reduce quadriceps activation failure (QAF), and eccentric exercise has been shown to lessen muscle atrophy post-ACL reconstruction. Given that these are two critical components of quadriceps strength, intervention combining these therapies may be effective at reinstating quadriceps function post-reconstruction. Thus, the aim of this study was to evaluate the effectiveness of a combined NMES and eccentric exercise intervention to improve the recovery of quadriceps activation and strength post-reconstruction.

METHODS:

Thirty-six individuals post-injury were placed into four treatment groups (N&E, NMES and eccentrics; E-only, eccentrics only; N-only, NMES-only; and STND, standard of care) and ten healthy controls participated. N&E and N-only received the NMES protocol 2× per week for the first 6weeks post-reconstruction. N&E and E-only received the eccentric exercise protocol 2× per week beginning 6weeks post-reconstruction. Quadriceps activation was assessed via the superimposed burst technique and quantified via the central activation ratio. Quadriceps strength was assessed via maximal voluntary isometric contractions (Nm/kg). Data was gathered on three occasions: pre-operative, 12-weeks-post-surgery and at return-to-play.

RESULTS:

No differences in pre-operative measures existed ($P>0.05$). E-only recovered quadriceps activation better than N-only or STND ($P<0.05$). N&E and E-only recovered strength better than N-only or the STND ($P<0.05$) and had strength values that were similar to healthy at return-to-play ($P>0.05$).

CONCLUSION:

Eccentric exercise was capable of restoring levels of quadriceps activation and strength that were similar to those of healthy adults and better than NMES alone.

LEVEL OF EVIDENCE:

Level 3, Parallel longitudinal study.

Copyright © 2014 Elsevier B.V. All rights reserved. **KEYWORDS:** ACL; Eccentric; Electrostimulation; Rehabilitation; Strength training PMID: 25819154

Side cutting maneuvers

Gait Posture. 2015 May;41(4):905-11. doi: 10.1016/j.gaitpost.2015.03.014. Epub 2015 Mar 28.

How reliable are knee kinematics and kinetics during side-cutting manoeuvres?

Sankey SP¹, Raja Azidin RM², Robinson MA², Malfait B³, Deschamps K³, Verschueren S³, Staes F³, Vanrenterghem J².

Author information

Abstract

INTRODUCTION:

Side-cutting tasks are commonly used in dynamic assessment of ACL injury risk, but only limited information is available concerning the reliability of knee loading parameters. The aim of this study was to investigate the reliability of side-cutting data with additional focus on modelling approaches and task execution variables.

METHODS:

Each subject (n=8) attended six testing sessions conducted by two observers. Kinematic and kinetic data of 45° side-cutting tasks was collected. Inter-trial, inter-session, inter-observer variability and observer/trial ratios were calculated at every time-point of normalised stance, for data derived from two modelling approaches. Variation in task execution variables was regressed against that of temporal profiles of relevant knee data using one-dimensional statistical parametric mapping.

RESULTS:

Variability in knee kinematics was consistently low across the time-series waveform ($\leq 5^\circ$), but knee kinetic variability was high (31.8, 24.1 and 16.9Nm for sagittal, frontal and transverse planes, respectively) in the weight acceptance phase of the side-cutting task. Calculations conveyed consistently moderate-to-good measurement reliability. Inverse kinematic modelling reduced the variability in sagittal (~6Nm) and frontal planes (~10Nm) compared to direct kinematic modelling. Variation in task execution variables did not explain any knee data variability.

CONCLUSION:

Side-cutting data appears to be reliably measured, however high knee moment variability exhibited in all planes, particularly in the early stance phase, suggests cautious interpretation towards ACL injury mechanics. Such variability may be inherent to the dynamic nature of the side-cutting task or experimental issues not yet known.

Copyright © 2015 Elsevier B.V. All rights reserved. KEYWORDS: ACL injury; Direct kinematics; Inverse kinematics; Sample size; Variability PMID: 25843234

OSTEOARTHRITIS/KNEE**Walking toleratnce**

Osteoarthritis Cartilage. 2015 Apr 14. pii: S1063-4584(15)01121-8. doi: 10.1016/j.joca.2015.04.001.

The maximum tolerated dose of walking for people with severe osteoarthritis of the knee: a phase I trial.

