

ABSTRACTS

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2. LBP

Physical exercise

Eur Spine J. 2015 Aug 1.

Does physical activity moderate the relationship between depression symptomatology and low back pain? Cohort and co-twin control analyses nested in the longitudinal study of aging Danish twins (LSADT).

Hübscher M¹, Hartvigsen J, Fernandez M, Christensen K, Ferreira P.
Author information

Abstract

PURPOSE:

To investigate whether depression symptomatology is associated with low back pain (LBP) in twins aged 70+ and whether this effect depends on a person's physical activity (PA) status.

METHODS:

This prospective cohort and nested case-control study used a nationally representative sample of twins. Data on depression symptomatology (modified Cambridge Mental Disorders Examination) and self-reported PA were obtained from the Longitudinal Study of Aging Danish Twins using twins without LBP at baseline. Associations between depression symptomatology (highest quartile) at baseline and LBP two years later were investigated using logistic regression analyses adjusted for sex. To examine the moderating effect of PA, we tested its interaction with depression. Associations were analysed using the complete sample of 2446 twins and a matched case-control analysis of 97 twin pairs discordant for LBP at follow-up. Odds ratios (OR) with 95 % confidence intervals (CI) were calculated.

RESULTS:

Using the whole sample, high depression scores were associated with an increased probability of LBP (OR 1.56, 95 % CI 1.22-1.99, $P \leq 0.01$). There was no statistically significant interaction of light PA and depression symptomatology (OR 0.78, 95 % CI 0.46-1.35, $P = 0.39$) and strenuous PA and depression symptomatology (0.84, 95 % CI 0.50-1.41, $P = 0.51$). The case-control analysis showed similar ORs, although statistically insignificant.

CONCLUSIONS:

High depression symptomatology predicted incident LBP. This effect is supposedly not attributable to genetic or shared environmental factors. Physical activity did not moderate the effect of depression symptomatology on LBP.

PMID:26231337

3. DISC

End plate

Eur Spine J. 2015 Aug 4.

Changes in perfusion and diffusion in the endplate regions of degenerating intervertebral discs: a DCE-MRI study.

Arpinar VE¹, Rand SD, Klein AP, Maiman DJ, Muftuler LT.
Author information

Abstract

PURPOSE:

Dynamic contrast-enhanced MRI (DCE-MRI) was used to investigate the associations between intervertebral disc degeneration and changes in perfusion and diffusion in the disc endplates.

METHODS:

56 participants underwent MRI scans. Changes in DCE-MRI signal enhancement in the endplate regions were analyzed. Also, a group template was generated for the endplates and enhancement maps were registered to this template for group analysis.

RESULTS:

DCE-MRI enhancement changed significantly in cranial endplates with increased degeneration. A similar trend was observed for caudal endplates, but it was not significant. Group-averaged enhancement maps revealed major changes in spatial distribution of endplate perfusion and diffusion with increasing disc degeneration especially in peripheral endplate regions.

CONCLUSIONS:

Increased enhancement in the endplate regions of degenerating discs might be an indication of ongoing damage in these tissues. Therefore, DCE-MRI could aid in understanding the pathophysiology of disc degeneration. Moreover, it could be used in the planning of novel treatments such as stem cell therapy.

PMID:26238936

Discogenic pain

Pain Med. 2015 Jul 27. doi: 10.1111/pme.12809.

Prevalence and Characteristics of Discogenic Pain in Tertiary Practice: 223 Consecutive Cases Utilizing Lumbar Discography.

Verrills P¹, Nowesenitz G¹, Barnard A¹.

Author information

Abstract

BACKGROUND:

Between 26% and 42% of chronic low back pain is attributed to internal disc disruption of lumbar intervertebral discs. These prevalence estimates and data characterizing discogenic pain originate largely from research at elite practices, conducted 20 years ago. With few studies since, their concordance with rates in community practice has rarely been addressed.

OBJECTIVE:

To assess the prevalence and key features of discogenic pain within community-based tertiary practice, and to evaluate the accuracy and clinical utility of discography.

DESIGN:

This prospective, three-year study of 223 consecutive cases of chronic low back pain used image-guided lumbar discography to identify symptomatic and flanking asymptomatic discs. A subset of patients (n = 195) had previously undergone posterior column blocks to investigate spinal facet and/or sacroiliac joints as contributing pain sources.

RESULTS:

A total of 644 discs were tested without infection or complication. Positive discograms were recorded in 74% of patients, with 22.9% negative and 3.1% assessed as indeterminate. Among patients receiving both discography and diagnostic blocks, 63% had proven discogenic pain, 18% had pain of mixed etiology and 14% remained undiagnosed. Taking into account all low back pain cases during this study (n = 756), discogenic pain prevalence was 21.8% (95% CI: 17-26%).

CONCLUSION:

The prevalence of discogenic pain in this community practice is below the range, but within confidence intervals, previously reported. Prevalence is considerably elevated, however, among well-selected patients and discography enabled a firm diagnosis in most such cases. These findings are broadly in keeping with those reached in key publications and support the clinical utility of discography.

KEYWORDS: Disc Degeneration; Discogenic Pain; Discogram; Internal Disc Disruption; Lumbar Discography; Prevalence

PMID: 26217926

Cytokines , enzymes etc and disc Disc degeneration**Importance of IL-6, MMP-1, IGF-1 and BAX Levels in Lumbar Herniated Discs and Posterior Longitudinal Ligament in Patients with Sciatic Pain**

Yasar Dagistan, MD Selma Cukur, MD Emine Dagistan, MD Ali Riza Gezici, MD

The aim of this study was to evaluate prognostic importance of IL-6, MMP-1, IGF-1 and BAX levels in biopsy specimens taken from the intervertebral disc specimens and the posterior longitudinal ligaments of patients with sciatic pain.

Methods

The specimens of the intervertebral disc and the posterior longitudinal ligament were obtained from 52 patients undergoing herniectomy and discectomy at the Neurosurgery Department of the Abant Izzet Baysal University Izzet Baysal Training and Research Hospital between April 2012 and February 2014. The immunohistochemical expressions of IL-6, MMP-1, IGF-1 and BAX were evaluated in three categories, such as mild, moderate, and intense.

Results

The IL-6 expression in the intervertebral disc specimens was intense in the sequestration group when compared with that of the "protrusion" and the "extrusion" groups. The intervertebral disc specimens in "extrusion" and "sequestration" groups were stained intensely for MMP-1. The IGF-1 expression was stained intensely in the intervertebral disc tissue of the extrude group patients. For the "extrusion" and "sequestration" groups, the intervertebral disc specimens were stained intensely for BAX compared with the protrude group. The IL-6 expression in the posterior longitudinal ligament specimens was more intense in the "sequestration" and the "extrusion" groups when compared with that of the protrude group. The MMP-1 expressions were milder in the sequestration group when compared with that of the "extrusion" and the "protrusion" groups.

Conclusions

Our findings suggest that the cytokines, enzymes, growth factors, and pro-apoptotic protein, such as IL-6, mmp-1, IGF-1, and BAX may be critical factors in the pathophysiology of the degeneration of the intervertebral discs in patients with symptomatic degenerative disc disease.

Keywords: Herniated disc, intervertebral disc, degeneration, immunohistochemistry, interleukin-6, matrix metalloproteinases, insulin-like growth factor-1, BAX (Bcl-2-associated X protein)

4. INJECTIONS

Facet injections

A systematic review and best evidence synthesis of the effectiveness of therapeutic facet joint interventions in managing chronic spinal pain

Pain Physician, 08/06/2015

Manchikanti L, et al.

Based on the present assessment for the management of spinal facet joint pain, the evidence for long-term improvement is Level II for lumbar and cervical radiofrequency neurotomy, and therapeutic facet joint nerve blocks in the cervical, thoracic, and lumbar spine; Level III for lumbar intraarticular injections; and Level IV for cervical intraarticular injections and thoracic radiofrequency neurotomy.

Methods

- A systematic review of therapeutic lumbar, cervical, and thoracic facet joint interventions for the treatment of chronic spinal pain.
- The available literature on lumbar, cervical, and thoracic facet joint interventions in managing chronic spinal pain was reviewed.
- The quality assessment criteria utilized were the Cochrane Musculoskeletal Review Group criteria and Interventional Pain Management Techniques – Quality Appraisal of Reliability and Risk of Bias Assessment (IPM – QRB) for randomized trials and Interventional Pain Management Techniques – Quality Appraisal of Reliability and Risk of Bias Assessment for Nonrandomized Studies (IPM – QRBNR) for observational studies.

Results

- A total of 21 randomized controlled trials meeting appropriate inclusion criteria were assessed in this evaluation.
- A total of 5 observational studies were assessed.
- In the lumbar spine, for long-term effectiveness, there is Level II evidence for radiofrequency neurotomy and lumbar facet joint nerve blocks, whereas the evidence is Level III for lumbosacral intraarticular injections.
- In the cervical spine, for long-term improvement, there is Level II evidence for cervical radiofrequency neurotomy and cervical facet joint nerve blocks, and Level IV evidence for cervical intraarticular injections.
- In the thoracic spine there is Level II evidence for thoracic facet joint nerve blocks and Level IV evidence for radiofrequency neurotomy for long-term improvement.

7. PELVIC ORGANS

Physical activity in post menopausal women

Menopause. 2015 Aug;22(8):816-25. doi: 10.1097/GME.0000000000000398.

Physical activity, pain responses to heat stimuli, and conditioned pain modulation in postmenopausal women.

Adrian AL¹, O'Connor PJ, Ward-Ritacco CL, Evans EM.
Author information

Abstract

OBJECTIVE:

Postmenopausal women (PMW) are at high risk for disabling pain and physical inactivity. This study sought to enhance the understanding of relationships between physical activity (PA) and pain among PMW using heat pain sensitivity test and conditioned pain modulation test. We hypothesized that, compared with active women, (i) inactive women would report higher pain intensity and pain unpleasantness ratings; (ii) inactive women in disabling pain would report higher pain intensity and pain unpleasantness at high, but not low, stimulus intensities; and (iii) inactive women would have less modulation.

METHODS:

Sixty-eight PMW rated the pain intensity and pain unpleasantness of hot stimuli presented to the thenar eminence of the hand. A subset of 31 women rated the pain intensity of a test stimulus (noxious heat) and a conditioning stimulus (cold water) as part of the conditioned pain modulation task. PA was assessed objectively with accelerometry.

RESULTS:

Mixed-model analysis of variance ($2 \times 4 \times 2$; PA \times Temperature \times Pain Status) showed that inactive women in disabling pain rated pain unpleasantness higher than active women in disabling pain ($F_{3,192} = 3.526$, $\partial\eta = 0.052$, $P = 0.016$). Significantly lower pain unpleasantness ratings were found at the highest stimulus intensity (49°C) only for active women in disabling pain compared with inactive women in disabling pain ($t_{11} = 2.523$, $P = 0.028$). The other hypotheses were not supported.

CONCLUSIONS:

PA is associated with a reduced sensitivity to the unpleasantness of painful high-intensity heat stimuli among women in disabling pain.

PMID: 25535965

Ginger helps dysmenorrhea

Pain Med. 2015 Jul 14. doi: 10.1111/pme.12853.

Efficacy of Ginger for Alleviating the Symptoms of Primary Dysmenorrhea: A Systematic Review and Meta-analysis of Randomized Clinical Trials.

Daily JW¹, Zhang X², Kim DS², Park S².
Author information

Abstract

OBJECTIVE:

There has been no attempt to date to synthesize the available evidence for the efficacy of ginger for treating primary dysmenorrhea. This systematic review evaluates the current evidence for the effectiveness of ginger for treating primary dysmenorrhea.

METHODS:

Literature searches were conducted using 12 electronic databases including PubMed, EMBASE, Cochrane Library, Korean databases, Chinese medical databases, and Indian scientific database. Search terms used were: "ginger" or "Zingiber officinale" and "dysmenorrhea" and "pain." Studies using ginger as a treatment of primary dysmenorrhea were considered for inclusion. The major outcome of primary dysmenorrhea was assessed using a pain visual analogue score (PVAS).

RESULTS:

Initial searches yielded 29 articles. Of these original results, seven met specific selection criteria. Four of the RCTs compared the therapeutic efficacy of ginger with a placebo during the first 3-4 days of the menstrual cycle and were included in the meta analysis. The meta-analysis of these data showed a significant effect of ginger in reducing PVAS in subjects having primary dysmenorrhea (risk ratio, -1.85; 95% CI of -2.87, -0.84, P = 0.0003). Six RCTs out of 7 exhibited low to moderate of risk of bias.

CONCLUSION:

Collectively these RCTs provide suggestive evidence for the effectiveness of 750-2000 mg ginger powder during the first 3-4 days of menstrual cycle for primary dysmenorrhea.

Wiley Periodicals, Inc.

KEYWORDS: Dysmenorrhea; Ginger; Pain Visual Analog Scale; Randomized Clinical Trials; Systematic Review

PMID: 26177393

8. VISCERA

GERD/diaphragm

Dis Esophagus. 2015 Jul 30. doi: 10.1111/dote.12390.

Short-term and long-term effect of diaphragm biofeedback training in gastroesophageal reflux disease: an open-label, pilot, randomized trial.

Sun X¹, Shang W², Wang Z¹, Liu X¹, Fang X¹, Ke M¹.

