

ABSTRACTS

Table of Contents	
PELVIC GIRDLE	2
PELVIC ORGANS	8
CERVICAL SPINE	21
CRANIUM/TMJ	24
HEADACHES	26
SHOULDER GIRDLE	30
GLENOHUMERAL/SHOULDER	31
ELBOW	38
HIP	39
FOOT AND ANKLE	53
MANUAL THERAPY/STRETCHING/MUSCLES STM	57
ATHLETICS	63
PAIN	66
COMPLEX REGIONAL PAIN	69

2. LBP

Discordance between patient and MD

Ann Rheum Dis. 2015 Oct 22. pii: annrheumdis-2015-208251. doi: 10.1136/annrheumdis-2015-208251.

Patient-physician discordance in global assessment in early spondyloarthritis and its change over time: the DESIR cohort.

Desthieux C¹, Molto A², Granger B³, Saraux A⁴, Fautrel B¹, Gossec L¹.

Author information

Abstract

OBJECTIVE:

To assess patient-physician discordance in global assessment of disease activity in early axial spondyloarthritis (axSpA) over time and determinants of discordance.

METHODS:

DESIR (Devenir des Spondyloarthropathies Indifférenciées Récentes) is a French, multicentre, longitudinal cohort of patients with early inflammatory back pain suggestive of axSpA. Patient global assessment (PGA) and physician global assessment (PhGA) were rated with a 0-10 numerical rating scale, every 6 months during 2 years then at 3 years. Discordance was defined by the absolute difference $|PGA-PhGA| \geq 3$ (range 0-10) and was analysed at each visit. Determinants of (PGA-PhGA) were assessed at the visit level by a generalised linear mixed model.

RESULTS:

A total of 702 patients were analysed at baseline (401 with complete data over 3 years): mean age 33.8 ± 8.6 years, 379 (54.0%) female, mean symptom duration 18.1 ± 10.5 months. Mean PGA values were always higher than mean PhGA values with a mean absolute difference of 1.8 points. At baseline, 202 (28.8%) patients had discordance mainly by $PGA > PhGA$; over 3 years the frequency of discordance was stable (range 25.5-28.8%). Discordance was not stable at the patient level, 118 (29.4%) patients were discordant once and 88 (22.0%) twice, and only 92 (22.9%) more than twice. Determinants of (PGA-PhGA) were spine pain ($\beta=0.24$, $p<0.001$) and fatigue ($\beta=0.13$, $p<0.001$).

CONCLUSIONS:

Discordance concerned a quarter of patients with early axSpA. Over 3 years of follow-up, discordance did not decrease (no 'reference shift'). Discordance was not a stable trait, indicating discordance is not a patient characteristic.

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KEYWORDS: Disease Activity; Epidemiology; Spondyloarthritis
PMID:26493818

Depression and LBP

Pain Med. 2015 Nov 5. doi: 10.1111/pme.12935.

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

Carley JA¹, Karp JF^{1,2,3}, Gentili A^{4,5}, Marcum ZA⁶, Reid MC⁷, Rodriguez E⁸, Rossi MI^{8,9,10,11}, Shega J¹², Thielke S^{13,14}, Weiner DK^{1,2,3,10,11}.

Author information

Abstract

OBJECTIVE:

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

METHODS:

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

RESULTS:

We present an algorithm and supportive materials to help guide the care of older adults with depression, an important contributor to CLBP. The case illustrates an example of a complex clinical presentation in which depression was an important contributor to symptoms and disability in an older adult with CLBP.

CONCLUSIONS:

Depression is common and should be evaluated routinely in the older adult with CLBP so that appropriately targeted treatments can be planned and implemented.

Wiley Periodicals, Inc.

KEYWORDS: Aged; Assessment; Chronic Pain; Depression; Elderly; Low Back Pain; Primary Care

PMID: 26539754

LBP and physical activity

Arch Phys Med Rehabil. 2015 Oct 12. pii: S0003-9993(15)01241-1. doi: 10.1016/j.apmr.2015.09.020.

Putting physical activity whilst experiencing low back pain in context: balancing the risks and benefits.

Darlow B¹, Perry M², Dean S³, Mathieson F⁴, Baxter GD³, Dowell A⁵.
Author information

Abstract

OBJECTIVE:

To analyse attitudes and beliefs about movement and physical activity in people with low back pain (LBP) and compare these beliefs between people with acute and chronic LBP.

DESIGN:

Qualitative inductive analysis of data collected via face-to-face semi-structured interviews.

SETTING:

Twelve participants with acute LBP (<6 weeks) and eleven participants with chronic LBP (>3 months) were purposively recruited from one region of New Zealand. Interviews were audio-recorded and transcribed verbatim.

INTERVENTIONS:

Not-applicable.

MAIN OUTCOME MEASURE:

Themes which emerged from participant interview transcripts using analysis based on Interpretative Description.

RESULTS:

Participants with acute and chronic LBP made judgements about physical activity and rest using the same conceptual model. Concerns about creating more pain, tissue damage, or impairment influenced the physical activity judgements of most participants with acute and chronic LBP. These perceived risks were balanced against the perceived benefits, the most important of which were psychological or social rather than physical. Judgements made by those with acute and chronic LBP were context dependent and influenced by the nature and duration of pain, the type of physical activity, the importance of the activity, and the participant's previous experience. Participants with acute pain who had not experienced back pain previously often expressed more uncertainty whereas those with chronic LBP appeared to have developed cognitive rules which determined physical activity decisions.

CONCLUSIONS:

Exploring the perceived risks, benefits, and contextual factors which influence decisions about physical activity and rest may help clinicians to understand the behaviour of patients with acute and chronic LBP. Clinicians may best support their patients to engage in physical activity by providing an informed assessment of risks and explanation about the range of potential benefits.

KEYWORDS: Low back pain; health communication; health promotion; movement; qualitative research

PMID: 26471211

Changes in the brain of LBP sufferers

J Pain. 2015 Oct 14. pii: S1526-5900(15)00909-8. doi: 10.1016/j.jpain.2015.10.003.

Chronic back pain is associated with decreased prefrontal and anterior insular gray matter. Results from a population-based cohort study.

Fritz HC¹, McAuley JH², Wittfeld K³, Hegenscheid K⁴, Schmidt CO⁵, Langner S⁴, Lotze M⁶.
Author information

Abstract

Chronic back pain (CBP) is associated with circumscribed atrophy in gray matter (GM) predominantly localized in areas of the so called "pain matrix" and the prefrontal cortex (PFC). Previous studies applying voxel-based morphometry (VBM) for identifying structural brain alterations related to CBP have reported inconsistent results, are limited to small sample sizes and often did not control for medication. We therefore used VBM for high resolution magnetic resonance images to investigate the association of CBP and regional GM volume in 111 individuals with CBP und 432 pain free controls derived from the representative Study of Health in Pomerania (SHIP), while controlling for effects of medication. CBP was associated with decreased regional GM in the ventrolateral (VLPFC) and dorsolateral PFC (DLPFC), both the ventral and dorsal medial PFC (mPFC) and the anterior insula. Pain intensity showed a weak negative correlated with GM volume in the left DLPFC, VLPFC and ACC. The CBP sample showed alterations in regions commonly associated with pain processing and emotional demands. To our knowledge, this is the first VBM study reporting decreased regional GM volume in the mPFC in a CBP sample. However, we were unable to confirm alterations in regions other than the DLPFC and the insula.

PERSPECTIVE:

Previous studies reported inconsistent results for brain areas altered in chronic pain conditions that may be in part attributable to small sample sizes, medication use or emotional comorbidities. This study in a large and representative cohort helps to clarify these issues.

KEYWORDS: chronic back pain; gray matter volume; voxel-based morphometry
PMID: 26476265

Stenosis therapy

Man Ther. 2015 Oct 9. pii: S1356-689X(15)00190-3. doi: 10.1016/j.math.2015.09.016.

Application of classification based cognitive functional therapy for a patient with lumbar spinal stenosis: A case report.

Irfan M¹.

Author information

Abstract

This report describes the case of a 52 year old male administrative assistant presenting with symptomatic lumbar spinal stenosis (LSS). Despite patho-anatomical considerations, the patient's pain related functional behaviour, mal-adapted presentation, motor control strategies, incorrect belief system, and faulty cognition of associating disc healing with a lordotic posture adversely contributed to his presentation. With limited specific guidelines in the literature for this specific lumbar spine condition, the patient response during the assessment guided the intervention. Treatment that incorporated a cognitive functional therapy resulted in a successful outcome. The patient attended for twelve treatment sessions in three months and demonstrated improvement in overall function. By week 12, the Oswestry Disability Index (ODI) reduced from 68% to 19% and further reduced to 15% at three months following discharge. The patient's self-reported tolerance for standing improved from 10 min to 60 min and his self-reported tolerance of walking improved from 200 m to three kilometres. The effects were maintained three months post discharge. This case report supports the clinical utility of a patient-centred multidimensional classification system that utilised cognitive functional therapy in a patient with LSS.

KEYWORDS: Cognitive functional therapy; Lumbar spinal stenosis; Multidimensional classification system

PMID: 26476566

Comparison of daily symptoms**Persistence of pain in patients with chronic low back pain reported via weekly automated text messages over one year****Charlotte Leboeuf-Yde^{12*}, Rikke Krüger Jensen¹² and Niels Wedderkopp²³**BMC Musculoskeletal Disorders 2015, **16**:299 doi:10.1186/s12891-015-0754-4

Abstract

Background

A previous study has suggested that it is uncommon for patients with chronic bothersome low back pain (LBP), who consult the secondary health care sector, to report at least four consecutive weeks without such bothersome pain in 1 year. It is not yet known, however, how many days of the week they experience pain throughout the year.