Wallis JA¹, Webster KE², Levinger P³, Singh PJ⁴, Fong C⁵, Taylor NF⁶.
Author information

Abstract

OBJECTIVE:

To determine how much physical activity, in the form of walking, can be safely and feasibly tolerated for people with severe knee osteoarthritis (OA).

DESIGN:

Phase I dose response trial with escalating walking doses of 10, 20, 35, 50, 70, and 95 min over 1 week, were prescribed non-randomly to people with severe knee OA. The primary stopping rule was a substantial increase in knee pain. The primary outcomes were an estimation of the maximum tolerated dose of walking; and the proportion of people who did not complete the dose for feasibility reasons. The secondary outcomes were pain, stiffness and activity limitation Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).

RESULTS:

Twenty-four participants (13 women) aged 53-83 years, and average body mass index (BMI) of 34 kg/m² (SD 9) were recruited. Three participants were assigned to each dose between 10 and 70 min, and nine participants assigned to the 95-min dose. The trial was stopped at 95 min due to the maximum number of adverse events occurring at this dose. Therefore, the maximum tolerated dose was 70 min. No participant stopped due to reasons related to feasibility. There was a moderate association between dose and increased activity (linear R² = 0.31, cubic R² = 0.69) and reduced stiffness (linear R² = 0.20, cubic R² = 0.52), with increased benefits at moderate to higher doses.

CONCLUSIONS:

There is preliminary evidence that 70 min per week of moderate intensity supervised walking was safe and feasible for people with severe OA of the knee; for higher doses there was a risk of exacerbating knee pain levels.

Copyright © 2015. Published by Elsevier Ltd. **KEYWORDS:** Knee; Maximum tolerated dose of walking; Osteoarthritis; Physical activity PMID: 25882926

Types of dysfunction

Rheumatology (Oxford). 2015 Apr 16. pii: kev100.

Distinct subtypes of knee osteoarthritis: data from the Osteoarthritis Initiative.

Waarsing JH¹, Bierma-Zeinstra SM², Weinans H².

Author information

Abstract

OBJECTIVE:

OA is suspected to be a collection of distinct subtypes, each with different aetiology and clinical characteristics. We aimed to explore the existence of different subtypes of knee OA, using cluster analysis of the data of the OA Initiative.

METHODS:

We used latent class cluster analysis (LCA) to cluster baseline data of 518 subjects of the OA Initiative progression cohort. Data included radiographic scores of OA features per compartment, regional quantitative MRI measures of cartilage quantity and denuded bone, and self-reported clinical scores on knee symptoms. To ensure that the clusters were found independently of OA severity, the LCA model was corrected with a measure of OA severity. The resulting clusters were compared with respect to the presence of risk factors and progression.

RESULTS:

LCA resulted in four clusters containing 47%, 27%, 15% and 12% of the subjects. Clusters 1, 2 and 4 showed OA features at the medial compartment, while cluster 3 only showed lateral OA features. Clusters 3 and 4 showed severe increases in areas of denuded bone, whereas no denuded bone was present in cluster 1. Prevalence of OA progression over 24 months was highest in clusters 3 and 4 and lowest in cluster 1. The clusters also differed significantly in BMI, knee alignment and prevalence of reported trauma.

CONCLUSION:

LCA confirmed the existence of distinct subtypes of knee OA with clear differences in structural degradation and symptoms. The fact that subtypes also differed in risk factors suggests that different causes lead to different types of knee OA.

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journals.permissions@oup.com. KEYWORDS: cluster analysis; knee osteoarthritis; phenotype
PMID: 25882850

FOOT AND ANKLE

Limited dorsi flexion mob

Man Ther. 2015 Apr 2. pii: S1356-689X(15)00069-7. doi: 10.1016/j.math.2015.03.016.

Immediate combined effect of gastrocnemius stretching and sustained talocrural joint mobilization in individuals with limited ankle dorsiflexion: A randomized controlled trial.

Kang MH¹, Oh JS², Kwon OY³, Weon JH⁴, An DH⁵, Yoo WG⁶.

Author information

Abstract

BACKGROUND:

Although gastrocnemius stretching and talocrural joint mobilization have been suggested as effective interventions to address limited ankle dorsiflexion passive range of motion (DF PROM), the effects of a combination of the two interventions have not been identified.

OBJECTIVE:

The aim of the present study was to compare the effects of gastrocnemius stretching combined with joint mobilization and gastrocnemius stretching alone.

DESIGN:

A randomized controlled trial.