Author information

Abstract

This study investigated the effectiveness of diaphragm biofeedback training (DBT) for patients with gastroesophageal reflux disease (GERD). A total of 40 patients with GERD treated at the Peking Union Medical College Hospital between September 2004 and July 2006 were randomized to receive DBT and rabeprazole proton pump inhibitor (PPI) or rabeprazole alone. The DBT + rabeprazole group received DBT during the 8-week initial treatment; the rabeprazole group did not. During the 6-month follow up, all patients took acid suppression according to their reflux symptoms, and the patients in the DBT + rabeprazole group were required to continue DBT. The primary outcome (used for power analysis) was the amount of acid suppression used at 6 months. Secondary outcomes were reflux symptoms, health-related quality of life (HRQL), and esophageal motility differences after the 8-week treatment compared with baseline. Acid suppression usage significantly decreased in the DBT + rabeprazole group compared with the rabeprazole group at 6 months ($P < 0.05$). At 8 weeks, reflux symptoms and GERD-HRQL were significantly improved in both groups ($P < 0.05$), without difference between them. Crural diaphragm tension (CDT) and gastroesophageal junction pressure (GEJP) significantly increased in the DBT + rabeprazole group ($P < 0.05$), but without change in lower esophageal sphincter (LES) pressure. There was no significant change in CDT, GEJP, and LES pressure compared with baseline in the rabeprazole group.

In conclusion, long-term DBT could reduce acid suppression usage by enhancing the anti-reflux barrier, providing a non-pharmacological maintenance therapy and reducing medical costs for patients with GERD.

KEYWORDS: anti-reflux barrier; diaphragm biofeedback training; gastroesophageal reflux; manometry; therapy

PMID: 26227494

10 A. CERVICAL SPINE

Neurpathic increases neural sensitivity

Pain Med. 2015 Jul 16. doi: 10.1111/pme.12856.

Differences in Neural Mechanosensitivity Between Patients with Chronic Nonspecific Neck Pain With and Without Neuropathic Features. A Descriptive Cross-Sectional Study.

López-de-Uralde-Villanueva I^{1,2,3,4}, Beltran-Alacreu H^{1,2,3}, Fernández-Carnero J^{2,4,5}, Gil-Martínez A^{1,2,3,4}, La Touche R^{1,2,3,4}.

Author information

Abstract

OBJECTIVE:

To assess differences in neural mechanosensitivity between patients with chronic nonspecific neck pain with and without neuropathic features (NF and No-NF, respectively).

DESIGN:

Descriptive, cross-sectional study.

SETTING:

A primary care center, a hospital physiotherapy outpatient department, and a university campus.

SUBJECTS:

Chronic nonspecific neck pain patients classified by the self-completed leeds assessment of neuropathic symptoms and signs pain scale (S-LANSS; 49 patients with NF [S-LANSS \geq 12] and 50 patients with No-NF [S-LANSS < 12]) and a healthy control group (n = 48).

METHODS:

The primary measurements were the mechanosensitivity of the median nerve and cervical region, specifically the assessment of the onset of symptoms and submaximal pain intensity according to the upper limb neural test 1 (ULNT1) for the median nerve and the modified passive neck flexion test (MPNFT) for the cervical region; secondary measurements included pain intensity, neck disability, kinesiophobia, and pain catastrophizing.

RESULTS:

Statistically significant differences between the NF and No-NF groups were found with respect to the onset of symptoms of ULNT1 (-15.11 [-23.19 to -7.03]) and MPNFT (-6.58 [-11.54 to -1.62]), as well as the outcomes of the visual analogue scale (Mean difference [95% Confidence Interval]; 7.12 [1.81-12.42]) and neck disability index (3.72 [1.72-5.71]). Both chronic nonspecific neck pain groups showed statistically significant differences compared with the control group for all outcomes assessed (P < 0.01) except for the onset of symptoms of ULNT1 in the No-NF group.

CONCLUSIONS:

The findings of this study suggest that chronic nonspecific neck pain patients with NF have greater neural mechanosensitivity, pain intensity, and neck disability than those with No-NF.

KEYWORDS: Chronic Pain; Mechanosensory; Neck Pain; Pain Catastrophizing; Psychosocial Factors

PMID: 26179341

11. UPPER C SPINE

Hyoid bone position

The relevance analysis of hyoid bone position to skeletal or dental openbite and dentofacial characteristics

Seok-Ki Jung, DDS, MSD Tae-Woo Kim, DDS, MSD, PhD

Abstract

Objective:

The aim of this study was to investigate relationship between hyoid bone position and skeletal or dental openbite, and to investigate dentofacial characteristics according to the hyoid bone position

Study Design:

A total of 182 patients were grouped based on the skeletal and dental openbite. Hyoid bone position of each group was compared and evaluated. In addition, dividing samples according to the hyoid bone position, dentofacial characteristics of each group were compared and analyzed.

Results:

There were significant differences of the hyoid bone position according to the skeletal pattern, not dental pattern. Skeletal openbite group showed low hyoid bone position. In addition, low hyoid bone group showed short ramus height, short posterior facial height, retrusive chin, and clockwise-rotated mandible.

Conclusions:

Patients with low hyoid bone had a tendency of skeletal openbite even though there was no dental openbite. Moreover, low hyoid bone position had relevance to retrognathic dentofacial characteristics.

Key Words:

Hyoid bone position, Openbite, Long face syndrome

Epidural space

Spine J. 2015 Jul 22. pii: S1529-9430(15)01146-8. doi: 10.1016/j.spinee.2015.07.438.

Investigation of meningomyovertebral structures within the upper cervical epidural space: a sheet plastination study with clinical implications.

Scali F¹, Pontell ME², Nash LG³, Enix DE⁴.

Author information

Abstract

BACKGROUND CONTEXT:

Over the past two decades, soft-tissue structures communicating with the dura mater within the epidural space have become the focus of many anatomic and histopathological studies. The relationship of these bridging structures has yet to be evaluated in situ.

PURPOSE:

This is the first study that employs E12 sheet plastination to investigate the epidural space of the upper cervical spine in situ and its associated bridging structures. Given the complexity of this space, this study may prove useful to clinical anatomists and surgeons who operate within this region.

STUDY DESIGN:

An anatomical and microscopic analysis of structures which communicate with dura mater within the upper cervical region.

METHODS:

Gross dissection in conjunction with microscopy was used in order to evaluate bridging communications of the upper cervical spine in 10 cadavers. Thirteen cadavers underwent E12 sheet plastination in order to evaluate the in situ arrangement of these structures.

RESULTS:

In all 23 specimens, suboccipital fascia coalesced with the dorsal meningovertbral ligament of the atlas, and inserted directly into the posterior surface of the dura as a single but separable laminar layer. At the level of the atlantoaxial interspace, suboccipital fasciae combined and coalesced with the dorsal meningovertbral ligament of the atlas and axis. These structures inserted into the posterior surface of the dura mater as a single but separable layer. Microscopy validated these findings and E12 sheet plastination revealed the in situ organization of these soft-tissue structures. E12 sheet plastination also provided new information regarding dural arrangement at the craniocervical junction, as it was noted to be comprised of periosteum from the occiput but mainly consisted of deep fascia from the rectus capitis posterior minor.

CONCLUSIONS:

E12 sheet plastination has provided in situ visualization of bridging structures within the cervical epidural space and offers new insight regarding these structures, as well as the composition and arrangement of the posterior atlantooccipital membrane and cerebrospinal dura at the craniocervical junction. This study aims to expand on the anatomical understanding of the upper cervical region while defining structures that may reduce neurosurgical complications and assist in the pathophysiology of certain neurogenic disorders.

KEYWORDS: cervical region; dural lacerations; epidural space; meningovertbral ligaments; myodural bridge

PMID:26210227

13. CRANIUM/TMJ

Obstruction

Int J Oral Maxillofac Surg. 2015 Jul 14. pii: S0901-5027(15)00252-0. doi: 10.1016/j.ijom.2015.06.018.

Assessment of nasal obstruction symptoms using the NOSE scale after surgically assisted rapid maxillary expansion.

Menegat F¹, Monnazzi MS², Silva BN¹, de Moraes M¹, Gabrielli MA³, Pereira-Filho VA³.
Author information

Abstract

The Nasal Obstruction Symptom Evaluation (NOSE) scale is a reliable and valid instrument used widely in otorhinolaryngology to evaluate nasal obstruction symptoms in patients with nasal disorders. The purpose of this study was to assess nasal obstruction symptoms prospectively in patients undergoing surgically assisted rapid maxillary expansion (SARME) using the NOSE scale. Sixteen patients were studied (mean age 31 ± 7.7 years), 10 women and six men, all with a transverse maxillary deficiency and an indication for SARME. Hyrax type devices were placed preoperatively and SARME was performed using Kraut's technique. The NOSE scale was applied prospectively to assess nasal obstruction symptoms. The results were recorded for each score on a scale ranging from 0 to 4, and these scores were multiplied by 5, generating a balanced scale from 0 to 100. Data were stratified according to NOSE scores, and nasal obstruction was categorized as mild (0-25), moderate (26-50), or severe (>50). The questionnaire was administered twice, first preoperatively and then at 6 months after surgery, and the results compared. Data were analyzed statistically using SAS statistical package software and showed that patients experienced a subjective improvement or did not have a worsening of nasal obstruction symptoms after SARME.

KEYWORDS: *maxillary expansion; nasal obstruction; upper airway*

PMID: 26187045

Bruxism

The study of grinding patterns and factors influencing the grinding areas during sleep bruxism

Jianxiang Tao Weicai Liu Junhua Wu Xuying Zhang Yongting Zhang

DOI: <http://dx.doi.org/10.1016/j.archoralbio.2015.07.009>

Abstract

Objective: The purpose of this study is to investigate the grinding patterns and discuss the factors influencing the position relationship between intercuspal position (ICP) and grinding area during sleep bruxism.

Methods: Lateral condylar inclination, inclination of lateral incisal path and freedom in long centric of thirty subjects were measured. The grinding patterns during sleep bruxism were recorded with a bruxism recording device, Bruxchecker. The position relationship between ICP and the grinding area was examined. Spearman's rank correlation coefficient was used for correlation analysis between grinding area and free factors (grinding patterns, freedom in long centric and discrepancy between lateral condylar inclination and inclination of lateral incisal path).

Results: All 12 subjects with 0 mm-freedom in long centric exhibited that ICP of both sides located within the grinding areas. 4 subjects showed that ICP of both sides located outside the grinding areas. There is a significant correlation between 0 mm-freedom in long centric and ICP within the grinding areas ($p < 0.01$).

Conclusions: Freedom in long centric has a significant effect on position relationship between intercuspal position and the grinding area.

Keywords: sleep bruxism, grinding patterns, grinding area, long centric, The study of grinding patterns and factors influencing the grinding areas during sleep bruxism

14. HEADACHES

Vestibular migraine's

Cephalalgia. 2015 Jul 29. pii: 0333102415597890.

Vestibular migraine in multicenter neurology clinics according to the appendix criteria in the third beta edition of the International Classification of Headache Disorders.

Cho SJ¹, Kim BK², Kim BS³, Kim JM⁴, Kim SK⁵, Moon HS⁶, Song TJ⁷, Cha MJ⁸, Park KY⁹, Sohn JH¹⁰.

Author information

Abstract

BACKGROUND:

Vestibular migraine (VM), the common term for recurrent vestibular symptoms with migraine features, has been recognized in the appendix criteria of the third beta edition of the International Classification of Headache Disorders (ICHD-3 β). We applied the criteria for VM in a prospective, multicenter headache registry study.

METHODS:

Nine neurologists enrolled consecutive patients visiting outpatient clinics for headache. The presenting headache disorder and additional VM diagnoses were classified according to the ICHD-3 β . The rates of patients diagnosed with VM and probable VM using consensus criteria were assessed.

RESULTS:

A total of 1414 patients were enrolled. Of 631 migraineurs, 65 were classified with VM (10.3%) and 16 with probable VM (2.5%). Accompanying migraine subtypes in VM were migraine without aura (66.2%), chronic migraine (29.2%), and migraine with aura (4.6%). Probable migraine (75%) was common in those with probable VM. The most common vestibular symptom was head motion-induced dizziness with nausea in VM and spontaneous vertigo in probable VM. The clinical characteristics of VM did not differ from those of migraine without VM.

CONCLUSION:

We diagnosed VM in 10.3% of first-visit migraineurs in neurology clinics using the ICHD-3 β . Applying the diagnosis of probable VM can increase the identification of VM.

KEYWORDS: ICHD-3 β ; Vestibular migraine; appendix criteria; probable vestibular migraine
PMID:26224714

Seasonal HA's

Headache. 2015 Jul 21. doi: 10.1111/head.12613.

Seasonal Variation, Cranial Autonomic Symptoms, and Functional Disability in Migraine: A Questionnaire-Based Study in Tertiary Care.

Shin YW¹, Park HJ¹, Shim JY¹, Oh MJ¹, Kim M^{1,2}.

Author information

Abstract

OBJECTIVE/BACKGROUND:

Seasonal variation of migraine attack frequency has been described as a phenomenon. We aimed to compare functional disability and the occurrence of cranial autonomic symptoms (CASs) in patients who reported a seasonal variation in their migraine attack frequency with those who did not.

METHODS:

We conducted a questionnaire-based observational study on patients with migraine without aura who visited our institution from January 2005 to December 2013. Patient demographics, headache characteristics, and accompanying symptoms were recorded, and functional disability was evaluated by Migraine Disability Assessment (MIDAS) Questionnaire.

RESULTS:

Of 4423 patients screened, 769 were eligible for analysis, and 104 (13.5%) of them reported seasonal variation. Several CAS features such as conjunctival injection (25.0% vs 14.0%), lacrimation (20.2% vs 10.8%), eyelid edema (20.2% vs 10.2%), forehead and facial sweating (22.1% vs 11.4%), and ptosis (23.1% vs 11.4%) were more prominent in this subset of patients. They showed higher MIDAS scores (15.4 ± 23.5) than the other migraineurs (10.4 ± 16.9), with a 1.77-fold increased risk (95% confidence interval 1.06-2.96) of severe functional disability (MIDAS score ≥ 21) after adjustment for age group, sex, headache frequency, intensity, and duration. The higher the number of CASs, the greater also was the proportion of patients with severe functional disability.

CONCLUSIONS:

Patients who reported seasonal variation in migraine also reported more CASs and had more severe functional disability. The profound functional disability in the migraineurs reporting seasonal variation or CAS also provides direction for proactive clinical management in these patients.