Method

The current study analyzed data collected in two randomized clinical studies conducted in 2007–9 on patients with back pain (Study 1 and 2). Study participants were patients with LBP for more than 2 months, one group with MRI-defined Modic changes (Study 1) and the other without any pathological explanation for the pain (Study 2). In both studies, participants were followed over 1 year with weekly automated text messages (SMS-Track). Each week they reported the number of days they had experienced bothersome LBP (0–7 days). The number of weeks with 7 days of bothersome LBP was calculated for both study groups. As baseline and outcome characteristics were similar between the intervention and control groups in each study, the data from treatment and control groups in each study were analyzed together, regardless of treatment allocation and the results compared between the two study samples.

Results

The proportion of patients reporting bothersome LBP all days of the week ranged from 0 to 100 %, with the findings arranged in a U-shaped curve. The pain frequency patterns were remarkably similar for the two study samples. At one extreme, 31 % of participants reported 0–10 % of weeks with daily LBP. At the other extreme, 25 % of participants reported 91–100 % of weeks with daily LBP. The distribution between these values was also very similar for the two groups.

Conclusion

This study revealed there to be considerable variation in weekly persistence of symptoms during 1 year in patients from the secondary care sector with chronic LBP. The results range from bothersome pain each day of the week, every week of the year, to no weeks at all with 7 days of pain. Interestingly, this pattern is near-identical in the two study samples; those with non-specific LBP and those with LBP and Modic changes. This heterogeneous pain profile in patients with chronic LBP deserves to be further investigated.

Keywords: Non-specific low back pain; Bothersomeness; Modic changes; Persistent; Chronic; Text-messages

3. DISC

Recurrent herniations

Risk factors for the need of surgical treatment of a first recurrent lumbar disc herniation

Ratko Yurac , Juan J. Zamorano, Fernando Lira, Diego Valiente, Vicente Ballesteros, Alejandro Urzúa

European Spine Journal, 11/02/2015

Top of Form

Abstract

Purpose

A recurrent lumbar disc herniation (RLDH) is the most prevalent cause for new radicular pain after surgery for disc herniation-induced sciatica. Reported risk factors include age, gender and smoking, while its surgical treatment is associated to a higher rate of complications and costs. The purpose of this study is to identify factors that increase the risk of requiring surgical treatment for a first RLDH in workers' compensation patients.

Methods

Nested case-control: 109 patients operated for an RLDH (cases) between June 1st 1994 and May 31st 2011 (minimum follow-up 1 year) and 109 randomly selected patients operated for a first disc herniation with no recurrence during the study period (controls). Age, gender, smoking status, type of work and MRI characteristics of the index herniation were statistically evaluated as potential risk factors.

Results

Patient's age of less than 35 years ($p = 0.001$) and a subligamentous herniation ($p < 0.05$) at the time of the index surgery were identified as risk factors for requiring surgical treatment of a first RLDH. No statistical differences were observed between both groups regarding the other evaluated variables.

Conclusion

A subligamentous disc herniation and patient's age inferior to 35 years at the time of the first surgery are risk factors for requiring surgical treatment of a first RLDH among workers' compensation patients.

Keywords Recurrent lumbar disc herniation Surgery Risk factors

5. SURGERY

Fusion

J Spinal Disord Tech. 2015 Nov;28(9):E493-521. doi: 10.1097/BSD.000000000000124.

Long-term Treatment Effects of Lumbar Arthrodeses in Degenerative Disk Disease: A Systematic Review With Meta-Analysis.

Noshchenko A¹, Hoffecker L, Lindley EM, Burger EL, Cain CM, Patel VV.
Author information

Abstract

STUDY DESIGN:

Systematic review with meta-analysis.

OBJECTIVE:

To (1) evaluate long-term patient-centered clinical outcomes after lumbar arthrodesis with or without decompression for lumbar spondylosis (LS); and (2) compare these outcomes with those of alternative treatments, including nonsurgical and surgical which maintain mobility of the lumbar spine.

SUMMARY OF BACKGROUND DATA:

The effective treatment of LS is a complex clinical and economic concern for patients and health care providers.

METHODS:

SELECTION CRITERIA:

(1) randomized controlled clinical trials (RCTs) comparing treatment effects of lumbar arthrodesis with other interventions; (2) participants: skeletally mature adults with lumbar degenerative disk disease.

SEARCH METHODS:

Ovid MEDLINE, Embase, the Cochrane Library, and others. All years through February of 2013 were included. Patient-centered clinical outcomes before treatment, at 12, 24, or >24 months of follow-up, and rate of complications and additional surgical treatment were collected. A meta-analysis was performed to evaluate pooled treatment effects. The GRADE approach was applied to evaluate the level of evidence.

RESULTS:

The review included 38 studies of 5738 participants. All studies showed strong or at least moderate treatment effects of lumbar arthrodesis at 12, 24, and 48-72 months of follow-up. The level of evidence was moderate at 12 and 24 months, and low at 48-72 months. The pooled long-term treatment effect of lumbar arthrodesis exceeded those of: nonsurgical treatment ($P < 0.0001$) with a moderate level of evidence, and decompression without fusion ($P = 0.005$) with a low level of evidence. The treatment effect of lumbar arthrodesis showed a small inferiority versus arthroplasty at 12 and 24 months of follow-up ($P < 0.001$), but not after 24 months postoperative.

CONCLUSIONS:

This review indicates that surgical stabilization of the lumbar spine is an effective treatment for LS; in particular, for patients with severe chronic low back pain that has been resistant to ≥ 3 months of conservative therapy.

PMID: 24901878

7. PELVIC ORGANS/WOMAN'S HEALTH

Nonhormonal management

Menopause. 2015 Nov;22(11):1155-74. doi: 10.1097/GME.0000000000000546.

Nonhormonal management of menopause-associated vasomotor symptoms: 2015 position statement of The North American Menopause Society.

Abstract

OBJECTIVE:

To update and expand The North American Menopause Society's evidence-based position on nonhormonal management of menopause-associated vasomotor symptoms (VMS), previously a portion of the position statement on the management of VMS.

METHODS:

NAMS enlisted clinical and research experts in the field and a reference librarian to identify and review available evidence. Five different electronic search engines were used to cull relevant literature. Using the literature, experts created a document for final approval by the NAMS Board of Trustees.

RESULTS:

Nonhormonal management of VMS is an important consideration when hormone therapy is not an option, either because of medical contraindications or a woman's personal choice. Nonhormonal therapies include lifestyle changes, mind-body techniques, dietary management and supplements, prescription therapies, and others. The costs, time, and effort involved as well as adverse effects, lack of long-term studies, and potential interactions with medications all need to be carefully weighed against potential effectiveness during decision making.

CONCLUSIONS:

Clinicians need to be well informed about the level of evidence available for the wide array of nonhormonal management options currently available to midlife women to help prevent underuse of effective therapies or use of inappropriate or ineffective therapies. Recommended: Cognitive-behavioral therapy and, to a lesser extent, clinical hypnosis have been shown to be effective in reducing VMS. Paroxetine salt is the only nonhormonal medication approved by the US Food and Drug Administration for the management of VMS, although other selective serotonin reuptake/norepinephrine reuptake inhibitors, gabapentinoids, and clonidine show evidence of efficacy. Recommend with caution: Some therapies that may be beneficial for alleviating VMS are weight loss, mindfulness-based stress reduction, the S-equol derivatives of soy isoflavones, and stellate ganglion block, but additional studies of these therapies are warranted. Do not recommend at this time: There are negative, insufficient, or inconclusive data suggesting the following should not be recommended as proven therapies for managing VMS: cooling techniques, avoidance of triggers, exercise, yoga, paced respiration, relaxation, over-the-counter supplements and herbal therapies, acupuncture, calibration of neural oscillations, and chiropractic interventions. Incorporating the available evidence into clinical practice will help ensure that women receive evidence-based recommendations along with appropriate cautions for appropriate and timely management of VMS.

PMID:26382310

8. VISCERA

Fitness and cardiac survival

BMJ Open. 2015 Oct 22;5(10):e007772. doi: 10.1136/bmjopen-2015-007772.

Fitness predicts long-term survival after a cardiovascular event: a prospective cohort study.

Barons MJ¹, Turner S², Parsons N³, Griffiths F³, Bethell H⁴, Weich S³, Thorogood M³.
Author information

Abstract

OBJECTIVES:

To identify the role of fitness, fitness change, body mass index and other factors in predicting long-term (>5 years) survival in patients with coronary heart disease.

DESIGN:

Cohort study of patients with coronary heart disease recruited from 1 January 1993 to 31 December 2002, followed up to March 2011 (1 day to 18 years 3 months, mean 10.7 years).

SETTING:

A community-based National Health Service (NHS) cardiac rehabilitation programme serving the Basingstoke and Alton area in Hampshire, UK.

PARTICIPANTS:

An unselected cohort of NHS patients, 2167 men and 547 women aged 28-88 years, who attended the rehabilitation programme following acute myocardial infarction, an episode of angina or revascularisation, and had a baseline fitness test.

MAIN OUTCOME MEASURES:

Cardiovascular mortality and all-cause mortality.

RESULTS:

A high level of fitness ($VO_2 \geq 22$ mL/kg/min for men, $VO_2 \geq 19$ mL/kg/min for women) at completion of the programme was associated with decreased all-cause death, as was a prescription for statins or aspirin, and female gender. Increase in all-cause mortality was associated with higher age and ACE inhibitors prescription. Higher risk of cardiovascular mortality was associated with increasing age, prescriptions for ACE inhibitor, and diagnosis of myocardial infarction or angina as compared with the other diagnoses.

CONCLUSIONS:

Prior fitness and fitness improvement are strong predictors of long-term survival in patients who have experienced a cardiac event or procedure. Some secondary prevention medications make a significant contribution to reducing all-cause mortality and cardiovascular mortality in these patients. This study supports public health messages promoting fitness for life.