METHODS:

In total, 24 individuals with limited ankle DF PROM were randomized to undergo gastrocnemius stretching combined with joint mobilization (12 feet in 12 individuals) or gastrocnemius stretching alone (12 feet in 12 individuals) for 5 min. Ankle kinematics during gait (time to heel-off and ankle DF before heel-off), ankle DF PROM, posterior talar glide, and displacement of the myotendinous junction (MTJ) of the gastrocnemius were assessed before and after the interventions. The groups were compared using two-way repeated measures analysis of variance.

RESULTS/FINDINGS:

Greater increases in the time to heel-off and ankle DF before heel-off during gait and posterior talar glide were observed in the stretching combined with joint mobilization group versus the stretching alone group. Ankle DF PROM and displacement of the MTJ of the gastrocnemius were increased significantly after the interventions in both groups, with no significant difference between them.

CONCLUSIONS:

These findings suggest that gastrocnemius stretching with joint mobilization needs to be considered to improve ankle kinematics during gait.

Copyright © 2015 Elsevier Ltd. All rights reserved. KEYWORDS: Ankle; Gait; Kinematics; Manual therapy PMID: 25907146

Foot posture and gait

Gait Posture. 2015 Mar 12. pii: S0966-6362(15)00073-9. doi: 10.1016/j.gaitpost.2015.03.004.

Foot posture is associated with kinematics of the foot during gait: A comparison of normal, planus and cavus feet.

Buldt AK¹, Levinger P², Murley GS³, Menz HB⁴, Nester CJ⁵, Landorf KB³.

Author information

Abstract

Variations in foot posture are associated with the development of some lower limb injuries. However, the mechanisms underlying this relationship are unclear.

The objective of this study was to compare foot kinematics between normal, pes cavus and pes planus foot posture groups using a multi-segment foot model. Ninety-seven healthy adults, aged 18-47 were classified as either normal (n=37), pes cavus (n=30) or pes planus (n=30) based on normative data for the Foot Posture Index, Arch Index and normalised navicular height. A five segment foot model was used to measure tri-planar motion of the rearfoot, midfoot, medial forefoot, lateral forefoot and hallux during barefoot walking at a self-selected speed. Angle at heel contact, peak angle, time to peak angle and range of motion was measured for each segment. One way ANOVAs with post-hoc analyses of mean differences were used to compare foot posture groups. The pes cavus group demonstrated a distinctive pattern of motion compared to the normal and pes planus foot posture groups. Effect sizes of significant mean differences were large and comparable to similar studies.

Three key differences in overall foot function were observed between the groups: (i) altered frontal and transverse plane angles of the rearfoot in the pes cavus foot; (ii) Less midfoot motion in the pes cavus foot during initial contact and midstance; and (iii) reduced midfoot frontal plane ROM in the pes planus foot during pre-swing. These findings indicate that foot posture does influence motion of the foot.

Copyright © 2015 Elsevier B.V. All rights reserved. KEYWORDS: Biomechanics; Foot; Gait; Motion; Walking PMID: 25819716

ACHILLES TENDON

Rehabilitation

Am J Sports Med. 2015 Apr;43(4):1008-16. doi: 10.1177/0363546514531014. Epub 2014 May 2.

Rehabilitation Regimen After Surgical Treatment of Acute Achilles Tendon Ruptures: A Systematic Review With Meta-analysis.

Huang J¹, Wang C¹, Ma X², Wang X¹, Zhang C¹, Chen L¹.

Author information

BACKGROUND:

The choice of rehabilitation management after the surgical repair of acute Achilles tendon (AT) ruptures remains controversial because of insufficient clinical evidence. The current study analyzes the postoperative rehabilitation of AT ruptures based on the current clinical evidence.

PURPOSE: To identify and analyze the high-level clinical evidence regarding postoperative rehabilitation after the surgical repair of AT ruptures. Subgroup analyses were also performed to obtain more reliable and specific results.

STUDY DESIGN: Meta-analysis.

METHODS:

The studies were retrieved by searching the Medline, Embase, and Cochrane databases through the OVID retrieval engine from 1990 to August 14, 2013. Two independent reviewers critically reviewed the studies using preset inclusion and exclusion criteria. The quality of the eligible studies was assessed by the Cochrane 12-item scale. All included studies were summarized, and their data were extracted. Subgroup analyses were performed according to the different protocols of early functional rehabilitation.