KEYWORDS: Migraine Disability Assessment; cluster headache; cranial autonomic symptom; migraine; seasonal

PMID: 26198478

PT and HA's

Cephalalgia. 2015 Jul 30. pii: 0333102415597889.

Efficacy of interventions used by physiotherapists for patients with headache and migraine-systematic review and meta-analysis.

Luedtke K¹, Allers A¹, Schulte LH¹, May A².

Author information

Abstract

AIM:

We aimed to conduct a systematic review evaluating the effectiveness of interventions used by physiotherapists on the intensity, frequency and duration of migraine, tension-type (TTH) and cervicogenic headache (CGH).

METHODS:

We performed a systematic search of electronic databases and a hand search for controlled trials. A risk of bias analysis was conducted using the Cochrane risk of bias tool (RoB). Meta-analyses present the combined mean effects; sensitivity analyses evaluate the influence of methodological quality.

RESULTS:

Of 77 eligible trials, 26 were included in the RoB assessment. Twenty trials were included in meta-analyses. Nineteen out of 26 trials had a high RoB in >1 domain. Meta-analyses of all trials indicated a reduction of TTH ($p < 0.0001$; mean reduction -1.11 on a 0-10 visual analog scale (VAS); 95% CI -1.64 to -0.57) and CGH ($p = 0.0002$; mean reduction -2.52 on a 0-10 VAS; 95% CI -3.86 to -1.19) pain intensity, CGH frequency ($p < 0.00001$; mean reduction -1.34 days per month; 95% CI -1.40 to -1.28), and migraine ($p = 0.0001$; mean reduction -22.39 hours without relief; 95% CI -33.90 to -10.88) and CGH ($p < 0.00001$; mean reduction -1.68 hours per day; 95% CI -2.09 to -1.26) duration. Excluding high RoB trials increased the effect sizes and reached additional statistical significance for migraine pain intensity ($p < 0.00001$; mean reduction -1.94 on a 0-10 VAS; 95% CI -2.61 to -1.27) and frequency ($p < 0.00001$; mean reduction -9.07 days per month; 95% CI -9.52 to -8.62).

DISCUSSION:

Results suggest a statistically significant reduction in the intensity, frequency and duration of migraine, TTH and CGH. Pain reduction and reduction in CGH frequency do not reach clinically relevant effect sizes. Small sample sizes, inadequate use of headache classification, and other methodological shortcomings reduce the confidence in these results. Methodologically sound, randomized controlled trials with adequate sample sizes are required to provide information on whether and which physiotherapy approach is effective. According to Grading of Recommendations Assessment, Development and Evaluation (GRADE), the current level of evidence is low.

KEYWORDS: Headache; exercise; manual therapy; migraine; physical therapy
PMID: 26229071

20 A. ROTATOR CUFF

Stiff shoulders and RCT

Rotator cuff lesions in patients with stiff shoulders: a prospective analysis of 379 shoulders

The Journal of Bone & Joint Surgery, 08/06/2015 Ueda Y, et al.

The purpose of the study was to clarify the prevalence of rotator cuff lesions according to patterns and severity of range-of-motion loss in a large cohort of patients with stiff shoulders. Shoulder stiffness with severe and global loss of passive range of motion is not associated with full-thickness rotator cuff tears, although some patients may have a partial-thickness tear. Shoulders with severe and global loss of range of motion at a first visit are likely to be cases of idiopathic adhesive capsulitis and may not require further imaging studies.

PT utilization after repair

Arthroscopy. 2015 Jul 29. pii: S0749-8063(15)00529-0. doi: 10.1016/j.arthro.2015.06.018.

Utilization and Costs of Postoperative Physical Therapy After Rotator Cuff Repair: A Comparison of Privately Insured and Medicare Patients.

Arshi A¹, Kabir N¹, Cohen JR¹, Lord EL¹, Wang JC², McAllister DR¹, Petrigliano FA³.

Author information

Abstract

PURPOSE:

To evaluate the utilization and charges related to physical therapy (PT) after rotator cuff repair in privately insured and Medicare patients and between arthroscopic and open/mini-open repair techniques.

METHODS:

The PearlDiver insurance database was queried for patients receiving postoperative PT using Current Procedural Terminology codes. Data were available from 2007 to 2011 for United Healthcare and from 2005 to 2011 for Medicare patients. Patients undergoing arthroscopic (CPT 29827) or open/mini-open approaches (CPT 23410, 23412, 23420) were identified in both populations. Utilization was determined by both the percentage of patients with at least one postoperative PT-related code and the average number of encounters per patient. Per-patient average charge was determined by dividing total charges within the billing period by the patient total.

RESULTS:

A total of 365,891 patients undergoing rotator cuff repair were identified. There was an increase in the number of arthroscopic repairs (+29.1%, $P = .027$, United Healthcare; +78.9%, $P < .001$, Medicare) and a decrease in the number of open/mini-open repairs (-18.2%, $P = .038$, United Healthcare; -18.2%, $P < .001$, Medicare) across the study period. At 6 months postoperatively, PT utilization was greater in the United Healthcare groups (82.9% arthroscopic, 81.0% open/mini-open) than in the Medicare groups (41.8% arthroscopic, 43.2% open/mini-open). Utilization-weighted per-patient average charge was comparable among all 4 groups, with slightly higher charges in the United Healthcare groups (\$3,376 arthroscopic, \$3,251 open/mini-open) compared with the Medicare groups (\$2,940 arthroscopic, \$2,807 open/mini-open). The United Healthcare groups had a greater number of utilization-weighted billed encounters (36.1 for open/mini-open, 9.5 for arthroscopic) than their Medicare counterparts (12.8 open/mini-open, 16.7 arthroscopic).

CONCLUSIONS:

Utilization of PT after rotator cuff repair is substantially higher in privately insured than in Medicare patients. Utilization rates appear to be comparable between surgical approaches. Per-patient costs were comparable irrespective of surgical approach and insurance modality.

LEVEL OF EVIDENCE: Level IV, economic.

PMID: 26231991

Prognosis

J Shoulder Elbow Surg. 2015 Aug;24(8):1249-56. doi: 10.1016/j.jse.2015.04.013.

Prognostic factors for recovery after arthroscopic rotator cuff repair: a prognostic study.

Fermont AJ¹, Wolterbeek N², Wessel RN², Baeyens JP³, de Bie RA⁴.

Author information

Abstract

BACKGROUND:

Studies concerning prognostic factors of recovery after arthroscopic rotator cuff repair mostly focus on tendon integrity or functional recovery as an outcome. Little is known about how they influence quality of life after surgery. We therefore tried to identify prognostic factors having an impact on quality of life after arthroscopic rotator cuff repair.

METHODS:

This study included 30 patients who underwent arthroscopic rotator cuff repair. We assessed Western Ontario Rotator Cuff Index as primary outcome and RAND-36, Constant-Murley score, and a shoulder hindrance score as secondary outcomes. Patients were repeatedly measured: once preoperatively and 4 times postoperatively. Preoperative range of motion, obesity, fatty infiltration, and cuff retraction were preselected as prognostic factors.

RESULTS:

Patients were significantly improved at 3 months and 6 months after arthroscopic rotator cuff repair. In multiple regression analysis, none of the preselected factors could be identified as a prognostic factor influencing quality of life after arthroscopic rotator cuff repair (measured with the Western Ontario Rotator Cuff Index). For the outcome variables RAND-36 (6 months, 1 year) and shoulder hindrance score (1 year), fatty infiltration Goutallier stages 1 and 2 and retraction grades II, III, and IV were significant predictors.

CONCLUSION:

Although fatty infiltration and retraction grade predict the RAND-36 and shoulder hindrance score, this study could not support preoperative range of motion, obesity, fatty infiltration, or retraction of the cuff as a prognostic factor for quality of life after arthroscopic rotator cuff repair. This study shows that if selection of patients is done properly, these factors do not influence a successful outcome.

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KEYWORDS: Shoulder; arthroscopic repair; prognostic factors; quality of life; rotator cuff lesion

PMID: 26189806

[Subscapularis tear](#)

J Shoulder Elbow Surg. 2015 Jul 30. pii: S1058-2746(15)00317-1. doi: 10.1016/j.jse.2015.06.014.

Lengthening of the subscapularis tendon as a sign of partial tearing in continuity.

Meyer DC¹, Zimmermann SM², Wieser K², Bensler S³, Gerber C², Germann M².

Author information

Abstract

BACKGROUND:

The quantification of a subscapularis tendon lesion may be difficult on magnetic resonance imaging, as well as during arthroscopic inspection. Consequently, the surgical decision of whether to only debride a degenerated tendon or to lateralize the more intact tendon portion may be arbitrary. This study aims to quantify the length of the subscapularis tendon as a sign of partial tendon tearing.

METHODS:

We retrospectively identified 92 magnetic resonance arthrography studies of suspected rotator cuff lesions obtained 3 months before shoulder arthroscopy. The myotendinous junction was identified, and the subscapularis tendon and muscle lengths were measured. Findings on arthroscopy performed later were used as the diagnostic gold standard for tendon integrity and compared with the magnetic resonance data.

RESULTS:

Arthroscopy showed an intact subscapularis tendon in 43 patients, tendinopathy in 21 patients, and a partial rupture in 28 patients. The mean subscapularis tendon lengths were 40 mm in cases of intact subscapularis musculotendinous units, 45 mm in cases of tendinopathy, and 53 mm in cases of partial tears, whereas the mean subscapularis muscle lengths were 105 mm, 94 mm, and 95 mm, respectively, in these groups.

CONCLUSION:

Partial tears of the subscapularis tendon lead to muscle shortening by approximately 10% and elongation of the tendon by approximately 32%, which may be interpreted as muscle retraction and a tendon rupture in continuity. If the subscapularis tendon has an apparent length of greater than 60 mm, the probability of a tear is 98%. Determination of the tendon length may therefore be a useful additional tool to quantify the integrity of the subscapularis tendon and degree of myotendinous retraction.

KEYWORDS: MR arthrography; Rotator cuff tear; arthroscopy; muscle shortening; myotendinous retraction; partial subscapularis lesion; tendon lengthening

PMID: 26234662

Distinguishing between chronic and acute tear

J Shoulder Elbow Surg. 2015 Jul 31. pii: S1058-2746(15)00308-0. doi: 10.1016/j.jse.2015.06.005.

How to discriminate between acute traumatic and chronic degenerative rotator cuff lesions: an analysis of specific criteria on radiography and magnetic resonance imaging.

Loew M¹, Magosch P¹, Lichtenberg S¹, Habermeyer P¹, Porschke F².
Author information

Abstract

BACKGROUND:

Discrimination between acute traumatic and chronic degenerative rotator cuff lesions (RCLs) is an important aid to decision making in therapeutic management. To date, no clinical signs or radiologic findings that enable confident differentiation between these distinct etiologic entities have been identified. The purpose of this investigation was to perform a systematic analysis of known radiographic and magnetic resonance imaging (MRI) features of RCLs and of further, not yet accurately described parameters. The hypothesis was that there are specific radiologic features that allow reliable discrimination between traumatic and nontraumatic RCLs.

METHODS:

Fifty consecutive patients with RCLs confirmed by MRI were enrolled in this study. Group A was made up of 25 patients with a history of trauma within the previous 6 weeks and no pre-existing shoulder pain, whereas group B comprised 25 patients with shoulder pain for not more than 12 months and no history of relevant trauma. Radiographs and magnetic resonance images were analyzed in a standardized protocol.

RESULTS:

No radiographic features were found to differ significantly between the 2 groups. On MRI, edema in the injured muscle was more common in group A (37.5% vs 4%, $P = .04$). A characteristic feature in traumatic RCLs was a wavelike appearance (kinking) of the central tendon (64% vs 32%, $P = .03$). In group B, more muscular atrophy was found (29.2% vs 60%, $P = .02$). Thinning and retraction did not differ between the groups.

CONCLUSION:

MRI, but not radiography, can be used to help discriminate between traumatic and nontraumatic RCLs. Although no absolute distinguishing feature was found, edema, kinking, and muscular atrophy are positive criteria for differentiation.

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KEYWORDS: MRI; Rotator cuff tear; atrophy; kinking; trauma

PMID: 26234668

Impact of surgery

J Shoulder Elbow Surg. 2015 Jul 22. pii: S1058-2746(15)00276-1. doi: 10.1016/j.jse.2015.05.031.

Rotator cuff tears in young patients: a different disease than rotator cuff tears in elderly patients.

Lazarides AL¹, Alentorn-Geli E², Choi JH², Stuart JJ², Lo IK³, Garrigues GE², Taylor DC⁴.

Author information

Abstract

BACKGROUND:

The purpose of this study was to conduct a systematic review of the literature to evaluate the characteristics of injury and treatment outcomes of rotator cuff tears in young patients.

METHODS:

A systematic electronic search was performed for clinical studies evaluating rotator cuff tears in patients younger than 40 years with special emphasis on reporting of injury characteristics and treatment outcomes with a minimum 1-year follow-up.

RESULTS:

Twelve studies (involving 336 patients) met inclusion criteria. The mean age of the patients was 28 years (range, 16-40 years), with a mean follow-up of 39 months. There were 2 distinct subgroups. The majority of studies (7 of 10) showed that patients typically had a full-thickness tear with an acute traumatic etiology. However, within the subgroup of elite throwers, 5 of 6 studies demonstrated a majority of tears that were partial thickness stemming from chronic overuse. Rotator cuff repair improved pain and strength in almost all studies reporting on these parameters. Eighty-seven percent of patients reported they were satisfied. However, all studies examining elite throwers showed significant difficulty in returning to play (25%-97%).

CONCLUSIONS:

In young patients with rotator cuff tears, there are 2 primary groups. (1) A majority group with rotator cuff tears of traumatic origin responded well to both arthroscopic and open rotator cuff repair in terms of pain relief and self-reported outcomes postoperatively. These patients reported high levels of satisfaction and return to preinjury level of play. (2) A unique subpopulation composed of elite throwers had improved outcomes but suboptimal return to play.