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PMID: 26493455

IBS and control

The combination of oligo- and polysaccharides and reticulated protein for the control of symptoms in patients with irritable bowel syndrome: Results of a randomised, placebo-controlled, double-blind, parallel group, multicentre clinical trial

United European Gastroenterology Journal, 11/06/2015 Alexea O, et al.

In the present study, the authors evaluate a protein preparation containing these components in comparison with placebo in adult patients with diarrhoea-predominant irritable bowel syndrome (IBS). Treatment with oligo- and polysaccharides and reticulated protein is safe, improving IBS symptoms and quality of life of patients with diarrhoea-predominant IBS.

Methods

- In a randomised, placebo-controlled, double-blind, parallel group, multicentre clinical trial, patients were randomly assigned to receive the combination of oligo- and polysaccharides and reticulated protein and placebo (four oral tablets/day for 56 days).
- Demographic, clinical and quality of life characteristics and presence and intensity of abdominal pain and flatulence (seven-point Likert scale) were assessed at three study visits (baseline and at 28 and 56 days).
- Stool emissions were recorded on the diary card using the seven-point Bristol Stool Scale.

Results

- A total of 128 patients were randomised to receive either tablets containing the combination (n=63) or placebo (n=65).
- Treatment with oligo- and polysaccharides and reticulated protein was safe and well tolerated.
- A significant improvement in symptoms across the study was observed in patients treated with oligo- and polysaccharides and reticulated protein between visit 2 and visit 3 in abdominal pain (p=0.0167) and flatulence (p=0.0373).
- The authors also detected a statistically significant increase in the quality of life of patients receiving the active treatment from baseline to visit 3 (p<0.0001).

Coeliac disease

Dig Liver Dis. 2015 Oct 9. pii: S1590-8658(15)00629-5. doi: 10.1016/j.dld.2015.09.018.

The clinical presentation of coeliac disease in 1030 Swedish children: Changing features over the past four decades.

Tapsas D¹, Hollén E², Stenhammar L³, Fälth-Magnusson K⁴.

Author information

Abstract

BACKGROUND:

The features of paediatric coeliac disease have changed in recent decades. We hypothesised that the age at diagnosis might continue to increase, whereas the severity of symptoms should decrease.

METHODS:

In the present study, filed data on 1030 paediatric patients diagnosed with coeliac disease between 1973 and 2013 were analysed. The information available covered 99.8% of small bowel biopsies and included information on sex, age and clinical symptoms.

RESULTS:

The age at diagnosis increased significantly, from a mean of 2.2 years during the first 10 years to 8.2 years in recent years. The proportion of children with severe symptoms declined from 92.8% to 78%, as did the proportion of biopsies characterised by severe pathology. In recent years, the monosymptomatic form of coeliac disease has been more common, and the number of patients detected at screening has increased. The frequency of patients with gastrointestinal symptoms, extra-intestinal symptoms, and failure to thrive and/or short stature at presentation decreased.

CONCLUSIONS:

The mean age of newly diagnosed patients has increased over the last 15 years. Currently, coeliac disease shows a less severe picture in terms of symptoms and intestinal pathology. Younger children suffer primarily from gastrointestinal symptoms and growth failure, and adolescents from extra-intestinal manifestations.

KEYWORDS: Coeliac disease onset; Disease severity; Long-term follow-up

PMID:26520057

IBS and environment

World J Gastroenterol. 2015 Oct 28;21(40):11371-8. doi: 10.3748/wjg.v21.i40.11371.

Role of environmental pollution in irritable bowel syndrome.

Marynowski M¹, Likońska A¹, Zatorski H¹, Fichna J¹.

Author information

Abstract

Irritable bowel syndrome (IBS), with the prevalence of 10%-20 % of the population has become an emerging problem worldwide. IBS is a functional gastrointestinal (GI) disorder characterized by abdominal pain or discomfort and altered bowel habits. The etiology of IBS contains genetic, psychological, and immunological factors, and has not been fully elucidated; of note, recent studies also point at environmental pollution and its role in the development of functional GI diseases. In this review we focus on several environmental factors, such as bacterial contamination, air pollution, radiation and even stress as potential triggers of IBS. We discuss associated disturbances in homeostasis, such as changes in intestinal microbiome and related pathophysiological mechanisms. Based on the effect of environmental factors on the GI tract, we also propose novel targets in IBS treatment.

KEYWORDS: Air pollution; Environmental pollution; Irritable bowel syndrome; Post infectious irritable bowel syndrome; Stress

PMID:26523104

IBS management

World J Gastroenterol. 2015 Oct 28;21(40):11439-49. doi: 10.3748/wjg.v21.i40.11439.

Aspects of the non-pharmacological treatment of irritable bowel syndrome.

Eriksson EM¹, Andrén KI¹, Kurlberg GK¹, Eriksson HT¹.

Author information

Abstract

Irritable bowel syndrome (IBS) is one of the most commonly diagnosed gastrointestinal conditions. It represents a significant healthcare burden and remains a clinical challenge. Over the years IBS has been described from a variety of different perspectives; from a strict illness of the gastrointestinal tract (medical model) to a more complex multi-symptomatic disorder of the brain-gut axis (biopsychosocial/psychosomatic model). In this article we present aspects of the pathophysiology and the non-pharmacological treatment of IBS based on current knowledge. Effects of conditioned stress and/or traumatic influences on the emotional system (top-down) as well as effects on the intestine through stressors, infection, inflammation, food and dysbiosis (bottom-up) can affect brain-gut communication and result in dysregulation of the autonomic nervous system (ANS), playing an important role in the pathophysiology of IBS. Conditioned stress together with dysregulation of the autonomic nervous system and the emotional system may involve reactions in which the distress inside the body is not recognized due to low body awareness. This may explain why patients have difficulty identifying their symptoms despite dysfunction in muscle tension, movement patterns, and posture and biochemical functions in addition to gastrointestinal symptoms. IBS shares many features with other idiopathic conditions, such as fibromyalgia, chronic fatigue syndrome and somatoform disorders. The key to effective treatment is a thorough examination, including a gastroenterological examination to exclude other diseases along with an assessment of body awareness by a body-mind therapist. The literature suggests that early interdisciplinary diagnostic co-operation between gastroenterologists and body-mind therapists is necessary. Re-establishing balance in the ANS is an important component of IBS treatment. This article discusses the current knowledge of body-mind treatment, addressing the topic from a practical point of view.

KEYWORDS: Assessment; Body awareness therapy; Body-mind; Hypnotherapy; Irritable bowel syndrome; Pathophysiology; Psychosomatics; Stress; Treatment

PMID: 26523108

Small intestine injury due to NSAID'S and Cox 2 inhibitors**Proton pump inhibitors exacerbate NSAID-induced small bowel injury: A prospective, double-blind, randomized trial**

Emma Washio, Motohiro Esaki, M.D., Yuji Maehata, M.D., Masashi Miyazaki, M.D., Hiroyuki Kobayashi, M.D., Hideki Ishikawa, M.D., Takanari Kitazono, M.D., Takayuki Matsumoto, M.D.

Abstract**Background & Aims**

Some studies have reported a high incidence of small bowel injuries in 60%–80% of subjects who take non-selective non-steroidal anti-inflammatory drugs (NSAIDs) and PPIs simultaneously. We performed a randomized, double-blind, controlled study to determine whether proton pump inhibitors (PPIs) exacerbate NSAID-induced small bowel injury.

Methods

Fifty-seven healthy subjects were randomly assigned groups given the NSAID celecoxib (200 mg, twice daily) plus placebo for 2 weeks (COX-2 SI group) or celecoxib plus the PPI rabeprazole (20 mg, once daily) for 2 weeks (COX-2 SI+PPI group). The study was performed October 2012 to September 2013 at a tertiary medical center in Japan. All subjects were evaluated by capsule endoscopy at the start of the study and then after 2 weeks administration of the test articles. The incidence rates and the numbers of small bowel injuries (ulcers and erosions) that were observed under capsule endoscopy were compared between groups. The primary endpoint was the incidence of mucosal injuries at the second capsule endoscopy examination.

Results

The overall incidence of small bowel injury was significantly higher in the COX-2 SI+PPI group (12 of 27 subjects, 44.4%) than in the COX-2 SI group (5 of 30 subjects, 16.7%, $P = .04$). The COX-2 SI+PPI group had a significantly increased risk of small bowel injury in comparison to the COX-2 SI group (relative risk 2.67; 95% confidence interval, 1.08-6.58). The number of erosions in each subject was greater in the COX-2 SI+PPI group than in the COX-2 SI group ($P = .02$). The number of ulcers didn't differ between the two groups. The incidence of mucosal injury in the jejunum was significantly higher in the COX-2 SI+PPI group than in the COX-2 SI group (26% vs. 0%, $P = .003$), whereas no such trend found in the ileum.

Conclusions

In a randomized, controlled trial, we found that PPIs increase the risk of short-term NSAID-induced small bowel injury. UMIN clinical trial registry number: UMIN000008883

Keywords: intestine, damage, cyclooxygenase-2 inhibitor, COX2

Ginger retards platelet formation

PLoS One. 2015 Oct 21;10(10):e0141119. doi: 10.1371/journal.pone.0141119. eCollection 2015.

The Effect of Ginger (*Zingiber officinale*) on Platelet Aggregation: A Systematic Literature Review.

Marx W¹, McKavanagh D², McCarthy AL³, Bird R⁴, Ried K⁵, Chan A⁶, Isenring L⁷.
Author information

Abstract

BACKGROUND:

The potential effect of ginger on platelet aggregation is a widely-cited concern both within the published literature and to clinicians; however, there has been no systematic appraisal of the evidence to date.

METHODS:

Using the PRISMA guidelines, we systematically reviewed the results of clinical and observational trials regarding the effect of ginger on platelet aggregation in adults compared to either placebo or baseline data. Studies included in this review stipulated the independent variable was a ginger preparation or isolated ginger compound, and used measures of platelet aggregation as the primary outcome.