RESULTS:

Nine studies, consisting of 6 randomized controlled trials and 3 quasi-randomized studies, were ultimately included. A total of 402 patients were identified. Six of the included studies utilized early weightbearing combined with early ankle motion exercises, while the other 3 only employed early ankle motion exercises. The subgroup analyses demonstrated that 11 of the 15 functional outcome measurements were significantly superior for patients who underwent both early weightbearing and ankle motion exercises than for those who underwent conventional cast immobilization. Similar rates of reruptures (odds ratio [OR], 1.36; 95% CI, 0.38-4.91; P = .64) and major complications (OR, 0.67; 95% CI, 0.24-1.87; P = .44) as well as a significantly lower rate of minor complications (OR, 0.51; 95% CI, 0.27-0.95; P = .03) were also observed in this early functional rehabilitation group. For the patients who solely performed early ankle motion exercises, only 2 of the 14 functional measurements were observed to be significantly superior to immobilization. There were also no significant differences in the rates of reruptures (OR, 0.47; 95% CI, 0.08-2.70; P = .40) and other complications (OR, 1.09; 95% CI, 0.41-2.92; P = .86) between the 2 groups.

CONCLUSION:

Postoperative early weightbearing combined with early ankle motion exercises is associated with a lower minor complication rate and achieves superior and more rapid functional recovery than conventional immobilization after surgical AT repair. In contrast, few advantages were identified when only early ankle motion exercises were applied.

© 2014 The Author(s). **KEYWORDS:** Achilles tendon; early weightbearing; meta-analysis; postoperative rehabilitation PMID: 24793572

Ignored Tendon rupture

Knee Surg Sports Traumatol Arthrosc. 2015 Apr 17.

Clinical outcome of exercise therapy and early post-operative rehabilitation for treatment of neglected Achilles tendon rupture: a randomized study.

Jielile J¹, Badalihan A, Qianman B, Satewalede T, Wuerliebieke J, Kelamu M, Jialihasi A.
Author information

Abstract

PURPOSE:

Treatment of neglected Achilles tendon rupture is very challenging. This randomized study aimed to compare the clinical outcome of early post-operative rehabilitation (EPR) with post-operative cast immobilization (PCI).

METHODS:

Fifty-seven patients with neglected Achilles tendon rupture were randomized to receive EPR (n = 26) or PCI (n = 31) management following surgery. Clinical outcome was monitored by follow-up at weeks 8, 12, 18 and 26 and year 2. The significance of intergroup differences from the Leppilahti scoring system (LSS), ultrasonography, multislice spiral computerized tomography (MSCT) and electromyography was assessed.

RESULTS:

Ultrasonography and MSCT revealed no occurrence of tendon elongation or adhesion. Four patients could perform sustained single-leg heel-raise exercise for 60 s at post-operative day 40. The PCI group also showed increased post-operative LSS score, but recovery was slower. Post-operative complications, such as ankle joint ankylosis and osteoporosis, only occurred in the PCI group.

CONCLUSIONS:

Compared with cast immobilization, early post-operative rehabilitation results in better clinical outcome and faster overall tendon regeneration of neglected Achilles tendon rupture.

LEVEL OF EVIDENCE: II. PMID:25894749

PLANTAR SURFACE

Shock wave therapy

Radial shock wave treatment alone is less efficient than radial shock wave treatment combined with tissue-specific plantar fascia-stretching in patients with chronic plantar heel pain

International Journal of Surgery, 05/08/2015 Rompe JD, et al.

The aim of the study was to test the null hypothesis of no difference of these two forms of management for patients who had unilateral plantar fasciopathy for a minimum duration of twelve months and which had failed at least three other forms of treatment. A program of manual stretching exercises specific to the plantar fascia in combination with repetitive low-energy radial shock-wave therapy is more efficient than repetitive low-energy radial shock-wave therapy alone for the treatment of chronic symptoms of proximal plantar fasciopathy.

Methods

- One hundred and fifty-two patients with chronic plantar fasciopathy were assigned to receive repetitive low-energy radial shock-wave therapy without local anesthesia, administered weekly for three weeks (Group 1, n = 73) or to receive the identical shock wave treatment and to perform an eight-week plantar fascia-specific stretching program (Group 2, n = 79).
- All patients completed the nine-item pain subscale of the validated Foot Function Index and a subject-relevant outcome questionnaire.
- Patients were evaluated at baseline, and at two, four, and twenty-four months after baseline.
- The primary outcome measures were a mean change in the Foot Function Index sum score at two months after baseline, a mean change in item 2 (pain during the first steps of walking in the morning) on this Index, and satisfaction with treatment.