KEYWORDS: Rotator cuff tear; athletes; elite throwers; rotator cuff repair; young people; younger than 40

PMID:26209913

Peripheral nerve damage

J Shoulder Elbow Surg. 2015 Aug;24(8):1322-35. doi: 10.1016/j.jse.2015.04.004.

The role of the peripheral and central nervous systems in rotator cuff disease.

Bachasson D¹, Singh A², Shah SB³, Lane JG⁴, Ward SR⁵.

Author information

Abstract

Rotator cuff (RC) disease is an extremely common condition associated with shoulder pain, reduced functional capacities, and impaired quality of life. It primarily involves alterations in tendon health and mechanical properties that can ultimately lead to tendon failure. RC tendon tears induce progressive muscle changes that have a negative impact on surgical reparability of the RC tendons and clinical outcomes. At the same time, a significant base of clinical data suggests a relatively weak relationship between RC integrity and clinical presentation, emphasizing the multifactorial aspects of RC disease. This review aims to summarize the potential contribution of peripheral, spinal, and supraspinal neural factors that may (1) exacerbate structural and functional muscle changes induced by tendon tear, (2) compromise the reversal of these changes during surgery and rehabilitation, (3) contribute to pain generation and persistence of pain, (4) impair shoulder function through reduced proprioception, kinematics, and muscle recruitment, and (5) help explain interindividual differences and response to treatment. Given the current clinical and scientific interest in peripheral nerve injury in the context of RC disease and surgery, we carefully reviewed this body of literature with a particular emphasis on suprascapular neuropathy that has generated a large number of studies in the past decade. Within this process, we highlight the gaps in current knowledge and suggest research avenues for scientists and clinicians.

KEYWORDS: Shoulder; brain; muscle; nerve; pain; rotator cuff tear; spinal cord
PMID: 26189809

Conservative vs. surgery

J Shoulder Elbow Surg. 2015 Aug;24(8):1274-81. doi: 10.1016/j.jse.2015.05.040.

Comparing surgical repair with conservative treatment for degenerative rotator cuff tears: a randomized controlled trial.

Lambers Heerspink FO¹, van Raay JJ², Koorevaar RC³, van Eerden PJ⁴, Westerbeek RE⁵, van 't Riet E³, van den Akker-Scheek I⁶, Diercks RL⁶.

Author information

Abstract

BACKGROUND:

Good clinical results have been reported for both surgical and conservative treatment of rotator cuff tears. The primary aim of this randomized controlled trial was to compare functional and radiologic improvement after surgical and conservative treatment of degenerative rotator cuff tears.

METHODS:

We conducted a randomized controlled trial that included 56 patients with a degenerative full-thickness rotator cuff tear between January 2009 and December 2012; 31 patients were treated conservatively, and rotator cuff repair was performed in 25 patients. Outcome measures, including the Constant-Murley score (CMS), visual analog scale (VAS) pain and VAS disability scores, were assessed preoperatively and after 6 weeks and 3, 6, and 12 months. Magnetic resonance imaging was performed preoperatively and at 12 months postoperatively.

RESULTS:

At 12 months postoperatively, the mean CMS was 81.9 (standard deviation [SD], 15.6) in the surgery group vs 73.7 (SD, 18.4) in the conservative group ($P = .08$). VAS pain ($P = .04$) and VAS disability ($P = .02$) were significantly lower in the surgery group at the 12-month follow-up. A subgroup analysis showed postoperative CMS results were significantly better in surgically treated patients without a retear compared with conservatively treated patients (88.5 [SD, 6.2] vs 73.7 [SD, 18.4]).

CONCLUSION:

In our population of patients with degenerative rotator cuff tears who were randomly treated by surgery or conservative protocol, we did not observe differences in functional outcome as measured with the CMS 1 year after treatment. However, significant differences in pain and disabilities were observed in favor of surgical treatment. The best outcomes in function and pain were seen in patients with an intact rotator cuff postoperatively.

KEYWORDS: MRI; Rotator cuff; conservative treatment; cuff integrity; randomized controlled trial; rotator cuff repair

PMID: 26189808

22 A. IMPINGMENT

Course of symptoms

J Shoulder Elbow Surg. 2015 Jul 23. pii: S1058-2746(15)00310-9. doi: 10.1016/j.jse.2015.06.007.

Medium-term natural history of subacromial impingement syndrome.

Ertan S¹, Ayhan E², Güven MF³, Kesmezacar H⁴, Akgün K⁵, Babacan M³.
Author information

Abstract

BACKGROUND:

We evaluated the factors that affect the natural course of subacromial impingement syndrome in patients without rotator cuff tears.

METHODS:

In total, 63 patients were included. During the first evaluation, we recorded each patient's age, gender, profession, body mass index (BMI), hand dominance, alcohol and tobacco consumption, comorbidities, causative event of pain, presence of a functional limitation, duration of symptoms, shoulder scores (American Shoulder and Elbow Surgeons [ASES], Constant-Murley, and visual analog scale), history of subacromial steroid injections, and magnetic resonance imaging (MRI) classification. A subacromial lidocaine injection test was performed to confirm the diagnosis, and patients were initially treated conservatively. Of the 63 patients, 7 underwent a subsequent surgical procedure. We recalled the patients and questioned them about recurrences. According to their answers, the patients were grouped as follows: group 1, no recurrence; group 2, relapsing course; and group 3, chronic course. We compared the groups regarding the factors proposed to affect the course of the disease.

RESULTS:

The mean follow-up time was 8.45 ± 0.9 years. There were no significant differences regarding gender, profession, hand dominance, alcohol consumption, smoking, comorbidities, causative event of pain, visual analog scale score, or history of subacromial steroid injections between groups. The patients in group 1 were significantly younger than those in group 2 ($P = .038$). The mean BMI value of the group 1 patients was significantly lower than that of the group 3 patients ($P = .034$). Patients with a functional limitation besides pain tended to have a relapsing course. The Constant-Murley and ASES scores were significantly higher for patients in group 1 than for patients in group 2 ($P = .024$ and $P = .041$, respectively). The duration of symptoms was significantly shorter (<3 months) in group 1 ($P = .001$). Most of the patients in group 1 had reversible changes on MRI ($P = .038$).

CONCLUSION:

In our study, younger age, lower BMI, more functional capacity, a shorter symptomatic period, reversible changes on MRI, and higher Constant and ASES scores at the first evaluation were good prognostic factors.

KEYWORDS: Subacromial impingement; affecting factors; natural course; rotator cuff; shoulder impingement

PMID: 26212760

22 B. INSTABILITY**Return to sports**

Am J Sports Med. 2015 Aug;43(8):2005-11. doi: 10.1177/0363546515590222. Epub 2015 Jun 15.

A Qualitative Investigation of Return to Sport After Arthroscopic Bankart Repair: Beyond Stability.

Tjong VK¹, Devitt BM², Murnaghan ML³, Ogilvie-Harris DJ⁴, Theodoropoulos JS⁵.
Author information

Abstract

BACKGROUND:

Arthroscopic shoulder stabilization is known to have excellent functional results, but many patients do not return to their preinjury level of sport, with return to play rates reported between 48% and 100% despite good outcome scores.

PURPOSE:

To understand specific subjective psychosocial factors influencing a patient's decision to return to sport after arthroscopic shoulder stabilization.

STUDY DESIGN:

Case series; Level of evidence, 4.

METHODS:

Semistructured qualitative interviews were conducted with patients aged 18 to 40 years who had undergone primary arthroscopic shoulder stabilization and had a minimum 2-year follow-up. All patients participated in sport before surgery without any further revision operations or shoulder injuries. Qualitative data analysis was performed in accordance with the Strauss and Corbin theory to derive codes, categories, and themes. Preinjury and current sport participation was defined by type, level of competition, and the Brophy/Marx shoulder activity score. Patient-reported pain and shoulder function were also obtained.

RESULTS:

A total of 25 patients were interviewed, revealing that fear of reinjury, shifts in priority, mood, social support, and self-motivation were found to greatly influence the decision to return to sport both in patients who had and had not returned to their preinjury level of play. Patients also described fear of sporting incompetence, self-awareness issues, recommendations from physical therapists, and degree of confidence as less common considerations affecting their return to sport.

CONCLUSION:

In spite of excellent functional outcomes, extrinsic and intrinsic factors such as competing interests, kinesiophobia, age, and internal stressors and motivators can have a major effect on a patient's decision to return to sport after arthroscopic shoulder stabilization. The qualitative methods used in this study provide a unique patient-derived perspective into postoperative recovery and highlight the necessity to recognize and address subjective and psychosocial factors rather than objective functional outcome scores alone as contributing to a patient's decision to return to play.

KEYWORDS: Bankart repair; psychological aspects of sport; qualitative interviews; return to sport; shoulder instability

PMID: 26078450

24. ELBOW

Radial head

J Shoulder Elbow Surg. 2015 Jul 16. pii: S1058-2746(15)00275-X. doi: 10.1016/j.jse.2015.05.030.

Role of the interosseous membrane and annular ligament in stabilizing the proximal radial head.

Anderson A¹, Werner FW², Tucci ER¹, Harley BJ¹.
Author information

Abstract

HYPOTHESIS:

The purpose of our study was to determine the relative contributions of the annular ligament, proximal band, central band, and distal band of the interosseous membrane in preventing dislocation of the proximal radius.

METHODS:

In part 1 of the study, 8 forearms were loaded transversely with the forearm intact, and the central band, proximal band, and annular ligament were sequentially sectioned to determine the percentage contribution of each structure in preventing transverse radial displacement. In part 2, 12 forearms were cyclically supinated and pronated while optical sensors measured radial and ulnar motion. Transverse radial head motion was computed as the distal band, central band, and proximal band (and annular ligament) were sequentially sectioned.

RESULTS:

In part 1, there was no significant difference in the percentage contribution of each structure in preventing radial transverse displacement. In part 2, only after sectioning of the central band did significant radial head displacement occur. Greater displacements occurred in supination than in pronation. Dislocation of the proximal radius occurred in 2 arms after sectioning of all 3 structures.

DISCUSSION:

Under pure transverse displacement, the central band, annular ligament, and proximal band equally contributed to stabilizing the radius. However, during forearm rotation, the central band contributed more to radial head stability than the annular ligament and proximal band. Our study contributes to our knowledge of forearm biomechanics, demonstrating the importance of the central band in providing proximal radial head stability. Forceful supination should be avoided after surgical procedures designed to stabilize the radial head.

KEYWORDS: Radial head dislocation; annular ligament; interosseous membrane
PMID: 26190665

26. CARPAL TUNNEL SYNDROME

Surgery

Breast Cancer Res Treat. 2015 Aug;152(3):683-6. doi: 10.1007/s10549-015-3500-6. Epub 2015 Jul 19.

Impact of carpal tunnel syndrome surgery on women with breast cancer-related lymphedema.

Gunnoo N¹, Ebelin M, Arrault M, Vignes S.
Author information

Abstract

Carpal tunnel syndrome may occur in women with ipsilateral lymphedema after breast cancer treatment. Surgery on the lymphedematous arm is classically feared. Thirty-two consecutive women (mean age at cancer treatment 49 years, interquartile range (Q1;Q3) 43;56) with upper limb lymphedema after breast cancer treatment, followed in a single lymphology unit, and symptomatic carpal tunnel syndrome (electromyographically confirmed) requiring surgery were included. Lymphedema volume was calculated using the truncated cone formula, recorded before and after carpal tunnel syndrome surgery, and at each follow-up visit. Median time to lymphedema onset after cancer treatment was 19 (interquartile range (Q1;Q3) 5;73) months. Median lymphedema volume was 497 (Q1;Q3 355;793) mL before (median 4 months) and 582 (Q1;Q3 388;930) mL after carpal tunnel syndrome surgery (median 5 months) ($P = 0.004$). At the last follow-up post-carpal tunnel syndrome surgery (median 33 months), lymphedema volume was 447 (Q1;Q3 260;733) mL (non-significant, compared to pre-surgery volume). Regular lymphedema treatment included elastic sleeve ($n = 31$), low-stretch bandage ($n = 20$), and/or manual lymph drainage ($n = 20$), with no change before and after carpal tunnel syndrome surgery. All carpal tunnel syndrome clinical manifestations disappeared after surgery and none of the patients experienced local complications.

Carpal tunnel syndrome may be treated surgically in women with ipsilateral upper limb lymphedema after breast cancer treatment. Although lymphedema volume increased transiently, it remained stable over long-term follow-up, with no local complications.

PMID: 26187406

27. HIP

CA in drinking water and hip fracture

Bone. 2015 Jul 17. pii: S8756-3282(15)00294-X. doi: 10.1016/j.bone.2015.07.020.

Population data on calcium in drinking water and hip fracture: An association may depend on other minerals in water. A NOREPOS study.

Dahl C¹, Sjøgaard AJ², Tell GS³, Forsén L⁴, Flaten TP⁵, Hongve D⁶, Omsland TK⁷, Holvik K², Meyer HE⁷, Aamodt G⁸.

Author information

Abstract

BACKGROUND: The Norwegian population has among the highest hip fracture rates in the world. The incidence varies geographically, also within Norway. Calcium in drinking water has been found to be beneficially associated with bone health in some studies, but not in all. In most previous studies, other minerals in water have not been taken into account. Trace minerals, for which drinking water can be an important source and even fulfill the daily nutritional requirement, could act as effect-modifiers in the association between calcium and hip fracture risk. The aim of the present study was to investigate the association between calcium in drinking water and hip fracture, and whether other water minerals modified this association.