RESULTS:

Ten studies were included, comprising eight clinical trials and two observational studies. Of the eight clinical trials, four reported that ginger reduced platelet aggregation, while the remaining four reported no effect. The two observational studies also reported mixed findings.

DISCUSSION:

Many of the studies appraised for this review had moderate risks of bias. Methodology varied considerably between studies, notably the timeframe studied, dose of ginger used, and the characteristics of subjects recruited (e.g. healthy vs. patients with chronic diseases).

CONCLUSION:

The evidence that ginger affects platelet aggregation and coagulation is equivocal and further study is needed to definitively address this question.

PMID: 26488162

Cardiac health and diet

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Journal Scan / Research · November 05, 2015

Fruit and Vegetable Consumption Associated With Lower Prevalence of Coronary Atherosclerosis**TAKE-HOME MESSAGE**

- Researchers evaluated participants of the CARDIA study to determine the association between intake of fruit and vegetables during young adulthood with coronary atherosclerosis later in life, finding that higher intake was associated with lower prevalence of coronary atherosclerosis ($P < .001$).
- The findings support high intake of fruit and vegetables in early life.

BACKGROUND

The relationship between intake of fruits and vegetables (F/V) during young adulthood and coronary atherosclerosis later in life is unclear.

METHODS AND RESULTS

We studied participants of the Coronary Artery Risk Development in Young Adults (CARDIA) study, a cohort of young, healthy black and white individuals at baseline (1985-1986). Intake of F/V at baseline was assessed using a semi-quantitative interview administered diet history and CAC was measured at year 20 (2005-2006) using computed tomography. We used logistic regression to adjust for relevant variables and estimate the adjusted odds ratios (OR) and 95% confidence intervals (CI) across energy-adjusted, sex-specific tertiles of total servings of F/V per day. Among our sample ($n=2,506$), the mean (SD) age at baseline was 25.3 (3.5) years and 62.7% were female. After adjustment for demographics and lifestyle variables, higher intake of F/V was associated with a lower prevalence of CAC: OR (95% CI) = 1.00 (reference), 0.78 (0.59-1.02), and 0.74 (0.56-0.99), from the lowest to the highest tertile of F/V, p -value for trend <0.001 . There was attenuation of the association between F/V and CAC after adjustment for other dietary variables but the trend remained significant: OR (95% CI): 1.00 (reference), 0.84 (0.63-1.11), and 0.92 (0.67-1.26), p -value for trend <0.002].

CONCLUSIONS

In this longitudinal cohort study, higher intake of F/V during young adulthood was associated with lower odds of prevalent CAC after 20 years of follow-up. Our results reinforce the importance of establishing a high intake of F/V as part of a healthy dietary pattern early in life.

Classification of IBS

Lancet. 2015 Oct 16. pii: S0140-6736(15)00465-1. doi: 10.1016/S0140-6736(15)00465-1.

Inherited determinants of Crohn's disease and ulcerative colitis phenotypes: a genetic association study.

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Author information

Abstract

BACKGROUND: Crohn's disease and ulcerative colitis are the two major forms of inflammatory bowel disease; treatment strategies have historically been determined by this binary categorisation. Genetic studies have identified 163 susceptibility loci for inflammatory bowel disease, mostly shared between Crohn's disease and ulcerative colitis. We undertook the largest genotype association study, to date, in widely used clinical subphenotypes of inflammatory bowel disease with the goal of further understanding the biological relations between diseases.

METHODS: This study included patients from 49 centres in 16 countries in Europe, North America, and Australasia. We applied the Montreal classification system of inflammatory bowel disease subphenotypes to 34 819 patients (19 713 with Crohn's disease, 14 683 with ulcerative colitis) genotyped on the ImmunoChip array. We tested for genotype-phenotype associations across 156 154 genetic variants. We generated genetic risk scores by combining information from all known inflammatory bowel disease associations to summarise the total load of genetic risk for a particular phenotype. We used these risk scores to test the hypothesis that colonic Crohn's disease, ileal Crohn's disease, and ulcerative colitis are all genetically distinct from each other, and to attempt to identify patients with a mismatch between clinical diagnosis and genetic risk profile.

FINDINGS: After quality control, the primary analysis included 29 838 patients (16 902 with Crohn's disease, 12 597 with ulcerative colitis). Three loci (NOD2, MHC, and MST1 3p21) were associated with subphenotypes of inflammatory bowel disease, mainly disease location (essentially fixed over time; median follow-up of 10.5 years). Little or no genetic association with disease behaviour (which changed dramatically over time) remained after conditioning on disease location and age at onset. The genetic risk score representing all known risk alleles for inflammatory bowel disease showed strong association with disease subphenotype ($p=1.65 \times 10^{-78}$), even after exclusion of NOD2, MHC, and 3p21 ($p=9.23 \times 10^{-18}$). Predictive models based on the genetic risk score strongly distinguished colonic from ileal Crohn's disease. Our genetic risk score could also identify a small number of patients with discrepant genetic risk profiles who were significantly more likely to have a revised diagnosis after follow-up ($p=6.8 \times 10^{-4}$).

INTERPRETATION: Our data support a continuum of disorders within inflammatory bowel disease, much better explained by three groups (ileal Crohn's disease, colonic Crohn's disease, and ulcerative colitis) than by Crohn's disease and ulcerative colitis as currently defined. Disease location is an intrinsic aspect of a patient's disease, in part genetically determined, and the major driver to changes in disease behaviour over time.

PMID: 26490195

Diet in youth

Eating more fruits, veggies in youth linked to healthy heart decades later

American Heart Association News, 10/30/2015

Eating more fruits and vegetables as a young adult may keep your arteries free of heart disease 20 years later, according to research in the American Heart Association journal *Circulation*.

Researchers found that eating more fruits and vegetables as young adults was associated with less calcified coronary artery plaque 20 years later. Coronary artery calcium can be measured by a CT scan to detect the presence and amount of atherosclerosis, a disease that hardens arteries and underlies many types of heart disease. The researchers divided data from 2,506 study participants into three groups, based on their daily consumption of fruits and vegetables. Women in the top third ate an average of nearly nine servings of daily fruits and vegetables and men averaged more than seven daily servings. In the bottom third, women consumed an average 3.3 daily servings and men 2.6 daily servings. All servings were based on a 2,000-calorie-a-day diet. Researchers found that people who ate the most fruit and vegetable at the study's start had 26 percent lower odds of developing calcified plaque 20 years later, compared to those who ate the least amount of fruits and vegetables.

10 A. CERVICAL SPINE

Kinematics

Factors associated with cervical kinematic impairments in patients with neck pain

Julia Treleaven, PhD Xiaoqi Chen, BPhy, BHlthSc (Hons) Hilla Sarig Bahat, Ph.D

Highlights

- There are many potential factors that might influence cervical kinematics.
- Rotation range of motion related most to pain and visual disturbances.
- Rotation velocity related most to visual disturbances and balance.
- These factors should be considered in management.

Abstract

Background and aim

Cervical kinematics have functional relevance and are important for assessment and management in patients with neck disorders. A better understanding of factors that might influence cervical

kinematics is required. The aim of this study was to determine any relationships between altered kinematics to the symptoms and signs of sensorimotor impairments, neck pain and disability and fear of neck motion in people with neck pain.

Method

Kinematics were measured in 39 subjects with chronic neck pain using a customized virtual reality system. Range of cervical motion, mean and peak velocity, time to peak velocity percentage, number of velocity peaks and accuracy were derived. Correlations between these measures to self-reported (neck pain intensity, disability, fear of motion, dizziness, visual disturbances) and sensorimotor measures and regression analyses were conducted.

Results

Range and velocity of motion of cervical rotation appeared to be most related to visual disturbances and pain or dynamic balance. Nevertheless these relationships only explained about 30% of the variance of each measure.

Conclusion

Signs and symptoms of sensorimotor dysfunction should be considered and monitored in the management of altered cervical rotation kinematics in patients with chronic neck disorders. Future research should consider the effects of addressing these factors on neck kinematics and vice versa to aid functional recovery in those with neck pain.

Motor control

Neck motion, motor control, pain and disability: A longitudinal study of associations in neck pain patients in physiotherapy treatment

Ingebrigt Meisingset Ann-Katrin Stensdotter Astrid Woodhouse Ottar Vasseljen

Highlights

- •A comprehensive set of test for neck motion and motor control was investigated.
- •Changes in neck motion and motor control occurred primarily within 2 weeks.
- •Few variables were associated with changes in pain and disability.
- •Range of motion in the sagittal plane was associated with both pain and disability.

Abstract

Background

Neck pain is associated with several alterations in neck motion and motor control, but most of the findings are based on cross-sectional studies.

Objective

The aim of this study was to investigate associations between changes in neck motion and motor control, and changes in neck pain and disability in physiotherapy patients during a course of treatment.

Design

Prospective cohort study.

Method

Subjects with non-specific neck pain (n=71) participated in this study. Neck flexibility, joint position error (JPE), head steadiness, trajectory movement control and postural sway were recorded before commencement of physiotherapy (baseline), at 2 weeks, and at 2 months. Numerical Rating Scale and Neck Disability Index were used to measure neck pain and disability at the day of testing. To analyze within subjects effects in neck motion and motor control, neck pain, and disability over time we used fixed effects linear regression analysis.

Results

Changes in neck motion and motor control occurred primarily within 2 weeks. Reduction in neck pain was associated with increased cervical range of motion in flexion-/extension and increased postural sway when standing with eyes open. Decreased neck disability was associated with some variables for neck flexibility and trajectory movement control. Cervical range of motion in flexion-/extension was the only variable associated with changes in both neck pain and neck disability.

Conclusions

This study shows that few of the variables for neck motion and motor control were associated with changes neck pain and disability over a course of 2 months with physiotherapy treatment.