Results

- No difference in mean age, sex, weight or duration of symptoms was found between the groups at baseline.
- At two months after baseline, the Foot Function Index sum score showed significantly greater changes for the patients managed with shock-wave therapy plus plantar fascia-specific stretching than those managed with shock-wave therapy alone ($p < 0.001$), as well as individually for item 2 ($p < 0.001$).
- Twenty-four patients in Group 1 (32%) versus forty-seven patients in Group 2 (59%) were satisfied with the treatment ($p < 0.001$).
- Significant differences persisted at four months, but not at twenty-four months.

RHUMATOID ARTHRITIS**Activity**

Rheumatol Int. 2015 May 7.

Physical activity and the association with fatigue and sleep in Danish patients with rheumatoid arthritis.

Løppenthin K¹, Esbensen BA, Østergaard M, Jennum P, Tolver A, Aadahl M, Thomsen T, Midtgaard J.

Author information

Abstract

The aim of this study was to examine physical activity behavior in patients with rheumatoid arthritis and to identify potential correlates of regular physical activity including fatigue, sleep, pain, physical function and disease activity.

A total of 443 patients were recruited from a rheumatology outpatient clinic and included in this cross-sectional study. Physical activity was assessed by a four-class questionnaire, in addition to the Physical Activity Scale. Other instruments included the Multidimensional Fatigue Inventory (MFI), the Pittsburgh Sleep Quality Index and the Health Assessment Questionnaire. Disease activity was obtained from a nationwide clinical database. Of the included patients, 80 % were female and mean age was 60 (range 21-88 years). Hereof, 22 % (n = 96) were regularly physically active, and 78 % (n = 349) were mainly sedentary or having a low level of physical activity. An inverse univariate association was found between moderate to vigorous physical activity, and fatigue (MFI mental, MFI activity, MFI physical and MFI general), sleep, diabetes, depression, pain, patient global assessment, HAQ and disease activity. The multivariate prediction model demonstrated that fatigue-related reduced activity and physical fatigue were selected in >95 % of the bootstrap samples with median odds ratio 0.89 (2.5-97.5 % quantiles: 0.78-1.00) and 0.91 (2.5-97.5 % quantiles: 0.81-0.97), respectively, while disease activity was selected in 82 % of the bootstrap samples with median odds ratio 0.90.

Moderate to vigorous physical activity in patients with rheumatoid arthritis is associated with the absence of several RA-related factors with the most important correlates being reduced activity due to fatigue, physical fatigue and disease activity.

PMID: 25947325

MANUAL THERAPY

Response to MT in LBP

Man Ther. 2015 Apr 16. pii: S1356-689X(15)00080-6. doi: 10.1016/j.math.2015.04.011.

A randomised, independent groups study investigating the sympathetic nervous system responses to two manual therapy treatments in patients with LBP.

Perry J¹, Green A², Singh S³, Watson P⁴.

Author information

Abstract

Manual therapy (MT) and exercise therapy techniques are commonly utilised, guideline recommended treatment strategies in the management of non-specific low back pain (LBP). Preliminary evidence on asymptomatic participants indicates that two manual therapy techniques; repeated lumbar extension in lying exercise (EIL); and segmental rotational grade V manipulation (manipulation), have significant effects on the sympathetic nervous system (SNS) as detectable with skin conductance (SC) responses. However, it is not known if these responses occur in patients with LBP. A randomised, independent group's design was utilised to investigate the immediate SC responses in 50 patients with LBP of less than 12 weeks duration. Patients received either the manipulation technique (n = 25) or the EIL exercise (n = 25) and SC activity was recorded, in a single treatment session, pre-, peri- and post-treatment. Both treatments resulted in a sympatho-excitatory response during the intervention period with the manipulation technique having a 255% increase (p < 0.005), and the EIL technique a 94% increase (p = 0.019) with both treatments having responses that were sustained into the final rest period (p < 0.005). Between-group comparisons indicate that the manipulation technique had a significantly greater magnitude of effect (p < 0.001).

The results support the sympatho-excitatory responses seen in normative studies but challenge the assumption that normative and patient populations are analogous with respect to the magnitude of effect observed and suggest that SC responses may be a feasible, proxy method of detecting dorsal horn sensitisation and neuro-plastic adaptations occurring in the presence of LBP.