MATERIALS AND METHODS: A survey of trace metals in 429 waterworks, supplying 64% of the population in Norway, was linked geographically to the home addresses of patients with incident hip fractures (1994-2000). Drinking water mineral concentrations were divided into "low" (below and equal waterworks average) and "high" (above waterworks average). Poisson regression models were fitted, and all incidence rate ratios (IRRs) were adjusted for age, geographic region, urbanization degree, type of water source, and pH of the water. Effect modifications were examined by stratification, and interactions between calcium and magnesium, copper, zinc, iron and manganese were tested both on the multiplicative and the additive scale. Analyses were stratified on gender.

RESULTS: Among those supplied from the 429 waterworks (2,110,916 person-years in men and 2,397,217 person-years in women), 5433 men and 13,493 women aged 50-85years suffered a hip fracture during 1994-2000. Compared to low calcium in drinking water, a high level was associated with a 15% lower hip fracture risk in men (IRR=0.85, 95% CI: 0.78, 0.91) but no significant difference was found in women (IRR=0.98, 95%CI: 0.93-1.02). There was interaction between calcium and copper on hip fracture risk in men (p=0.051); the association between calcium and hip fracture risk was stronger when the copper concentration in water was high (IRR=0.52, 95% CI: 0.35, 0.78) as opposed to when it was low (IRR=0.88, 95% CI: 0.81, 0.94). This pattern persisted also after including potential confounding factors and other minerals in the model. No similar variation in risk was found in women.

CONCLUSION: In this large, prospective population study covering two thirds of the Norwegian population and comprising 19,000 hip fractures, we found an inverse association between calcium in drinking water and hip fracture risk in men. The association was stronger when the copper concentration in the water was high.

KEYWORDS: Calcium; Drinking water; Epidemiology; Hip fracture; Interaction; Water minerals

30 A. IMPINGEMENT

Role of inflammation

Am J Sports Med. 2015 Aug;43(8):1875-81. doi: 10.1177/0363546515588176. Epub 2015 Jun 15.

Inflammation and Neovascularization in Hip Impingement: Not Just Wear and Tear.

Elias-Jones CJ¹, Farrow L², Reilly JH², Kerr S², Meek RM³, Kelly MP⁴, Campton JL⁴, Millar NL⁵.

Author information

Abstract

BACKGROUND: Femoroacetabular impingement (FAI) is a significant cause of osteoarthritis (OA) in young active patients, but the pathophysiology remains unclear. Increasingly, mechanistic studies point toward an inflammatory component in OA.

PURPOSE: This study aimed to characterize inflammatory cell subtypes and neovascularization in FAI by exploring the phenotype and quantification of inflammatory cells and neovascularization in FAI versus OA samples.

STUDY DESIGN: Descriptive laboratory study.

METHODS: Ten samples of the labrum were obtained from patients with FAI (confirmed diagnosis) during open osteochondroplasty or hip arthroscopic surgery. Control samples of the labrum were collected from 10 patients with OA who were undergoing total hip arthroplasty. Labral biopsy specimens were evaluated immunohistochemically by quantifying the presence of macrophages (CD68, CD206, interleukin-13 [IL-13]), T cells (CD3), mast cells (mast cell tryptase), and vascular endothelium (CD34, vascular endothelial growth factor).

RESULTS: Labral biopsy specimens obtained from patients with FAI exhibited significantly greater macrophage, mast cell, and vascular endothelium expression compared with control OA labral samples ($P < .05$). The most significant difference was noted in macrophage ($P < .01$) and mast cell ($P < .05$) expression. Further subtyping of macrophages in FAI using the CD206 tissue marker and IL-13 revealed an M2 phenotype, suggesting that these cells are involved in a regenerate versus degenerate process. There was a modest but significant correlation between mast cells and CD34 expression ($r = 0.4$, $P < .01$) in FAI samples.

CONCLUSION: This study provides evidence for an inflammatory cell infiltrate in FAI along with significant neovascularization. In particular, the significant infiltration of mast cells and macrophages was demonstrated, suggesting a role for innate immune pathways in the events that mediate hip impingement.

CLINICAL RELEVANCE: Further mechanistic studies to evaluate the net contribution and hence therapeutic utility of these cellular lineages and their downstream processes may reveal novel therapeutic approaches to the management of early hip impingement.

KEYWORDS: femoroacetabular; hip; impingement; inflammation; young adults

PMID: 26078451

Sexual dysfunction after hip arthroscopic

Am J Sports Med. 2015 Aug;43(8):1850-6. doi: 10.1177/0363546515584042. Epub 2015 May 12.

Evaluation of Sexual Function Before and After Hip Arthroscopic Surgery for Symptomatic Femoroacetabular Impingement.

Lee S¹, Frank RM², Harris J³, Song SH², Bush-Joseph CA², Salata MJ⁴, Nho SJ².
Author information

Abstract

BACKGROUND: *It is unknown if chronic hip pain due to femoroacetabular impingement (FAI) may cause sexual difficulties. Available evidence suggests that hip arthroscopic surgery may be effective for the treatment of symptomatic FAI; however, sexual function before and after hip arthroscopic surgery has not been reported.*

PURPOSE/HYPOTHESIS: The purpose of this study was to determine the presence and significance of sexual difficulties in patients with chronic hip pain due to symptomatic FAI both before and after hip arthroscopic surgery. The hypotheses were that (1) chronic hip pain due to symptomatic FAI has a negative effect on sexual function, (2) hip arthroscopic surgery improves the level of sexual function postoperatively, (3) the characteristics of sexual difficulties may be dependent on sex or age, (4) patients lack knowledge of potential sexual activity changes in the preoperative and postoperative periods, and (5) patients desire a greater level of discussion regarding potential changes in sexual function.

STUDY DESIGN: Case series; Level of evidence, 4.

METHODS: A 23-item Likert-style questionnaire assessing preoperative and postoperative sexual function and a modified Harris Hip Score questionnaire were administered to 305 consecutive patients who underwent hip arthroscopic surgery for FAI with a minimum 1-year follow-up. Comparative analysis was performed between sexes and age groups (young: <40 years; old: >40 years).

RESULTS: Of 131 respondents, preoperative sexual difficulties were reported by 66%, occurring 30.8 ± 49.1 days after the onset of FAI symptoms. Primary causes of difficulty included pain (77.9%), stiffness (47.1%), and loss of interest (21.4%). Sexual activity resumed 29.2 ± 20.1 days postoperatively, while sex with minimal pain occurred at 48.8 ± 40.6 days. Female patients and older patients (>40 years old) resumed sexual activity later (female: 34.8 ± 23.2 days; male: 21.0 ± 10.7 days; $P < .0001$) (young: 26.3 ± 21.7 days; old: 35.7 ± 13.5 days; $P = .017$). The frequency of sexual activity increased in 32.3%, decreased in 16.9%, and was unchanged in 48.5%. Among patients who reported an increase in the frequency of sexual activity, there was a greater proportion of male patients and younger patients (female: 38.1%; male: 61.9%; $P < .0001$) (young: 78.6%; old: 21.4%; $P < .0001$). More female patients reported alterations in sexual positioning (female: 82.3%; male: 17.7%; $P < .0001$). To obtain information on sexual function, 77.4% of patients preferred a discussion with the surgeon, and 67.4% preferred a booklet on the subject. Relief of pain after arthroscopic surgery was experienced by 88.9%, and only 10.8% reported current sexual difficulties.

CONCLUSION: This study demonstrates the prevalence of sexual difficulties among the majority of patients with symptomatic FAI, the significant effect that these difficulties may have on quality of life, and the ability of hip arthroscopic surgery to improve sexual function postoperatively. While further studies are required to elucidate what specific factors are associated with sexual difficulties, the current study suggests that this is an important topic to explore.

Cam – females shallower

Arthroscopy. 2015 Jul 25. pii: S0749-8063(15)00499-5. doi: 10.1016/j.arthro.2015.06.007. [

Sex Differences in Patients With CAM Deformities With Femoroacetabular Impingement: 3-Dimensional Computed Tomographic Quantification.

Yanke AB¹, Khair MM¹, Stanley R¹, Walton D¹, Lee S¹, Bush-Joseph CA¹, Espinosa Orias AA¹, Inoue N¹, Nho SJ².
Author information

Abstract

PURPOSE: To determine if significant differences exist between male and female CAM deformities using quantitative 3-dimensional (3D) volume and location analysis.

METHODS: Retrospective analysis of preoperative computed tomographic (CT) scans for 138 femurs (69 from male patients and 69 from female patients) diagnosed with impingement from November 2009 to November 2011 was completed. Those patients who presented with hip complaints and had a history, physical examination (limited range of motion, positive impingement signs), plain radiographs (anteroposterior pelvis, 90° Dunn view, false profile view), and magnetic resonance images consistent with femoroacetabular impingement (FAI) and in whom a minimum of 6 months of conservative therapy (oral anti-inflammatory agents, physical therapy, and activity modification) had failed were indicated for arthroscopic surgery and had a preoperative CT scan. Scans were segmented, converted to point cloud data, and analyzed with a custom-written computer program. Analysis included mean CAM height and volume, head radius, and femoral version. Differences were analyzed using an unpaired t test with significance set at $P < .05$.

RESULTS: Female patients had greater femoral anteversion compared with male patients (female patients, $15.5^\circ \pm 8.3^\circ$; male patients, $11.3^\circ \pm 9.0^\circ$; $P = .06$). Male femoral head radii were significantly larger than female femoral heads (female patients, 22.0 ± 1.3 mm; male patients, 25.4 ± 1.3 mm; $P < .001$). Male CAM height was significantly larger than that in female patients (female patients, 0.66 ± 0.61 mm; male patients, 1.51 ± 0.75 mm; $P < .001$). Male CAM volume was significantly larger as well (male patients, 433 ± 471 mm³; female patients, 89 ± 124 mm³; $P < .001$). These differences persisted after normalizing height ($P < .001$) and volume ($P < .001$) to femoral head radius. Average clock face distribution was from the 1:09 o'clock position \pm the 2:51 o'clock position to the 3:28 o'clock position \pm the 1:59 o'clock position, with an average span from the 3:06 o'clock position \pm the 1:29 o'clock position (male patients, the 11:23 o'clock position \pm the 0:46 o'clock position to the 3:05 o'clock position \pm the 1:20 o'clock position; female patients, the 11:33 o'clock position \pm the 0:37 o'clock position to the 2:27 o'clock position \pm the 0:45 o'clock position). There were no differences in the posterior ($P = .60$) or anterior ($P = .14$) extent of CAM deformities. However, the span on the clock face of the CAM deformities varied when comparing men with women (male patients, the 3:43 o'clock position \pm the 1:29 o'clock position; female patients, the 2:54 o'clock position \pm the 1:09 o'clock position; $P = .02$).

CONCLUSIONS: Our data show that female CAM deformities are shallower and of smaller volume than male lesions. Further studies will allow further characterization of the 3D geometry of the proximal femur and provide more precise guidance for femoral osteochondroplasty for the treatment of CAM deformities.

CLINICAL RELEVANCE: Female CAM deformities may not be detectable using current 2D nonquantitative methods. These findings should raise the clinician's index of suspicion when diagnosing a symptomatic CAM lesion in female patients.

32 A. KNEE/ACL**Psychological impact**

J Am Acad Orthop Surg. 2015 Aug;23(8):501-9. doi: 10.5435/JAAOS-D-14-00173.

Psychological Aspects of Recovery Following Anterior Cruciate Ligament Reconstruction.

Christino MA, Fantry AJ, Vopat BG.

Abstract

Recovery following anterior cruciate ligament reconstruction is an arduous process that requires a significant mental and physical commitment to rehabilitation. Orthopaedic research in recent years has focused on optimizing anterior cruciate ligament surgical techniques; however, despite stable anterior cruciate ligament reconstructions, many athletes still never achieve their preinjury ability or even return to sport. Psychological factors associated with patient perceptions and functional outcomes following anterior cruciate ligament reconstruction are important to acknowledge and understand. Issues related to emotional disturbance, motivation, self-esteem, locus of control, and self-efficacy can have profound effects on patients' compliance, athletic identity, and readiness to return to sport.

The psychological aspects of recovery play a critical role in functional outcomes, and a better understanding of these concepts is essential to optimize the treatment of patients undergoing anterior cruciate ligament reconstruction, particularly those who plan to return to sport. Identifying at-risk patients, encouraging a multidisciplinary approach to patient care, and providing early referral to a sports psychologist may improve patient outcomes and increase return-to-play rates among athletes.

KEYWORDS: ACL; psychological; rehabilitation

PMID: 2620914

QOL in ACL deficient

Br J Sports Med. 2015 Aug;49(16):1033-41. doi: 10.1136/bjsports-2015-094864.

Quality of life in anterior cruciate ligament-deficient individuals: a systematic review and meta-analysis.

Filbay SR¹, Culvenor AG¹, Ackerman IN², Russell TG¹, Crossley KM³.
Author information

Abstract

BACKGROUND:

Physical and psychological impairments impacting quality of life (QOL) are common following ACL reconstruction. Rehabilitation alone is an effective alternative to reconstruction for some patients, warranting the investigation of QOL in ACL-deficient individuals.

PURPOSE:

To report and compare QOL in ACL-deficient individuals with population norms and ACL-reconstructed groups, and investigate relationships between participant characteristics and QOL.

STUDY DESIGN:

Systematic review and meta-analysis.

METHODS:

We systematically identified and methodologically appraised all studies reporting QOL in ACL-deficient individuals ≥ 5 years following ACL rupture. Knee-related and health-related QOL scores in ACL-deficient cohorts were compared to ACL-reconstructed groups using a random-effects meta-analysis. Descriptive comparisons were made with population norms.

RESULTS:

Eleven studies reported QOL in 473 ACL-deficient individuals, a mean of 10 (range 5-23) years following ACL rupture. Eight studies reported knee-related QOL using the Knee injury and Osteoarthritis Outcome Score QOL subscale (KOOS-QOL); scores (mean \pm SD) ranging from 54 \pm 17 to 77 \pm 22 were impaired compared to population norms. Health-related QOL, measured with the SF-36 domain scores in five studies, was similar to population norms, but impaired compared to physically active populations. Meta-analysis revealed no significant differences in KOOS-QOL (mean difference (95% CI) 2.9 (-3.3 to 9.1)) and SF-36 scores (for all SF-36 domains except Vitality) between ACL-deficient and ACL-reconstructed groups.