Keywords: Neck pain, disability, motor control, neck motion, physiotherapy

Education

Effect of education on non-specific neck and low back pain: A meta-analysis of randomized controlled trials

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Highlight

- Education is recommended as an important component of neck and low back pain care. (85)
- This study reviewed the effectiveness of education for neck and low back pain care. (85)
- Education was ineffective in preventing neck pain and treating neck and low back pain. (87)
- Evidence is conflicting as to the effect of education on preventing low back pain. (83)

Abstract

Background

Neck and low back pain are significant health problems due to their high prevalence among the general population. Educational intervention commonly aims to reduce the symptoms and risk for additional problems by increasing the participant's knowledge, which in turn will alter the person's behavior. The primary aim of this study was to review randomized controlled trials (RCTs) to gain insights into the effectiveness of education for the prevention and treatment of non-specific neck and low back pain.

Methods

Publications were systematically searched from 1982 to March 2015 in several databases. Relevant RCTs were retrieved and assessed for methodological quality. Meta-analysis was conducted to examine the effectiveness of education for the prevention and treatment of non-specific neck and low back pain. The overall quality of evidence was assessed using the GRADE system.

Results

Thirty-six RCTs (30 high-quality studies) were identified. A total of 15 RCTs, which compared education programs to no education program, were included for further analysis. All included studies investigated the effectiveness of education with intermediate- and long-term follow-ups. The results showed that education programs were not effective in preventing and treating neck pain as well as treating low back pain. Conflicting evidence was found for the effectiveness of education on prevention of low back pain.

Conclusions

Evidence suggests that education programs are not recommended in preventing or treating neck pain as well as treating low back pain, unless supplementary high-quality studies provide evidence to the contrary.

Keywords: Education, Spinal pain, Musculoskeletal disorders

13. CRANIUM/TMJ

Sleep apnea/maxillary expansion

Prog Orthod. 2015 Dec;16(1):33. doi: 10.1186/s40510-015-0105-x. Epub 2015 Oct 7.

The role of rapid maxillary expansion in the promotion of oral and general health.

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Author information

Abstract

Rapid maxillary expansion (RME) is an effective orthopedic procedure that can be used to address problems concerned with the growth of the midface. This procedure also may produce positive side effects on the general health of the patient. The aim of the present consensus paper was to identify and evaluate studies on the changes in airway dimensions and muscular function produced by RME in growing patients. A total of 331 references were retrieved from a database search (PubMed). The widening of the nasal cavity base after midpalatal suture opening in growing patients allows the reduction in nasal airway resistance with an improvement of the respiratory pattern. The effects of RME on the upper airway, however, have been described as limited and local, and these effects become diminished farther down the airway, possibly as a result of soft-tissue adaptation. Moreover, limited information is available about the long-term stability of the airway changes produced by RME. Several studies have shown that maxillary constriction may play a role in the etiology of more severe breathing disorders such as obstructive sleep apnea (OSA) in growing subjects. Early orthodontic treatment with RME is able to reduce the symptoms of OSA and improve polysomnographic variables. Finally, early orthopedic treatment with RME also is beneficial to avoid the development of facial skeletal asymmetry resulting from functional crossbites that otherwise may lead to functional and structural disorders of the stomatognathic system later in life.

KEYWORDS: Breathing disorders; Dentofacial orthopedics; General health; Muscle activity; OSAS; Oral health; Rapid maxillary expansion
 PMID: 26446931

BMI and oral health

Eur J Orthod. 2015 Oct 8. pii: cjv074.

Impact of body mass index on oral health during orthodontic treatment: an explorative pilot study.

von Bremen J¹, Lorenz N², Ruf S².
 Author information

Abstract

AIM:

To answer the question: is there a correlation between body mass index (BMI), oral health, and patient cooperation during multibracket (MB) appliance therapy?

MATERIALS AND METHODS:

All adolescent MB patients started and finished between 2007 and 2012 were analysed. According to their pre-treatment BMI, patients were divided into one of the following groups: normal weight, overweight, or obese. Using the patients' records, the cooperation during treatment was classified as good, bad, or poor and the treatment duration was calculated. Using pre- and post-treatment photographs, white spot lesion (WSL) formation and gingivitis before and after MB therapy were assessed.

RESULTS:

Of the 175 subjects, 138 had a normal BMI (79 per cent), 22 were overweight (12.5 per cent), and 15 obese (8.5 per cent). Whereas 42.8 per cent of the normal weight patients showed a good cooperation, only 22.7 per cent of the overweight and 20.9 per cent of the obese patients cooperated sufficiently. On average, normal weight patients were treated for 22.2 months, overweight patients for 23.0 months, and obese patients for 27.7 months. Normal weight patients developed less WSL (41.3 per cent) during MB treatment than overweight (50 per cent) or obese (66.7 per cent) patients. Furthermore, patients with a normal weight or overweight had less gingival inflammation (79.5 per cent) after treatment than obese individuals (93.3 per cent).

CONCLUSION:

An increased BMI appears to be a risk factor for less cooperation, a longer treatment duration, and more oral health-related problems during MB treatment, indicating that these patients require special attention during orthodontic therapy.

PMID: 26450695

14. HEADACHES

HA's/family/adolescents

Headache. 2015 Oct 31. doi: 10.1111/head.12709.

Depression as a mediator of the relation between family functioning and functional disability in youth with chronic headaches.

Kaczynski K^{1,2}, Gambhir R^{1,2}, Caruso A¹, Lebel A^{1,3}.

Author information

Abstract

OBJECTIVE:

This retrospective chart review examined a mediation model of parent and family functioning, childhood depression, and functional disability in youth with chronic headaches. Specifically, we evaluated whether depression mediates the relations between protective parenting and functional disability and between family functioning and functional disability.

BACKGROUND:

Children and adolescents with chronic and recurrent headache report elevated symptoms of depression. Children with chronic pain conditions, including chronic headaches, have also been found to originate from families with greater conflict, poorer cohesion, and lower organizational structure, and impaired family functioning is associated with greater disability in youth with chronic pain.

METHODS:

Three hundred and eighty-two patients ages 5-17 years who underwent a multidisciplinary evaluation at a tertiary pediatric headache clinic were included in this study. Participants completed a pain intensity rating, the Children's Depression Inventory, and the Functional Disability Inventory. A parent completed the Family Relationship Index and the Adult Responses to Children's Symptoms questionnaires. Structural equation modeling was used to examine a mediation model and several alternative models.

RESULTS:

Mediation was not supported, but an alternative model with both direct and indirect pathways provided excellent fit to the data: $\chi^2(1) = 0.745$, $P = .39$; comparative fit index = 1.00, root mean square error of approximation = 0.00 (CI: 0.00-0.17). Family functioning ($\beta = -0.19$, $P < .01$) and protective parenting ($\beta = 0.17$, $P < .01$) were associated with depression, but not disability. Depression was linked to disability ($\beta = 0.24$, $P < .01$). There was an indirect pathway from family functioning to depression to disability ($\beta = -0.05$, $P < .05$).

CONCLUSIONS:

Family context is an important variable to consider in youth with chronic headaches and disability. While many studies have identified family functioning and depressive symptoms as separately linked to functional impairment, to our knowledge, we are the first to demonstrate depression as an intermediary variable between family dysfunction and disability within the pediatric headache population.

KEYWORDS: children and adolescents; depression; family functioning; functional disability; mediation

PMID:26518249

Vestibular and migraineurs

J Headache Pain. 2015 Dec;16(1):93. doi: 10.1186/s10194-015-0578-5. Epub 2015 Nov 2.

Subclinical vestibular dysfunction in migraine patients: a preliminary study of ocular and rectified cervical vestibular evoked myogenic potentials.

Kim CH¹, Jang MU², Choi HC³, Sohn JH⁴.

Author information

Abstract

BACKGROUND:

Many studies have identified various vestibular symptoms and laboratory abnormalities in migraineurs. Although the vestibular tests may be abnormal, the changes may exist without vestibular symptoms. To date, vestibular-evoked myogenic potential (VEMP) has been the easiest and simplest test for measuring vestibular function in clinical practice. Cervical VEMP (cVEMP) represents a vestibulo-collic reflex, whereas ocular VEMP (oVEMP) reflects a vestibulo-ocular pathway. Therefore, we determined whether ocular and rectified cervical VEMPs differed in patients with migraine or tension type headache (TTH) and compared the results to controls with no accompanying vestibular symptoms.

METHODS:

The present study included 38 females with migraine without aura, 30 with episodic TTH, and 50 healthy controls without vestibular symptoms. oVEMP and cVEMP using a blood pressure manometer were recorded during a headache-free period. From the VEMP graphs, latency and amplitude parameters were analyzed, especially following EMG rectification in cVEMP.

RESULTS:

With respect to oVEMP, the migraine group exhibited significantly longer mean latencies of bilateral n1 and left p1 than the other groups ($p < 0.05$). Amplitudes of n1-p1 were lower than in other groups, but the difference did not reach statistical significance. In regards to cVEMP, p13 and n23 latencies and amplitudes after rectification did not differ significantly among groups.

CONCLUSIONS:

An abnormal interictal oVEMP profile was associated with subclinical vestibular dysfunction in migraineurs, suggesting pathology within the vestibulo-ocular reflex. oVEMP is a more reliable measure than cVEMP to evaluate vestibular function in migraineurs, although results from the two tests in patients with migraine are complementary.

KEYWORDS: Cervical VEMP; Migraine; Ocular VEMP; Vestibular evoked myogenic potential (VEMP)

PMID: 26527349

Differences between male and female

Pain. 2015 Nov;156(11):2212-21. doi: 10.1097/j.pain.0000000000000292.

The migraine brain in transition: girls vs boys.