Copyright © 2015 Elsevier Ltd. All rights reserved. KEYWORDS: Low back pain; Manipulation; McKenzie exercise; Sympathetic nervous system PMID: 25920338

ATHLETICS

LBP and NFL potential

Am J Sports Med. 2015 Apr;43(4):972-8. doi: 10.1177/0363546514562548. Epub 2015 Jan 23.

Pre-existing Lumbar Spine Diagnosis as a Predictor of Outcomes in National Football League Athletes.

Schroeder GD¹, Lynch TS², Gibbs DB³, Chow I³, LaBelle M³, Patel AA³, Savage JW³, Hsu WK³, Nuber GW⁴.

Author information

Abstract

BACKGROUND:

It is currently unknown how pre-existing lumbar spine conditions may affect the medical evaluation, draft status, and subsequent career performance of National Football League (NFL) players.

PURPOSE:

To determine if a pre-existing lumbar diagnosis affects a player's draft status or his performance and longevity in the NFL.

STUDY DESIGN:

Cohort study; Level 3.

METHODS:

The investigators evaluated the written medical evaluations and imaging reports of prospective NFL players from a single franchise during the NFL Scouting Combine from 2003 to 2011. Players with a reported lumbar spine diagnosis and with appropriate imaging were included in this study. Athletes were then matched to control draftees without a lumbar spine diagnosis by age, position, year, and round drafted. Career statistics and performance scores were calculated.

RESULTS:

Of a total of 2965 athletes evaluated, 414 were identified as having a pre-existing lumbar spine diagnosis. Players without a lumbar spine diagnosis were more likely to be drafted than were those with a diagnosis (80.2% vs 61.1%, respectively, $P < .001$). Drafted athletes with pre-existing lumbar spine injuries had a decrease in the number of years played compared with the matched control group (4.0 vs 4.3 years, respectively, $P = .001$), games played (46.5 vs 50.8, respectively, $P = .0001$), and games started (28.1 vs 30.6, respectively, $P = .02$) but not performance score (1.4 vs 1.8, respectively, $P = .13$). Compared with controls, players were less likely to be drafted if they had been diagnosed with spondylosis (62.37% vs 78.55%), a lumbar herniated disc (60.27% vs 78.43%), or spondylolysis with or without spondylolisthesis (64.44% vs 78.15%) ($P < .001$ for all), but there was no appreciable effect on career performance; however, the diagnosis of spondylolysis was associated with a decrease in career longevity ($P < .05$). Notably, 2 athletes who had undergone posterior lateral lumbar fusion were drafted. One played in 125 games, and the other is still active and has played in 108 games.

CONCLUSION:

The data in this study suggest that athletes with pre-existing lumbar spine conditions were less likely to be drafted and that the diagnosis is associated with a decrease in career longevity but not performance. Players with lumbar fusion have achieved successful careers in the NFL.

© 2015 The Author(s). KEYWORDS: football; herniated disc; lumbar spine; spondylosis PMID: 25617402

PAIN

Phantom limb pain \mirror therapy

Physiother Res Int. 2015 Apr 1. doi: 10.1002/pri.1626.

'Mirror Therapy and Transcutaneous Electrical Nerve Stimulation for Management of Phantom Limb Pain in Amputees - A Single Blinded Randomized Controlled Trial'.

Tilak M¹, Isaac SA, Fletcher J, Vasanthan LT, Subbaiah RS, Babu A, Bhide R, Tharion G.

Author information

Abstract

BACKGROUND AND PURPOSE:

Phantom limb pain (PLP) can be disabling for nearly two thirds of amputees. Hence, there is a need to find an effective and inexpensive treatment that can be self administered. Among the non-pharmacological treatment for PLP, transcutaneous electrical nerve stimulation (TENS) applied to the contralateral extremity and mirror therapy are two promising options. However, there are no studies to compare the two treatments. The purpose of this study is to evaluate and compare mirror therapy and TENS in the management of PLP in subjects with amputation.

METHODS:

The study was an assessor blinded randomized controlled trial conducted at Physiotherapy Gymnasium of Physical Medicine and Rehabilitation Department, Christian Medical College, Vellore. Twenty-six subjects with PLP consented to participate. An initial assessment of pain using visual analogue scale (VAS) and universal pain score (UPS) was performed by a therapist blinded to the treatment given. Random allocation into Group I-mirror therapy and Group II-TENS was carried out. After 4 days of treatment, pain was re-assessed by the same therapist. The mean difference in Pre and Post values were compared among the groups. The change in pre-post score was analyzed using the paired t test.