CONCLUSIONS:

This systematic review found impaired knee-related QOL in ACL-deficient individuals ≥ 5 years after ACL rupture, compared to population norms. Meta-analysis revealed similar knee-related QOL in ACL-deficient and ACL-reconstructed groups, and no difference in health-related QOL scores for seven of the eight SF-36 domains.

KEYWORDS ACL; Knee; Osteoarthritis; Rehabilitation; Sports medicine

PMID: 26224582

Motion laxity of contralateral knee

Am J Sports Med. 2015 Aug;43(8):1918-23. doi: 10.1177/0363546515587080. Epub 2015 Jun 4.

Noninjured Knees of Patients With Noncontact ACL Injuries Display Higher Average Anterior and Internal Rotational Knee Laxity Compared With Healthy Knees of a Noninjured Population.

Mouton C¹, Theisen D¹, Meyer T², Agostinis H¹, Nührenbörger C³, Pape D⁴, Seil R⁵.
Author information

Abstract

BACKGROUND:

Excessive physiological anterior and rotational knee laxity is thought to be a risk factor for noncontact anterior cruciate ligament (ACL) injuries and inferior reconstruction outcomes, but no thresholds have been established to identify patients with increased laxity.

PURPOSE:

(1) To determine if the healthy contralateral knees of ACL-injured patients have greater anterior and rotational knee laxity, leading to different laxity profiles (combination of laxities), compared with healthy control knees and (2) to set a threshold to help discriminate anterior and rotational knee laxity between these groups.

STUDY DESIGN:

Case-sectional study; Level of evidence, 3.

METHODS:

A total of 171 healthy contralateral knees of noncontact ACL-injured patients (ACL-H group) and 104 healthy knees of control participants (CTL group) were tested for anterior and rotational laxity. Laxity scores (measurements corrected for sex and body mass) were used to classify knees as hypolax (score <-1), normolax (between -1 and 1), or hyperlax (>1). Proportions of patients in each group were compared using χ^2 tests. Receiver operating characteristic curves were computed to discriminate laxity between the groups. Odds ratios were calculated to determine the probability of being in the ACL-H group.

RESULTS:

The ACL-H group displayed greater laxity scores for anterior displacement and internal rotation in their uninjured knee compared with the CTL group ($P < .05$). Laxity profiles were different between the groups for the following associations: normolax in anterior displacement/hypolax in internal rotation (6% [ACL-H] vs 15% [CTL]; $P = .02$) and hyperlax in anterior displacement/normolax in internal rotation (27% [ACL-H] vs 10% [CTL]; $P < .01$). The laxity score thresholds were 0.75 for anterior laxity and -0.55 for internal rotation. With both scores above these thresholds, a patient was 3.18-fold more likely to be in the ACL-H group (95% CI, 1.74-5.83).

CONCLUSION:

The healthy contralateral knees of patients with noncontact ACL injuries display different laxity values both for internal rotation and anterior displacement compared with healthy control knees. The identification of knee laxity profiles may be of relevance for primary and secondary prevention programs of noncontact ACL injuries.

KEYWORDS: anterior cruciate ligament injury; anterior knee laxity; knee laxity profiles; rotational knee laxity

PMID: 26045620

34. PATELLA**VMO weakness plus****Atrophy of the Quadriceps Is Not Isolated to the Vastus Medialis Oblique in Individuals With Patellofemoral Pain**

Authors: Lachlan S. Giles, PT1, Kate E. Webster, PhD1, Jodie A. McClelland, PhD1, Jill Cook, PhD2

Published: Journal of Orthopaedic & Sports Physical Therapy, 2015, Volume: 45 Issue: 8 Pages: 613-619 doi:10.2519/jospt.2015.5852

Study Design Cross-sectional.

Objectives To determine if quadriceps atrophy was present in people with patellofemoral pain (PFP), and whether the vastus medialis oblique (VMO) was selectively involved.

Background Despite the lack of research investigating individual quadriceps muscle size in individuals with PFP, it has been suggested that selective atrophy of the VMO relative to the vastus lateralis could be associated with PFP.

Methods The quadriceps muscle sizes of 35 participants with PFP (22 with unilateral and 13 with bilateral symptoms) and 35 asymptomatic control participants matched for age and sex were measured using real-time ultrasound. The thicknesses of the VMO, vastus lateralis, vastus medialis, rectus femoris, and vastus intermedius were measured. Paired-samples t tests were used to compare muscle thickness between limbs in those with unilateral PFP, and independent t tests were used to compare muscle thickness between groups with and without PFP.

Results In those with unilateral PFP, the thickness of all portions of the quadriceps muscle was statistically smaller in the symptomatic compared to the asymptomatic limb: VMO ($P = .038$), vastus medialis ($P < .001$), vastus lateralis ($P = .005$), vastus intermedius ($P = .013$), and rectus femoris ($P = .045$). No difference was found in thickness of any of the portions of the quadriceps on the affected side of people with PFP compared to asymptomatic controls: VMO ($P = .148$), vastus medialis ($P = .474$), vastus lateralis ($P = .122$), vastus intermedius ($P = .466$), and rectus femoris ($P = .508$).

Conclusion Atrophy of all portions of the quadriceps muscles is present in the affected limb of people with unilateral PFP. There was no atrophy of the quadriceps in individuals with PFP compared to those without pathology. Selective atrophy of the VMO relative to the vastus lateralis was not identified in people with PFP. J Orthop Sports Phys Ther 2015;45(8):613–619. Epub 25 Jun 2015. doi:10.2519/jospt.2015.5852

Keyword: anterior knee pain, chondromalacia, quadriceps femoris, ultrasound imaging, VMO

37. OSTEOARTHRITIS/KNEE**OA management****The efficacy of non-surgical treatment on pain and sensitization in patients with knee osteoarthritis: a pre-defined ancillary analysis from a randomized controlled trial**

Søren T. Skou, PT, PhD , Ewa M. Roos, PT, PhD Ole Simonsen, MD, DMSc
Mogens B. Laursen, MD, PhD Michael S. Rathleff, PT, PhD Lars Arendt-Nielsen, PhD,
DMSc Sten Rasmussen, MD

Objective

To report the efficacy of a 3-month treatment program consisting of neuromuscular exercise, education, diet, insoles and pain medication (MEDIC-treatment) compared to usual care (two leaflets with information and treatment advice) in reducing pain-related measures and sensitization in patients with knee osteoarthritis not eligible for total knee replacement.

Method

A pre-defined ancillary analysis of the results at 3 months of a randomized controlled trial of 100 patients randomized to MEDIC-treatment or usual care. Outcomes were sensitization assessed at the knee, the lower leg and forearm using a handheld algometer, peak pain intensity in the previous 24h, pain intensity after 30 min of walking, pain location and pattern, spreading of pain (a region-divided body chart) and the usage of pain medication.

Results

The MEDIC group had larger improvements from baseline to 3 months in peak pain intensity ($P=0.02$) and pain after 30 min of walking ($P<0.001$) and in the number of body sites with pain ($P=0.04$). There was no difference in the change in sensitization from baseline to 3 months between groups ($P=0.87$), but sensitization decreased in both groups ($P<0.001$).

Conclusion

A non-surgical treatment program is more efficacious in reducing pain-related measures than usual care, while both are equally efficacious in reducing sensitization, indicating that mechanisms other than pain sensitization contribute to the perceived pain. The patients did not have severe symptomatic knee osteoarthritis and hence pain sensitization may not yet have developed into a clinically relevant parameter or subgroups with less sensitization may exist.

Keywords: Knee, Osteoarthritis, Clinical trial, Therapeutics, Pain, Sensitization

40. ANKLE SPRAINS AND INSTABILITY**Balance disorders****Dynamic Balance Deficits 6 Months Following First-Time Acute Lateral Ankle Sprain: A Laboratory Analysis**

Authors: Cailbhe Doherty, BSc¹, Chris Bleakley, PhD², Jay Hertel, PhD³, Brian Caulfield, PhD¹, John Ryan, MD⁴, Eamonn Delahunt, PhD^{1,5}

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2015, **Volume:** 45 **Issue:** 8 **Pages:** 626-633 doi:10.2519/jospt.2015.5653

Study Design: Controlled laboratory study.

Objective: To utilize kinematic and stabilometric measures to compare dynamic balance during performance of the Star Excursion Balance Test between persons 6 months following first-time lateral ankle sprain (LAS) and a noninjured control group.

Background: Biomechanical evaluation of dynamic balance in persons following first-time LAS during performance of the Star Excursion Balance Test could provide insight into the mechanisms by which individuals proceed to recover fully or develop chronic ankle instability.

Methods: Sagittal plane kinematics of the lower extremity and the center-of-pressure path during the performance of the anterior, posterolateral, and posteromedial reach directions of the Star Excursion Balance Test were obtained from 69 participants 6 months following first-time acute LAS and from a control group of 20 noninjured participants.

Results: Compared to the control group, the LAS group displayed lower normalized reach distances in all 3 reach directions on the injured and noninjured limbs, with the largest observed effect size in the posterolateral direction ($P = .001$, $\eta_p^2 = 0.07$). The performance impairment was associated with less hip and knee flexion and ankle dorsiflexion at the point of maximum reach ($P < .02$), and coincided with less complexity of the center-of-pressure path ($P < .05$).

Conclusion: Participants with a 6-month history of LAS exhibit a persistence of deficits previously established in the acute phase of injury. *J Orthop Sports Phys Ther* 2015;45(8):626–633. Epub 24 Jun 2015. doi:10.2519/jospt.2015.5653

Keyword: ankle joint, biomechanical phenomena, kinematics, kinetics, postural balance

41 A. ACHILLES TENDON AND CALF

Management

J Bone Joint Surg Am. 2015 Jul 15;97(14):1187-95. doi: 10.2106/JBJS.O.00002.

Everything Achilles: Knowledge Update and Current Concepts in Management: AAOS Exhibit Selection.

Uquillas CA¹, Guss MS¹, Ryan DJ¹, Jazrawi LM¹, Strauss EJ¹.
Author information

Abstract

Achilles tendon pathology is common and affects athletes and nonathletes alike. The cause is multifactorial and controversial, involving biological, anatomical, and mechanical factors. A variety of conditions characterized by Achilles tendon inflammation and/or degeneration can be clinically and histologically differentiated. These include insertional Achilles tendinopathy, retrocalcaneal bursitis, Achilles paratenonitis, Achilles tendinosis, and Achilles paratenonitis with tendinosis. The mainstay of treatment for all of these diagnoses is nonoperative. There is a large body of evidence addressing treatment of acute and chronic Achilles tendon ruptures; however, controversy remains.

PMID: 26178893

45 A. MANUAL THERAPY LUMBAR & GENERAL**Alexander technique for LBP**

BMC Health Serv Res. 2015 Jul 28;15(1):293. doi: 10.1186/s12913-015-0966-1.

What is the perceived impact of Alexander technique lessons on health status, costs and pain management in the real life setting of an English hospital? The results of a mixed methods evaluation of an Alexander technique service for those with chronic back pain.

McClellan S¹, Brilleman S², Wye L³.

Author information

Abstract

BACKGROUND:

Randomised controlled trial evidence indicates that Alexander Technique is clinically and cost effective for chronic back pain. The aim of this mixed methods evaluation was to explore the role and perceived impact of Alexander Technique lessons in the naturalistic setting of an acute hospital Pain Management Clinic in England.

METHODS:

To capture changes in health status and resource use amongst service users, 43 service users were administered three widely used questionnaires (Brief Pain Inventory, MYMOP and Client Service Resource Inventory) at three time points: baseline, six weeks and three months after baseline. We also carried out 27 telephone interviews with service users and seven face-to-face interviews with pain clinic staff and Alexander Technique teachers. Quantitative data were analysed using descriptive statistics and qualitative data were analysed thematically.

RESULTS:

Those taking Alexander Technique lessons reported small improvements in health outcomes, and condition-related costs fell. However, due to the non-randomised, uncontrolled nature of the study design, changes cannot be attributed to the Alexander Technique lessons. Service users stated that their relationship to pain and pain management had changed, especially those who were more committed to practising the techniques regularly. These changes may explain the reported reduction in pain-related service use and the corresponding lower associated costs.

CONCLUSIONS:

Alexander Technique lessons may be used as another approach to pain management. The findings suggests that Alexander Technique lessons can help improve self-efficacy for those who are sufficiently motivated, which in turn may have an impact on service utilisation levels.

PMID: 26215122

Learning manipulation

J Manipulative Physiol Ther. 2015 Jul 24. pii: S0161-4754(15)00076-7. doi: 10.1016/j.jmpt.2015.04.004.

Inertial Sensors as Real-Time Feedback Improve Learning Posterior-Anterior Thoracic Manipulation: A Randomized Controlled Trial.

Cuesta-Vargas AI¹, González-Sánchez M², Lenfant Y³.
Author information

Abstract

OBJECTIVE:

The purpose of this study was to analyze the effect of real-time feedback on the learning process for posterior-anterior thoracic manipulation (PATM) comparing 2 undergraduate physiotherapy student groups.

METHODS:

The study design was a randomized controlled trial in an educational setting. Sixty-one undergraduate physiotherapy students were divided randomly into 2 groups, G₁ (n = 31; group without feedback in real time) and G₂ (n = 30; group with real-time feedback) participated in this randomized controlled trial. Two groups of physiotherapy students learned PATM, one using a traditional method and the other using real-time feedback (inertial sensor). Measures were obtained preintervention and postintervention. Intragroup preintervention and postintervention and intergroup postintervention scores were calculated. An analysis of the measures' stability was developed through an interclass correlation index. Time, displacement and velocity, and improvement (only between groups) to reach maximum peak and to reach minimum peak from maximum peak, total manipulation time, and stability of all outcome measures were the outcome measures.