Faria V¹, Erpelding N, Lebel A, Johnson A, Wolff R, Fair D, Burstein R, Becerra L, Borsook D.
[Author information](#)

[Abstract](#)

The prevalence of migraine has an exponential trajectory that is most obvious in young females between puberty and early adulthood. Adult females are affected twice as much as males. During development, hormonal changes may act on predetermined brain circuits, increasing the probability of migraine. However, little is known about the pediatric migraine brain and migraine evolution. Using magnetic resonance imaging, we evaluated 28 children with migraine (14 females and 14 males) and 28 sex-matched healthy controls to determine differences in brain structure and function between (1) females and males with migraine and (2) females and males with migraine during earlier (10-11 years) vs later (14-16 years) developmental stages compared with matched healthy controls. Compared with males, females had more gray matter in the primary somatosensory cortex (S1), supplementary motor area, precuneus, basal ganglia, and amygdala, as well as greater precuneus resting state functional connectivity to the thalamus, amygdala, and basal ganglia and greater amygdala resting state functional connectivity to the thalamus, anterior midcingulate cortex, and supplementary motor area. Moreover, older females with migraine had more gray matter in the S1, amygdala, and caudate compared to older males with migraine and matched healthy controls.

This is the first study showing sex and developmental differences in pediatric migraineurs in brain regions associated with sensory, motor, and affective functions, providing insight into the neural mechanisms underlying distinct migraine sex phenotypes and their evolution that could result in important clinical implications increasing treatment effectiveness.

PMID: 26172552

Testing for cervicogenic HA's

Man Ther. 2015 Sep 21. pii: S1356-689X(15)00182-4. doi: 10.1016/j.math.2015.09.008.

Physical examination tests for screening and diagnosis of cervicogenic headache: A systematic review.

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Author information

Abstract

It has been suggested that differential diagnosis of headaches should consist of a robust subjective examination and a detailed physical examination of the cervical spine. Cervicogenic headache (CGH) is a form of headache that involves referred pain from the neck. To our knowledge, no studies have summarized the reliability and diagnostic accuracy of physical examination tests for CGH. The aim of this study was to summarize the reliability and diagnostic accuracy of physical examination tests used to diagnose CGH. A systematic review following PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines was performed in four electronic databases (MEDLINE, Web of Science, Embase and Scopus). Full text reports concerning physical tests for the diagnosis of CGH which reported the clinometric properties for assessment of CGH, were included and screened for methodological quality. Quality Appraisal for Reliability Studies (QAREL) and Quality Assessment of Studies of Diagnostic Accuracy (QUADAS-2) scores were completed to assess article quality. Eight articles were retrieved for quality assessment and data extraction. Studies investigating diagnostic reliability of physical examination tests for CGH scored poorer on methodological quality (higher risk of bias) than those of diagnostic accuracy. There is sufficient evidence showing high levels of reliability and diagnostic accuracy of the selected physical examination tests for the diagnosis of CGH. The cervical flexion-rotation test (CFRT) exhibited both the highest reliability and the strongest diagnostic accuracy for the diagnosis of CGH.

KEYWORDS: Cervicogenic headache; Diagnostic accuracy; Physical examination; Reliability
 PMID: 26423982

17. SHOULDER GIRDLE

Posterior depression

Modifying the shoulder joint position during shrugging and retraction exercises alters the activation of the medial scapular muscles

Birgit Castelein Ann Cools Thierry Parlevliet Barbara Cagnie

Highlights

- •Modifying a shrug can alter balance between scapular upward and downward rotators.
- •“Shrug”, “ShrugOverhead” and “RetractionOverhead” elicited similar UT activity.
- •The lowest activity of the downward rotators was during “ShrugOverhead”.
- •The “RetractionOverhead” was most effective in activating medial scapular muscles.

Abstract

Background In patients with shoulder or neck pain, often an imbalance of the activation in the scapular upward and downward rotators is present which can cause abnormalities in coordinated scapular rotation. Shrug exercises are often recommended to activate muscles that produce upward rotation, but little information is available on the activity of the downward rotators during shrugging exercises. The position used for the shrug exercise may affect the relative participation of the medial scapular rotators.

Objectives To compare muscle activity, using both surface and fine-wire electrodes, of the medial scapular muscles during different shoulder joint positions while performing shrug and retraction exercises.

Design Controlled laboratory study.

Method Twenty-six subjects performed 3 different exercises: shrug with the arms at the side while holding a weight (“Shrug”), shrug with arms overhead and retraction with arms overhead. EMG data with surface and fine wire electrodes was collected from the Upper Trapezius (UT), Levator Scapulae (LS), Middle Trapezius (MT), Rhomboid Major (RM) and Lower Trapezius (LT).

Results The results showed that activity levels of the main medial scapular muscles depend upon the specific shoulder joint position when performing shrug and retraction exercises. High UT activity was found across all exercises, with no significant differences in UT activity between the exercises. The LS and RM activity was significantly lower during “ShrugOverhead” and the RM, MT and LT activity was significantly higher during “RetractionOverhead”.

Conclusions This study has identified that all three exercises elicited similar UT activity. LS and RM activity is decreased with the “ShrugOverhead” exercise. The “RetractionOverhead” was the most effective exercise in activating the medial scapular muscles.

Keywords: Surface EMG, Fine-wire EMG, Scapula, Exercises

19. GLENOHUMERAL/SHOULDER

Posterior glide

The initial effects of a sustained glenohumeral postero-lateral glide during elevation on shoulder muscle activity: A repeated measures study on asymptomatic shoulders

Daniel Cury Ribeiro, PhD Marcelo Peduzzi de Castro, PhD Gisela Sole, PhD Bill Vicenzino, PhD

Highlights

- Sustained glide reduced activity of monitored shoulder muscles
- Changes in muscle activity were small
- Functional significance of muscle activity change is to be determined
- Sustained glide might alter joint mechanics and/or afferent sensory input

Abstract**Background**

Manual therapy enhances pain-free range of motion and reduces pain levels, but its effect on shoulder muscle activity is unclear. This study aimed to assess the effects of a sustained glenohumeral postero-lateral glide during elevation on shoulder muscle activity.

Methods

Thirty asymptomatic individuals participated in a repeated measures study of the electromyographic activity of the upper trapezius/supraspinatus, infraspinatus, posterior deltoid, and middle deltoid. Participants performed four sets of 10 repetitions of shoulder scaption and abduction with and without a glide of the glenohumeral joint. Repeated measures MANOVA was used to assess the effects of movement direction (scaption and abduction), and condition (with and without glide) as within-subject factors on activity level of each muscle as dependent variables. Significant effects on MANOVA were followed-up with pairwise comparisons.

Results

During shoulder scaption with a glide, the upper trapezius/supraspinatus showed a reduction of 4.12% MVIC (95% CI 2.43, 5.80); and infraspinatus 1.3% MVIC (95% CI 0.5, 2.1). During shoulder abduction with a glide, upper trapezius/supraspinatus presented a reduction of 2.55% MVIC (95% CI 1.06, 4.04), infraspinatus 2.1% MVIC (95% CI 1.0, 3.2), middle deltoid (2.2%, 95% CI = 0.4, 4.1), posterior deltoid 2.08% MVIC (95% CI 1.01, 3.15).

Conclusions

In asymptomatic individuals, sustained glide reduced shoulder muscle activity compared to control conditions. This might be useful in encouraging improved motion in clinical populations. Reductions in muscle activity might result from altered joint mechanics, including simply helping to lift the arm, and/or through the alteration of afferent sensory input about the shoulder.

Keywords: Shoulder, Manual therapies, Electromyography, Musculoskeletal

20 A. ROTATOR CUFF**Infection in repaired**

Arthroscopy. 2015 Oct 16. pii: S0749-8063(15)00682-9. doi: 10.1016/j.arthro.2015.08.021.

Risk Factors for Infection After Rotator Cuff Repair.

Vopat BG¹, Lee BJ², DeStefano S³, Waryasz GR⁴, Kane PM⁵, Gallacher SE⁶, Fava J⁴, Green AG⁴.
Author information

Abstract

PURPOSE:

To identify risk factors for infection after rotator cuff repair. We hypothesized that patient characteristics and surgical technique would affect the rate of infection.

METHODS:

The records of 1,824 rotator cuff repairs performed by a single surgeon from 1995 to 2010 were reviewed retrospectively. Fourteen patients had an early deep postoperative wound infection that was treated with surgical irrigation and debridement. One hundred eighty-five control patients who were treated with rotator cuff repair and did not develop an infection were selected randomly for comparison and statistical analysis. Data regarding preoperative and intraoperative risk factors for infection were recorded, and a multiple logistic regression was conducted to investigate predictors of infection.

RESULTS:

The infection rate was 0.77% (14/1,822). On average 2.1 (range 1 to 4) surgical debridements were performed in addition to treatment with intravenous antibiotics. Patients who had open or miniopen rotator cuff repair had a significantly greater risk of acute postoperative infection (odds ratio [OR] = 8.63, P = .002). Seventy-nine percent of the patients in the infection group had an open or miniopen repair, whereas only 28% of the control group had an open or miniopen repair. Male patients also had a significantly greater risk of acute postoperative infection (OR = 9.52, P = .042). A total of 92% of the infection patients were male compared with 58% of the control group. In addition, as body mass index increased there was a reduction in the odds of infection (OR = 0.81, P = .023).

CONCLUSIONS:

The results of this case control study demonstrate that open or miniopen surgical technique and male sex are significant risk factors for infection after rotator cuff repair. In our study, arthroscopic rotator cuff repair reduced the risk of infection compared with open techniques.

LEVEL OF EVIDENCE:

Level IV.

PMID:26483170

Tears and head position

Alterations in Glenohumeral Kinematics in Patients With Rotator Cuff Tears Measured With Biplane Fluoroscopy

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Purpose

To quantitatively measure the 3-dimensional (3D) glenohumeral translations during dynamic shoulder abduction in the scapular plane, using a biplane fluoroscopy system, in patients with supraspinatus rotator cuff tears.