RESULTS:

Participants of Group I had significant decrease in pain [VAS (p = 0.003) and UPS (p = 0.001)]. Group II also showed a significant reduction in pain [VAS (p = 0.003) and UPS (p = 0.002)]. However, no difference was observed between the two groups [VAS (p = 0.223) and UPS (p = 0.956)].

DISCUSSION:

Both Mirror Therapy and TENS were found to be effective in pain reduction on a short-term basis. However, no difference between the two groups was found. Substantiation with long-term follow-up is essential to find its long-term effectiveness. Copyright © 2015 John Wiley & Sons, Ltd.

Copyright © 2015 John Wiley & Sons, Ltd. KEYWORDS: mirror therapy; phantom limb pain; transcutaneous electrical nerve stimulation PMID: 25832306

FIBROMYALGIA

Virtual reality Management of

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Integrating virtual reality with activity management for the treatment of fibromyalgia: acceptability and preliminary efficacy.

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Author information

Abstract

OBJECTIVES:

Cognitive-behavioral therapies (CBT) for fibromyalgia syndrome (FMS) are important interventions in the management of this condition. Empirical evidence reports that although the results are promising, further research is needed to respond more appropriately to these patients. This study focuses on exploring the use of Virtual Reality (VR) as an adjunct to the activity management component. The aim of this study is to present the results of a small-sized randomized controlled trial to test the preliminary efficacy and acceptability of this component.

MATERIALS AND METHODS:

The final sample was composed of 61 women diagnosed with FMS according to the American College of Rheumatology. The sample was randomly allocated to 2 conditions: VR treatment and treatment as usual.

RESULTS:

Participants in the VR condition achieved significant improvements in the primary outcome: disability measured with the FIQ. The improvement was also significant in secondary outcomes, such as perceived quality of life and some of the coping strategies included in the Chronic Pain Coping Inventory: task persistence and exercise. There were no differences in other secondary outcome measures like pain intensity and interference and depression. Participants reported high satisfaction with the VR component.

DISCUSSION:

The effects were related to the psychological aspects targeted in the treatment. The component was well accepted by FMS patients referred from a public hospital. These findings show that the VR component could be useful in the CBT treatment of FMS and encourage us to continue exploring the use of integrating VR with CBT interventions for the treatment of FMS.

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NUTRITION/VITAMINS

Vit D and fracture

Drugs & Aging

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Positive Effects of a Sufficient Pre-fracture Serum Vitamin D Level on the Long-Term Survival of Hip Fracture Patients in Finland: A Minimum 11-Year**Abstract****Background**

Several studies have shown that the mortality of elderly hip fracture patients is higher than that in the general population, and is higher in male than in female hip fracture patients.

Objective

The objective of this study was to investigate factors affecting overall mortality at a minimum of 11 years following a new hip fracture.

Methods

The sex, age, pre-fracture serum 25-hydroxyvitamin D level, American Society of Anesthesiologists physical status classification (ASA class), 1- to 12-month mortality, and 2- to 11-year mortality of hip fracture patients were collected. The use of anti-osteoporotic medication and prescribed calcium and vitamin D supplements during the first 3 post-operative years were checked. The survival of the patients was analyzed using both the Bayesian multivariate analysis and the life table method.

Results

The mean age of females at the time of the index hip fracture was 80.5 years and of males was 73 years. The protective factors were age <80 years; ASA class 1–2; serum 25-hydroxyvitamin level ≥ 50 nmol/L; post-fracture use of calcium and vitamin D supplementation; post-fracture concomitant use of calcium and vitamin D supplementation and anti-osteoporotic drugs; and male sex. The excess mortality was higher among women than men. Survival was highest among patients with a vitamin D level of ≥ 50 nmol/L. Post-fracture concomitant use of calcium and vitamin D and anti-osteoporotic drugs was positively associated with survival.

Conclusion

Our results indicate a positive relationship between a sufficient pre-fracture vitamin D serum concentration (≥ 50 nmol/L) and survival, and a potential relationship between reduced mortality and the concomitant post-fracture use of prescribed calcium plus vitamin D supplementation and anti-osteoporotic medication