RESULTS:

Statistically significant differences were found in all variables analyzed (intragroup and intergroup) in favor of G₂. The values of interclass correlation ranged from 0.627 to 0.706 (G₁) and between 0.881 and 0.997 (G₂).

CONCLUSIONS:

This study found that the learning process for PATM is facilitated when the student receives real-time feedback.

KEYWORDS: Feedback; Kinematics; Learning; Musculoskeletal Manipulations; Spinal Manipulation; Spine; Teaching; Thoracic Vertebrae

PMID: 26215901

Mulligan and LBP

J Manipulative Physiol Ther. 2015 Jul 24. pii: S0161-4754(15)00080-9. doi: 10.1016/j.jmpt.2015.06.013.

Short-Term Effects of Mulligan Mobilization With Movement on Pain, Disability, and Kinematic Spinal Movements in Patients With Nonspecific Low Back Pain: A Randomized Placebo-Controlled Trial.

Hidalgo B¹, Pitance L², Hall T³, Detrembleur C⁴, Nielens H⁴.
Author information

Abstract

OBJECTIVE:

The purpose of this clinical study was to compare the immediate- and short-term effects of lumbar Mulligan sustained natural apophyseal glides (SNAGs) on patients with nonspecific low back pain with respect to 2 new kinematic algorithms (KA) for range of motion and speed as well as pain, functional disability, and kinesiophobia.

METHODS:

This was a 2-armed randomized placebo-controlled trial. Subjects, blinded to allocation, were randomized to either a real-SNAG group (n = 16) or a sham-SNAG group (n = 16). All patients were treated during a single session of real/sham SNAG (3 × 6 repetitions) to the lumbar spine from a sitting position in a flexion direction. Two new KA from a validated kinematic spine model were used and recorded with an optoelectronic device. Pain at rest and during flexion as well as functional disability and kinesiophobia was recorded by self-reported measures. These outcomes were blindly evaluated before, after treatment, and at 2-week follow-up in both groups.

RESULTS:

Of 6 variables, 4 demonstrated significant improvement with moderate-to-large effect sizes (ES) in favor of the real-SNAG group: KA-R (P = .014, between-groups ES Cliff δ = -.52), pain at rest and during flexion (visual analog scale, P < .001; ES = -.73/-.75), and functional-disability (Oswestry Disability Index, P = .003 and ES = -.61). Kinesiophobia was not considered to be significant (Tampa scale, P = .03) but presented moderate ES = -.46. Kinematic algorithms for speed was not significantly different between groups (P = .118) with a small ES = -.33. All 6 outcome measures were significantly different (P ≤ .008) during within-group analysis (before and after treatment) only in the real-SNAG group. No serious or moderate adverse events were reported.

CONCLUSION:

This study showed evidence that lumbar spine SNAGs had a short-term favorable effect on KA-R, pain, and function in patients with nonspecific low back pain.

KEYWORDS: Low Back Pain; Musculoskeletal Manipulations; Randomized Controlled Trial
PMID: 26215900

48 A. STM

Massage helps surgical pain

Orthop Nurs. 2015 Jul-Aug;34(4):227-34. doi: 10.1097/NOR.000000000000163.

Effect of a Brief Massage on Pain, Anxiety, and Satisfaction With Pain Management in Postoperative Orthopaedic Patients.

Miller J¹, Dunion A, Dunn N, Fitzmaurice C, Gamboa M, Myers S, Novak P, Poole J, Rice K, Riley C, Sandberg R, Taylor D, Gilmore L.

Author information

Abstract

BACKGROUND: The majority of massage therapy studies have evaluated 20- to 45-minute interventions in nonsurgical patients. Studies are needed to evaluate the effects of a brief massage intervention that would be more clinically feasible for bedside clinicians to administer as an adjunct to pharmacologic pain management in acutely ill surgical patients.

PURPOSE: To evaluate the impact of a brief massage intervention in conjunction with analgesic administration on pain, anxiety, and satisfaction with pain management in postoperative orthopaedic inpatients.

METHODS: A convenience sample of postoperative orthopaedic patients was studied during two therapeutic pain treatments with an oral analgesic medication. A pretest, posttest, randomized, controlled trial study design, with crossover of subjects, was used to evaluate the effect of a 5-minute hand and arm massage at the time of analgesic administration. Each patient received both treatments (analgesic administration alone [control]; analgesic administration with massage) during two sequential episodes of postoperative pain. Prior to administration of the analgesic medication, participants rated their level of pain and anxiety with valid and reliable tools. Immediately after analgesic administration, a study investigator provided the first, randomly assigned treatment. Pain and anxiety were rated by the participant 5 and 45 minutes after medication administration. Satisfaction with pain management was also rated at the 45-minute time point. Study procedures were repeated for the participant's next requirement for analgesic medication, with the participant receiving the other randomly assigned treatment. Analysis of variance was used to determine whether pain, anxiety, and/or satisfaction with pain management differed between the two treatment groups and/or if treatment order was a significant factor. The level of significance for all tests was set at $p < .05$.

RESULTS: Twenty-five postoperative patients were studied during two sequential episodes of pain, which required analgesic medication administration (N = 25 analgesic alone; N = 25 analgesic with massage). Patient ages ranged from 32 to 86 years (average \pm SD = 61.2 ± 11.5 years). Pain and anxiety scores after medication administration decreased in both groups, with no significant differences found between the analgesic alone or analgesic with massage treatments ($p > .05$). Patient satisfaction with pain management was higher for pain treatment with massage than medication only (F = 6.8, df = 46, $p = .012$).

CONCLUSION: The addition of a 5-minute massage treatment at the time of analgesic administration significantly increased patient satisfaction with pain management.

48 B. TRIGGER POINTS NEEDLING

Dry needling and LBP

RESEARCH REPORT

Baseline Examination Factors Associated With Clinical Improvement After Dry Needling in Individuals With Low Back Pain

Authors: Shane L. Koppenhaver, PT, PhD1, Michael J. Walker, PT, DSc2, Ryan W. Smith, DPT1, Jacquelynn M. Booker, DPT1, Isaac D. Walkup, DPT1, Jonathan Su, DPT1, Jeffrey J. Hebert, PhD, DC3, Timothy Flynn, PT, PhD2

Published: Journal of Orthopaedic & Sports Physical Therapy, 2015, Volume: 45 Issue: 8 Pages: 604-612 doi:10.2519/jospt.2015.5801

Study Design Quasi-experimental.

Objectives: To explore for associations between demographic, patient history, and physical examination variables and short-term improvement in self-reported disability following dry needling therapy performed on individuals with low back pain (LBP).

Background: Dry needling is an intervention used with increasing frequency in patients with LBP; however, the characteristics of patients who are most likely to respond are not known.

Methods: Seventy-two volunteers with mechanical LBP participated in the study. Potential prognostic factors were collected from baseline questionnaires, patient history, and physical examination tests. Treatment consisted of dry needling to the lumbar multifidus muscles bilaterally, administered during a single treatment session. Improvement was based on percent change on the Oswestry Disability Index at 1 week. The univariate and multivariate associations between 33 potential prognostic factors and improved disability were assessed with correlation coefficients and multivariate linear regression.

Results: Increased LBP with the multifidus lift test ($rpb = 0.31$, $P = .01$) or during passive hip flexion performed with the patient supine ($rpb = 0.23$, $P = .06$), as well as positive beliefs about acupuncture/dry needling ($\rho = 0.22$, $P = .07$), demonstrated univariate associations with Oswestry Disability Index improvement. Aggravation of LBP with standing ($rpb = -0.27$, $P = .03$), presence of leg pain ($rpb = -0.29$, $P = .02$), and any perception of hypermobility in the lumbar spine ($rpb = -0.21$, $P = .09$) were associated with less improvement. The multivariate model identified 2 predictors of improved disability with dry needling: pain with the multifidus lift test and no aggravation with standing ($R^2 = 0.16$, $P = .01$).

Conclusion: Increased LBP with the multifidus lift test was the strongest predictor of improved disability after dry needling, suggesting that the finding of pain during muscle contraction should be studied in future dry needling studies.

Level of Evidence Prognosis, level 1b. J Orthop Sports Phys Ther 2015;45(8):604–612. Epub 25 Jun 2015. doi:10.2519/jospt.2015.5801

Keyword: clinical prediction rule, lumbar spine, Oswestry, trigger point

52. EXERCISE

Importance of

Curr Sports Med Rep. 2015 Jul-Aug;14(4):313-9. doi: 10.1249/JSR.0000000000000168.

Is Exercise Really Medicine? An Evolutionary Perspective.

Lieberman DE¹.

Author information

Abstract

An evolutionary perspective helps evaluate the extent to which exercise is medicine and to explain the exercise paradox: why people tend to avoid exercise despite its benefits. Many lines of evidence indicate that humans evolved to be adapted for regular, moderate amounts of endurance physical activity into late age. However, because energy from food was limited, humans also were selected to avoid unnecessary exertion, and most anatomical and physiological systems evolved to require stimuli from physical activity to adjust capacity to demand. Consequently, selection never operated to cope with the long-term effects of chronic inactivity.

However, because all adaptations involve trade-offs, there is no evolutionary-determined dose or type of physical activity that will optimize health. Furthermore, because humans evolved to be active for play or necessity, efforts to promote exercise will require altering environments in ways that nudge or even compel people to be active and to make exercise fun.

PMID:26166056

53. CORE

Pilates and LBP

Effects of the Pilates method on variables related to functionality of a patient with traumatic spondylolisthesis at L4-L5: A case study

Laís Campos de Oliveira Carolina Andolpho Guedes Fabrício José Jassi Fábio Antônio Néia Martini

Introduction

Traumatic spondylolisthesis at L4-L5 is a rare complication in the spine, which impairs variables related to the functionality of the person affected.

Objective

To verify the effects of the Pilates method on strength and muscular resistance, flexibility, postural balance and level of pain in a patient with traumatic spondylolisthesis at L4-L5.

Methods

The following evaluations were performed pre and post-intervention: resistance of the flexor and extensor muscles of the trunk; isokinetic peak torque of the extensor and flexor muscles of the knee; hip and torso flexibility; static postural balance; and the visual analog scale of pain. The treatment consisted of three weekly sessions of Pilates, performed over 12 weeks.

Results

There was improvement in all the tests, except for one variable related to postural balance.

Conclusions

The Pilates method was effective for improving muscle strength and resistance, flexibility, balance and postural pain, in a patient with traumatic spondylolisthesis at L4-L5.

Keywords: Spondylolisthesis, Spinal Injuries, Physical Therapy Modalities

55. SCOLIOSIS

Radiographics

Spine (Phila Pa 1976). 2015 Aug 1;40(15):1206-12. doi: 10.1097/BRS.0000000000000927.

How Does the Supine MRI Correlate With Standing Radiographs of Different Curve Severity in Adolescent Idiopathic Scoliosis?

Shi B¹, Mao S, Wang Z, Lam TP, Yu FW, Ng BK, Chu WC, Zhu Z, Qiu Y, Cheng JC.
Author information

Abstract

STUDY DESIGN:

A retrospective study.

OBJECTIVE:

To study how the supine magnetic resonance image (MRI) correlates with standing radiographs of different curve severity in adolescent idiopathic scoliosis (AIS).

SUMMARY OF BACKGROUND DATA:

Linear correlation between Cobb angles measured on supine MRI and standing radiographs has been identified. However, the effects of different curve severity on the correlation have not been studied in depth.

METHODS:

Girls with AIS with standing radiographs and supine MRI were reviewed. From standing radiographs, all structural and nonstructural Cobb angles were measured. For those with simultaneous lateral radiographs, thoracic kyphosis (TK) and lumbar lordosis (LL) angles were measured. On supine MRI, the coronal Cobb angles, TK and LL were measured accordingly. The coronal Cobb angles were divided into 3 groups based on values measured on standing radiographs: mild group for Cobb angles less than 20°, moderate group for 20° to 40°, and severe group for more than 40°. Correlation was analyzed using scatter plot.

RESULTS:

Eighty patients with AIS with 122 coronal curves were reviewed. On standing radiographs, the coronal Cobb angles were $14.7^\circ \pm 3.2^\circ$, $28.2^\circ \pm 5.1^\circ$, and $54.9^\circ \pm 11.3^\circ$ for mild, moderate, and severe groups. On supine MRI, the Cobb angles averaged $10.1^\circ \pm 5.6^\circ$, $20.0^\circ \pm 6.3^\circ$, and $49.4^\circ \pm 12.3^\circ$ for each group, respectively. TK were $16.3 \pm 9.1^\circ$ and $11.8 \pm 6.1^\circ$ for radiographs and MRI ($P < 0.001$), whereas the LL averaged $45.5 \pm 12.2^\circ$ and $39.5 \pm 10.5^\circ$ for radiographs and MRI ($P < 0.001$). Cobb angles measured on standing radiographs and supine MRI were linearly correlated with the adjusted R being 0.0627, 0.2118, and 0.7999 for the mild, moderate, and severe groups.

CONCLUSION:

Cobb angles measured on supine MRI were linearly correlated with Cobb angles measured on standing radiographs and the correlation was more reliable in those with Cobb angles more than 40°. Therefore, the supine MRI could serve as a reliable alternative to standing radiographs in the assessment of Cobb angles more than 40° in AIS.

LEVEL OF EVIDENCE:

3.

PMID:26222662

56. ATHLETICS**Back problems in alpine skiers**

Am J Sports Med. 2015 Aug;43(8):2042-8. doi: 10.1177/0363546515588178. Epub 2015 Jun 24.

Potential Mechanisms Leading to Overuse Injuries of the Back in Alpine Ski Racing: A Descriptive Biomechanical Study.

Spörri J¹, Kröll J², Haid C³, Fasel B⁴, Müller E².