Methods

A custom biplane fluoroscopy system was used to measure the 3D position and orientation of the scapula and humerus of 14 patients with full-thickness supraspinatus or supraspinatus and infraspinatus rotator cuff tears and 10 controls as they performed shoulder abduction over their full range of motion. The 3D geometries of the scapula and humerus were extracted from a computed tomography scan of each shoulder. For each frame, the 3D bone position and orientation were estimated using a contour-based matching algorithm, and the 3D position of the humeral head center was determined relative to the glenoid. For each subject the superior-inferior and anterior-posterior translation curves were determined from 20° through 150° of arm elevation.

Results

The humeral head in shoulders with rotator cuff tears was positioned significantly inferior compared with controls for higher elevation angles of 80° to 140° ($P < .05$). For both groups the humeral head translated inferiorly during shoulder abduction from 80° ($P = .044$; rotator cuff tear ν controls: $-0.2 \pm 1.3 \nu 1.2 \pm 1.4$ mm) up to 140° ($P = .047$; rotator cuff tear ν controls: $-1.3 \pm 2.2 \nu 0.44 \pm 1.4$ mm). There was no significant translation in the anterior- posterior direction.

Conclusions

Patients with well-compensated single or 2-tendon rotator cuff tears show no dynamic superior humeral head migration but unexpectedly show an inferior shift during active elevation. It is unclear whether the size of the translational differences found in this study, while statistically significant, are also of clinical significance.

Level of Evidence Level III, comparative study

Surgical success

Arthroscopy. 2015 Oct 24. pii: S0749-8063(15)00704-5. doi: 10.1016/j.arthro.2015.08.026.

Patients With Impingement Syndrome With and Without Rotator Cuff Tears Do Well 20 Years After Arthroscopic Subacromial Decompression.

Jaeger M¹, Berndt T², Rühmann O², Lerch S².

Author information

Abstract

PURPOSE:

To present the long-term outcome of arthroscopic subacromial decompression (ASD) for patients with impingement syndrome with or without rotator cuff tears as well as with or without calcific tendinitis in a follow-up of 20 years.

METHODS:

We included 95 patients after a mean follow-up of 19.9 (19.5 to 20.5) years. All patients underwent ASD, including acromioplasty, resection of the coracoacromial ligament, and coplaning without cuff repair. The Constant score was used to assess the functioning of the shoulder. In addition, we defined a combined failure end point of a poor Constant score and revision surgery.

RESULTS:

Revision surgery was performed in 14.7% of the patients. The combined end point showed successful results in 78.8% of all cases. All patients with isolated impingement syndrome achieved successful results. Those with partial-thickness tears had successful outcomes in 90.9% of all cases, and patients with full-thickness tears had successful outcomes in 70.6% of all cases. The tendinitis calcarea group showed the poorest results, with a 65.2% success rate.

CONCLUSIONS:

Our long-term results show that patients with impingement syndrome who received ASD, including acromioplasty, resection of the coracoacromial ligament, and coplaning do well 20 years after the index surgery. ASD without cuff repair even appears to be a safe, efficacious, and sustainable procedure for patients with partial rotator cuff tears.

LEVEL OF EVIDENCE: Level IV, therapeutic case series.

PMID: 26507160

Tendinopathy

Rotator Cuff Tendinopathy: Navigating the Diagnosis-Management Conundrum

Authors: Jeremy Lewis, PT, PhD¹⁻⁴, Karen McCreesh, PT, PhD⁵, Jean-Sébastien Roy, PT, PhD^{6,7}, Karen Ginn, PT, PhD⁸

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2015, **Volume:** 45 **Issue:** 11 **Pages:** 923-937 doi:10.2519/jospt.2015.5941

Synopsis

The hallmark characteristics of rotator cuff (RC) tendinopathy are pain and weakness, experienced most commonly during shoulder external rotation and elevation. Assessment is complicated by nonspecific clinical tests and the poor correlation between structural failure and symptoms. As such, diagnosis is best reached by exclusion of other potential sources of symptoms. Symptomatic incidence and prevalence data currently cannot be determined with confidence, primarily as a consequence of a lack of diagnostic accuracy, as well as the uncertainty as to the location of symptoms. People with symptoms of RC tendinopathy should derive considerable comfort from research that consistently demonstrates improvement in symptoms with a well-structured and graduated exercise program. This improvement is equivalent to outcomes reported in surgical trials, with the additional generalized benefits of exercise, less sick leave, a faster return to work, and reduced costs to the health care system. This evidence covers the spectrum of conditions that include symptomatic RC tendinopathy and atraumatic partial- and full-thickness RC tears. The principles guiding exercise treatment for RC tendinopathy include relative rest, modification of painful activities, an exercise strategy that initially does not exacerbate pain, controlled reloading, and gradual progression from simple to complex shoulder movements. Evidence also exists for a specific exercise program being beneficial for people with massive inoperable tears of the RC. Education is an essential component of rehabilitation, and attention to lifestyle factors (smoking cessation, nutrition, stress, and sleep management) may enhance outcomes. Outcomes may also be enhanced by subgrouping RC tendinopathy presentations and directing treatment strategies according to the clinical presentation and the patient's response to shoulder symptom modification procedures outlined herein. There are substantial deficits in our knowledge regarding RC tendinopathy that need to be addressed to further improve clinical outcomes. *J Orthop Sports Phys Ther* 2015;45(11):923–937. Epub 21 Sep 2015. doi:10.2519/jospt.2015.5941

Keyword: infraspinatus, rotator cuff, shoulder, supraspinatus\

21. ADHESIVE CAPSULITIS

When to do surgery

Arch Orthop Trauma Surg. 2015 Oct 17.

Prognostic factors and therapeutic options for treatment of frozen shoulder: a systematic review.Eljabu W¹, Klinger HM², von Knoch M³.

Author information

Abstract

PURPOSE:

To evaluate the current status of scientific research on the natural history of frozen shoulder as published in the literature.

MATERIALS AND METHODS:

This systematic review was carried out on PubMed data and was guided by PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). Articles had to meet inclusion criteria. The quality of the papers was assessed using a newly developed tool, AMQPP (Assessing the Methodological Quality of Published Papers). The AMQPP score was correlated with the level of evidence rating according to the Oxford Centre for Evidence-Based Medicine. Suitable papers were divided into groups according to the shoulder condition on which they reported. This article focuses on the frozen shoulder.

RESULTS:

Seven articles on frozen shoulder met the inclusion criteria. One article was considered to have level 1 of evidence. Three articles had level 3 and the remaining 3 had level 4. Three papers assessed the natural history and the natural course of different forms of stiff shoulder. The others indirectly assessed the natural history by evaluating therapy trends. None of the articles clearly referred to the role of regression to the mean of frozen shoulder specifically.

CONCLUSION:

Spontaneous recovery to normal levels of function is possible and standardised non-operative treatment programmes are an effective alternative to surgery in most cases. However, patients with high risk factors such as diabetes mellitus, and those who suffer chronic symptoms or bilaterally affected, would benefit from early surgery. We also concluded that AMQPP score is simple and straight forward. It works as a quick quality-checking tool which helps researchers to identify the key points in each paper and reach a decision regarding the eligibility of the paper more easily. The AMQPP score is still open for further development.

KEYWORDS: AMQPP assessment tool; Adhesive capsulitis; Frozen shoulder; Natural history; Non-operative therapy; Regression to the mean; Stiff shoulder

PMID: 26476720

22 A. IMPINGMENT**Acromial space**

J Bone Joint Surg Am. 2015 Oct 21;97(20):1647-52. doi: 10.2106/JBJS.O.00379.

Subacromial Space Width: Does Overuse or Genetics Play a Greater Role in Determining It? An MRI Study on Elderly Twins.

Gumina S¹, Arceri V¹, Fagnani C², Venditto T¹, Catalano C¹, Candela V¹, Nisticò L².

Author information

Abstract

BACKGROUND:

Age and peripheral microcirculation disorders are the main causes of rotator cuff degeneration. Acromion variants may affect subacromial space width, causing a pathological narrowing of the space that may compromise the cuff integrity. However, it is not clear if the subacromial space width is genetically determined or if it changes according to loading conditions. To clarify this unresolved question, we performed an MRI (magnetic resonance imaging) study with the aim of evaluating the acromiohumeral distance in a group of elderly monozygotic and dizygotic twins, and we analyzed the obtained data using the twin design to separate the contributions of shared and unique environments.

METHODS:

We identified twenty-nine pairs of elderly twins. On MRI scans, we evaluated the acromiohumeral distance and health status of the rotator cuff tendons. Heritability, defined as the proportion of total variance of a specific characteristic in a particular population due to a genetic cause, was estimated as twice the difference between the intraclass correlation coefficients for monozygotic and dizygotic pairs. The influence of shared environment, due to environmental factors that contribute to twin and sibling similarity, was calculated as the difference between the monozygotic correlation coefficient and the heritability index. One-way ANOVA (analysis of variance) was used to estimate the differences among job categories, both in the total cohort and within zygosity groups.

RESULTS:

The intraclass correlation coefficient was substantially higher for monozygotic than for dizygotic twins, indicating a high degree of concordance of the acromiohumeral distance in pairs of individuals who shared 100% of their genes. The heritability index was 0.82, and shared and unique environmental contributions were both 0.09. There were no significant differences among subjects in different job categories, either in the total cohort ($p = 0.685$) or within the monozygotic ($p = 0.719$) and dizygotic groups ($p = 0.957$).

CONCLUSIONS:

The acromiohumeral distance is mainly genetically determined and only marginally influenced by external factors.