Author information

Abstract**BACKGROUND:**

Overuse injuries of the back are a common complaint among top athletes and of competitive alpine skiers in particular. However, there is limited understanding about the sport-specific causes of these injuries that is essential for their prevention.

PURPOSE/HYPOTHESIS:

This study was undertaken to describe the sport-specific, overall trunk kinematics and skiers' loading during giant slalom turns and to assess the plausibility of the hypothesis that a combination of frontal bending, lateral bending, and/or torsion in the loaded trunk might be a potential mechanism leading to overuse injuries of the back in alpine ski racing.

STUDY DESIGN:

Descriptive laboratory study.

METHODS:

Eight European Cup-level athletes performed giant slalom runs with 2 different pairs of skis (varying in length, width, and sidecut). They were analyzed with respect to selected kinematic variables related to spinal disc loading. The overall trunk movement components (frontal bending, lateral bending, and torsion) were measured using 2 inertial measurement units fixed on the sacrum and sternum. Total ground-reaction forces were measured by pressure insoles.

RESULTS:

During the turn phase in which the total ground-reaction forces were the greatest (up to 2.89 times the body weight), the highest average values of frontal bending (38.7°), lateral bending (14.7°), and torsion (7.7°) in the trunk occurred. Similar magnitudes were observed when skiing on longer, giant slalom skis with less width and sidecut.

CONCLUSION:

The typical loading patterns of the back in alpine ski racing include a combined occurrence of frontal bending, lateral bending, and torsion in the loaded trunk. Because these factors are known to be related to high spinal disc loading, they may be considered important components of mechanisms leading to overuse injuries of the back in alpine ski racing.

CLINICAL RELEVANCE:

Prevention measures should aim to control and/or reduce the magnitude of frontal bending, lateral bending, and torsion in the trunk, as well as the peak loads, while skiing.

KEYWORDS: athletes; back pain; injury prevention; overuse injuries; skiing; spine

PMID: 26109612

Moderate exercise improved mortality by 22%

Br J Sports Med. 2015 Aug 3. pii: bjsports-2014-094306. doi: 10.1136/bjsports-2014-094306.

Even a low-dose of moderate-to-vigorous physical activity reduces mortality by 22% in adults aged ≥ 60 years: a systematic review and meta-analysis.

Hupin D¹, Roche F², Gremeaux V³, Chatard JC⁴, Oriol M⁵, Gaspoz JM⁶, Barthélémy JC², Edouard P⁴.

Author information

Abstract

BACKGROUND:

The health benefits of 150 min a week of moderate-to-vigorous-intensity physical activity (MVPA) in older adults, as currently recommended, are well established, but the suggested dose in older adults is often not reached.

OBJECTIVES:

We aimed to determine whether a lower dose of MVPA was effective in reducing mortality, in participants older than 60 years.

METHODS:

The PubMed and Embase databases were searched from inception to February 2015. Only prospective cohorts were included. Risk ratios of death were established into four doses based on weekly Metabolic Equivalent of Task (MET)-minutes, defined as inactive (reference), low (1-499), medium (500-999) or high (≥ 1000). Data were pooled and analysed through a random effects model using comprehensive meta-analysis software.

RESULTS:

Of the 835 reports screened, nine cohort studies remained, totalling 122 417 participants, with a mean follow-up of 9.8 ± 2.7 years and 18 122 reported deaths (14.8%). A low dose of MVPA resulted in a 22% reduction in mortality risk (RR=0.78 (95% CI 0.71 to 0.87) $p < 0.0001$). MVPA beyond this threshold brought further benefits, reaching a 28% reduction in all-cause mortality in older adults who followed the current recommendations (RR=0.72 (95% CI 0.65 to 0.80) $p < 0.0001$) and a 35% reduction beyond 1000 MET-min per week (RR=0.65 (95% CI 0.61 to 0.70) $p < 0.0001$).

CONCLUSIONS:

A dose of MVPA below current recommendations reduced mortality by 22% in older adults. A further increase in physical activity dose improved these benefits in a linear fashion. Older adults should be encouraged to include even low doses of MVPA in their daily lives.

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KEYWORDS: Elderly people; Health promotion; Meta-analysis; Physical activity; Public health
PMID: 26238869

Hydration and exercise

Br J Sports Med. 2015 Aug;49(16):1077-83. doi: 10.1136/bjsports-2013-092417. Epub 2013 Sep 20.

Current hydration guidelines are erroneous: dehydration does not impair exercise performance in the heat.

Wall BA¹, Watson G², Peiffer JJ³, Abbiss CR⁴, Siegel R⁵, Laursen PB⁵.
Author information

Abstract

BACKGROUND:

Laboratory studies that support the hydration guidelines of leading governing bodies have shown that dehydration to only -2% of body mass can lead to increase in body temperature and heart rate during exercise, and decrease in performance. These studies, however, have been conducted in relatively windless environments (ie, wind speed <12.9 km/h), without participants being blinded to their hydration status.

AIM:

To investigate the effect of blinded hydration status on cycling time-trial performance in the heat with ecologically valid facing wind speed conditions.

METHODS:

During three experimental trials, 10 cyclists were dehydrated to -3% body mass by performing 2 h of submaximal exercise (walking and cycling) in the heat, before being reinfused with saline to replace 100%, 33% or 0% of fluid losses, leaving them 0%, -2% or -3% hypohydrated, respectively. Participants then completed a 25 km time trial in the heat (33°C, 40% relative humidity; wind speed 32 km/h) during which their starting hydration status was maintained by infusing saline at a rate equal to their sweat rate. The treatment was participant-blinded and the order was randomised. Completion time, power output, heart rate, rectal temperature and perceptual variables were measured.

RESULTS:

While rectal temperature was higher beyond 17 km of the time trial in the -3% vs 0% conditions (38.9±0.3°C vs 38.6±0.3°C; p<0.05), no other differences between trials were shown.

CONCLUSION:

When well-trained cyclists performed a 25 km cycling time trial under ecologically valid conditions and were blinded to their hydration status, performance, physiological and perceptual variables were not different between trials. These data do not support the residing basis behind many of the current hydration guidelines.

KEYWORDS: Cycling; Dehydration; Endurance; Fluid Balance; Thermoregulation

PMID: 24055782

Proper carbs and proteins

Curr Sports Med Rep. 2015 Jul-Aug;14(4):294-300. doi: 10.1249/JSR.0000000000000180.

Nutrition to Support Recovery from Endurance Exercise: Optimal Carbohydrate and Protein Replacement.

Moore DR¹.

Author information

Abstract

Proper nutrition is vital to optimize recovery after endurance exercise. Dietary carbohydrate and protein provide the requisite substrates to enhance glycogen resynthesis and remodel skeletal muscle proteins, respectively, both of which would be important to rapidly restore muscle function and performance. With short recovery windows (<8 h), coingestion of these macronutrients immediately after exercise can synergistically enhance glycogen resynthesis and rapidly stimulate muscle protein synthesis (MPS), the latter of which is augmented by protein ingestion alone. Consuming frequent meals throughout the day containing adequate carbohydrate (according to training intensity) and protein (approximately 0.25 g·kg) will help fully restore muscle glycogen and sustain maximal daily rates of MPS over prolonged (8 to 24 h) recovery periods.

Given the complementarity of these macronutrients, endurance athletes aiming to maximize postexercise recovery to maintain or enhance subsequent exercise performance should target a nutrition strategy that features optimal ingestion of both carbohydrate and protein.

PMID: 26166054

58. RUNNING**Gait retraining****Gait Retraining for Injured and Healthy Runners Using Augmented Feedback: A Systematic Literature Review**

Authors: Cristine Agresta, PT, PhD1, Allison Brown, PT, PhD2

Published: Journal of Orthopaedic & Sports Physical Therapy,
2015, Volume: 45 Issue: 8 Pages: 576-584 doi:10.2519/jospt.2015.5823

References

Study Design Systematic literature review.

Objectives: This review sought to determine the efficacy of real-time visual and/or auditory feedback for modifying kinematics and kinetics during running gait.

Background: Real-time visual and auditory feedback has gained popularity in the clinical and research settings. Rehabilitation time and injury prevention may be improved when clinicians are able to modify running mechanics in a patient population.

Methods: A thorough search of PubMed, CINAHL, and Web of Science from 1989 to January 2015 was performed. The search sought articles that examined real-time visual or auditory feedback for the purposes of modifying kinematics or kinetics in injured or healthy runners. Study design and methodological quality were rated using a 20-point scale.

Results: Ten studies were identified for inclusion in the review, 2 of high and 8 of moderate methodological quality. There was a consensus in the literature that the use of real-time feedback is effective in reducing variables related to ground reaction forces, as well as in positively modifying previously identified risky lower extremity kinematic movement patterns in healthy runners and those with patellofemoral pain and chronic exertional compartment syndrome. No one method of feedback was identified as being superior. Mirror and 2-dimensional video feedback were identified as potential methods for running-gait modification in a clinical setting.

Conclusion: In conjunction with traditional therapeutic interventions, real-time auditory and visual feedback should be considered for treating injured runners or addressing potentially injurious running mechanics in a healthy population. J Orthop Sports Phys Ther 2015;45(8):576–584. doi:10.2519/jospt.2015.5823

Keyword: auditory, biomechanics, injury, mirror, patellofemoral pain, visual

59. PAIN**Breast feeding and holding in pain response**

J Perinat Neonatal Nurs. 2015 Jul-Sep;29(3):248-54. doi: 10.1097/JPN.000000000000121.

Effect of Breast-Feeding and Maternal Holding in Relieving Painful Responses in Full-Term Neonates: A Randomized Clinical Trial.

Obeidat HM¹, Shuriquie MA.
Author information

Abstract

This randomized clinical trial was conducted to determine the efficacy of breast-feeding with maternal holding as compared with maternal holding without breast-feeding in relieving painful responses during heel lance blood drawing in full-term neonates. A convenience sample of 128 full-term newborn infants, in their fourth to sixth days of life, undergoing heel lance blood drawing for screening of hypothyroidism were included in the study. The neonates were randomly assigned into 2 equivalent groups. During heel lance blood drawing for infants, they either breast-fed with maternal holding (group I) or were held in their mother's lap without breast-feeding (group II). The painful responses were assessed simultaneously by 2 neonatal nurses blinded to the purpose of the study. Outcome measures for painful responses of the full-term neonates were evaluated with the Premature Infant Pain Profile scale. Independent t test showed significant differences in Premature Infant Pain Profile scale scores among the 2 groups ($t = -8.447$, $P = .000$). Pain scores were significantly lower among infants who were breast-fed in addition to maternal holding. Evidence from this study indicates that the combination of breast-feeding with maternal holding reduces painful responses of full-term infants during heel lance blood drawing.

PMID: 26218818

Acceptance and commitment therapy

Int J Geriatr Psychiatry. 2015 Jul 28. doi: 10.1002/gps.4330.

Age moderates response to acceptance and commitment therapy vs. cognitive behavioral therapy for chronic pain.

Wetherell JL^{1,2}, Petkus AJ³, Alonso-Fernandez M⁴, Bower ES⁵, Steiner AR¹, Afari N^{1,2}.
Author information

Abstract

OBJECTIVE:

The purpose of this study was to examine age differences in response to different forms of psychotherapy for chronic pain.

METHODS:

We performed a secondary analysis of 114 adults (ages 18-89 years) with a variety of chronic, nonmalignant pain conditions randomly assigned to 8 weeks of group-administered acceptance and commitment therapy (ACT) or cognitive behavioral therapy (CBT). Treatment response was defined as a drop of at least three points on the Brief Pain Inventory-interference subscale.

RESULTS:

Older adults were more likely to respond to ACT, and younger adults to CBT, both immediately following treatment and at 6-month follow-up. There were no significant differences in credibility, expectations of positive outcome, attrition, or satisfaction, although there was a trend for the youngest adults (ages 18-45 years) to complete fewer sessions.

CONCLUSIONS:

These data suggest that ACT may be an effective and acceptable treatment for chronic pain in older adults. Copyright © 2015 John Wiley & Sons, Ltd.

KEYWORDS: chronic pain; mindfulness; psychotherapy

PMID: 26216753

62 A. NUTRITION/VITAMINS

FODMAPs and IBS

Diet low in fodmaps reduces symptoms of irritable bowel syndrome as well as traditional dietary advice: a randomized controlled trial

Gastroenterology, 08/07/2015 Böhn L, et al.

The authors compared the effects a diet low in fermentable oligo-, di-, monosaccharides and polyols (FODMAPs) with traditional dietary advice in a randomized, controlled trial of patients with irritable bowel syndrome (IBS). A diet low in FODMAPs reduces symptoms of IBS symptoms as well as traditional IBS dietary advice. Combining elements from these 2 strategies might further reduce symptoms of IBS.

Methods

- The authors performed a multi-center, parallel, single-blind study of 75 patients who met the Rome III criteria for IBS, enrolled at gastroenterology outpatient clinics in Sweden.
- Subjects were randomly assigned to groups that ate specific diets for 4 weeks: a diet low in FODMAPs (n=38) or a diet frequently recommended for patients with IBS (a regular meal pattern; avoidance of large meals; and reduced intake of fat, insoluble fibers, caffeine and gas-producing foods such as beans, cabbage, and onions), with greater emphasis on how and when to eat rather than on what foods to ingest (n=37).
- Symptom severity was assessed using the IBS severity scoring system, and patients completed a 4 day food diary before and at the end of the intervention.

Results

- A total of 67 patients completed the dietary intervention (33 completed the diet low in FODMAPs, 34 completed the traditional IBS diet).
- The severity of IBS symptoms was reduced in both groups during the intervention ($P < .0001$ in both groups, before vs at the end of the 4 week diet), without a significant difference between the groups ($P = .62$).
- At the end of the 4 week diet period, 19 patients (50%) in the low FODMAP group had reductions in IBS severity scores ≥ 50 , compared with baseline, vs 17 patients (46%) in the traditional IBS diet group ($P = .72$).
- Food diaries demonstrated good adherence to the dietary advice.