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

PMID: 26491128

24. ELBOW

Lateral Tendinopathy

Management of Lateral Elbow Tendinopathy: One Size Does Not Fit All

Authors: Brooke K. Coombes, PhD^{1,2}, Leanne Bisset, PhD³, Bill Vicenzino, PhD²

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2015, **Volume:** 45 **Issue:** 11 **Pages:** 938-949 doi:10.2519/jospt.2015.5841

Synopsis

Clear guidelines for the clinical management of individuals with lateral elbow tendinopathy (LET) are hampered by many proposed interventions and the condition's prognosis, ranging from immediate resolution of symptoms following simple advice in some patients to long-lasting problems, regardless of treatment, in others. This is compounded by our lack of understanding of the complexity of the underlying pathophysiology of LET. In this article, we collate evidence and expert opinion on the pathophysiology, clinical presentation, and differential diagnosis of LET. Factors that might provide prognostic value or direction for physical rehabilitation, such as the presence of neck pain, tendon tears, or central sensitization, are canvassed. Clinical recommendations for physical rehabilitation are provided, including the prescription of exercise and adjunctive physical therapy and pharmacotherapy. A preliminary algorithm, including targeted interventions, for the management of subgroups of patients with LET based on identified prognostic factors is proposed. Further research is needed to evaluate whether such an approach may lead to improved outcomes and more efficient resource allocation. *J Orthop Sports Phys Ther* 2015;45(11):938–949. Epub 17 Sep 2015. doi:10.2519/jospt.2015.5841

Keyword: epicondylalgia, prognosis, tennis elbow

27. HIP

Lumbar range contributions to hip motions

Man Ther. 2015 Oct 8. pii: S1356-689X(15)00188-5. doi: 10.1016/j.math.2015.09.014.

Investigating the contribution of the upper and lower lumbar spine, relative to hip motion, in everyday tasks.

Alqhtani RS¹, Jones MD², Theobald PS³, Williams JM⁴.

Author information

Abstract

BACKGROUND:

It is commonplace for clinicians to measure range of motion (ROM) in the assessment of the lumbar spine. Traditional single 'joint' models afford measuring only a limited number of regions along the spine and may, therefore, over-simplify the description of movement. It remains to be determined if additional, useful information can be gleaned by considering the traditional 'lumbar region' as two regions.

OBJECTIVE:

The aim of this study was to determine whether modelling the lumbar spine as two separate regions (i.e. upper and lower), yields a different understanding of spinal movement relative to hip motion, than a traditional single-joint model. This study is unique in adopting this approach to evaluate a range of everyday tasks.

METHOD:

Lumbar spine motion was measured both by being considered as a whole region (S1 to T12), and where the lumbar spine was modelled as two regions (the upper (L3-T12) and lower (S1-L3)).

RESULTS:

A significant difference was evident between the relative contribution from the lower and upper spine across all movements, with the lower lumbar spine consistently contributing on average 63% of the total ROM. A significant difference was also evident between the whole lumbar spine-hip ratio, and the lower lumbar spine-hip ratio, for the movement of lifting only. The lower lumbar spine achieved greater velocity for all tasks, when compared to the upper lumbar spine.

CONCLUSION:

This study has consistently demonstrated differences in the contribution of the upper and lower spinal regions across a range of everyday tasks; hence, it would appear that greater focus should be given to performing more detailed assessments to fully appreciate spinal movement.

KEYWORDS: Lumbar spine; Lumbar-hip movement; Ratio; Sectioned approach; Upper and lower lumbar spine; Velocity

PMID: 26493231

Gluteal Tendinopathy

CLINICAL COMMENTARY

Gluteal Tendinopathy: Integrating Pathomechanics and Clinical Features in Its Management

Authors: Alison Grimaldi, PhD^{1,2}, Angela Fearon, PhD³⁻⁵

Published: *Journal of Orthopaedic & Sports Physical Therapy*,
2015, **Volume:** 45 **Issue:** 11 **Pages:** 910-922 doi:10.2519/jospt.2015.5829

Synopsis Gluteal tendinopathy is now believed to be the primary local source of lateral hip pain, or greater trochanteric pain syndrome, previously referred to as trochanteric bursitis. This condition is prevalent, particularly among postmenopausal women, and has a considerable negative influence on quality of life. Improved prognosis and outcomes in the future for those with gluteal tendinopathy will be underpinned by advances in diagnostic testing, a clearer understanding of risk factors and comorbidities, and evidence-based management programs. High-quality studies that meet these requirements are still lacking. This clinical commentary provides direction to assist the clinician with assessment and management of the patient with gluteal tendinopathy, based on currently limited available evidence on this condition and the wider tendon literature and on the combined clinical experience of the authors. *J Orthop Sports Phys Ther* 2015;45(11):910-922. Epub 17 Sep 2015. doi:10.2519/jospt.2015.5829

Keyword: greater trochanteric pain syndrome, hip, lateral hip pain, trochanteric bursitis

28. REPLACEMENTS

Gait training

BMC Musculoskelet Disord. 2015 Oct 12;16(1):291. doi: 10.1186/s12891-015-0755-3.

Improvement of walking speed and gait symmetry in older patients after hip arthroplasty: a prospective cohort study.

Rapp W¹, Brauner T², Weber L³, Grau S⁴, Mündermann A⁵, Horstmann T^{6,7}.

Author information

Abstract

BACKGROUND:

Retraining walking in patients after hip or knee arthroplasty is an important component of rehabilitation especially in older persons whose social interactions are influenced by their level of mobility. The objective of this study was to test the effect of an intensive inpatient rehabilitation program on walking speed and gait symmetry in patients after hip arthroplasty (THA) using inertial sensor technology.

METHODS:

Twenty-nine patients undergoing a 4-week inpatient rehabilitation program following THA and 30 age-matched healthy subjects participated in this study. Walking speed and gait symmetry parameters were measured using inertial sensor device for standardized walking trials (2*20.3 m in a gym) at their self-selected normal and fast walking speeds on postoperative days 15, 21, and 27 in patients and in a single session in control subjects. Walking speed was measured using timing lights. Gait symmetry was determined using autocorrelation calculation of the cranio-caudal (CC) acceleration signals from an inertial sensor placed at the lower spine.

RESULTS:

Walking speed and gait symmetry improved from postoperative days 15-27 (speed, female: 3.2 and 4.5 m/s; male: 4.2 and 5.2 m/s; autocorrelation, female: 0.77 and 0.81; male: 0.70 and 0.79; P <0.001 for all). After the 4-week rehabilitation program, walking speed and gait symmetry were still lower than those in control subjects (speed, female 4.5 m/s vs. 5.7 m/s; male: 5.2 m/s vs. 5.3 m/s; autocorrelation, female: 0.81 vs. 0.88; male: 0.79 vs. 0.90; P <0.001 for all).

CONCLUSIONS:

While patients with THA improved their walking capacity during a 4-week inpatient rehabilitation program, subsequent intensive gait training is warranted for achieving normal gait symmetry. Inertial sensor technology may be a useful tool for evaluating the rehabilitation process during the post-inpatient period.

PMID: 26459628

29. OA**Hip strengthening**

PLoS One. 2015 Oct 7;10(10):e0139923. doi: 10.1371/journal.pone.0139923. eCollection 2015.

Gait Biomechanics and Patient-Reported Function as Predictors of Response to a Hip Strengthening Exercise Intervention in Patients with Knee Osteoarthritis.

Kobsar D¹, Osis ST², Hettinga BA², Ferber R³.

Author information

Abstract

OBJECTIVE:

Muscle strengthening exercises have been shown to improve pain and function in adults with mild-to-moderate knee osteoarthritis, but individual response rates can vary greatly. Predicting individuals who respond and those who do not is important in developing a more efficient and effective model of care for knee osteoarthritis (OA). Therefore, the purpose of this study was to use pre-intervention gait kinematics and patient-reported outcome measures to predict post-intervention response to a 6-week hip strengthening exercise intervention in patients with mild-to-moderate knee OA.

METHODS:

Thirty-nine patients with mild-to-moderate knee osteoarthritis completed a 6-week hip-strengthening program and were subgrouped as Non-Responders, Low-Responders, or High-Responders following the intervention based on their change in Knee injury Osteoarthritis Outcome Score (KOOS). Predictors of responder subgroups were retrospectively determined from baseline patient-reported outcome measures and kinematic gait parameters in a discriminant analysis of principal components. A 3-4 year follow-up on 16 of the patients with knee OA was also done to examine long-term changes in these parameters.

RESULTS:

A unique combination of patient-reported outcome measures and kinematic factors was able to successfully subgroup patients with knee osteoarthritis with a cross-validated classification accuracy of 85.4%. Lower patient-reported function in daily living (ADL) scores and hip frontal plane kinematics during the loading response were most important in classifying High-Responders from other sub-groups, while a combination of hip, knee, ankle kinematics were used to classify Non-Responders from Low-Responders.

CONCLUSION:

Patient-reported outcome measures and objective biomechanical gait data can be an effective method of predicting individual treatment success to an exercise intervention. Measuring gait kinematics, along with patient-reported outcome measures in a clinical setting can be useful in helping make evidence-based decisions regarding optimal treatment for patients with knee OA. PMID: 26444426

30 A. IMPINGEMENT**Imaging**

Imaging Prevalence of Femoroacetabular Impingement in Symptomatic patients, Athletes, and Asymptomatic Individuals: a Systematic Review

Vasco V. Mascarenhas, Paulo Rego, Pedro Dantas, Fátima Morais, Justin McWilliams, Diego Collado, Hugo Marques, Augusto Gaspar, Francisco Soldado, José G. Consciência

Highlights

- Imaging evidence of FAI is common among athletes, asymptomatic, and symptomatic populations.
- Significant differences in type and imaging signs of FAI exist among these groups that need to be considered in patients' decision making.
- Percentage of patients with Cam-type and mixed-type morphotypes is significantly different across groups.
- Significant differences in mean alpha angles were noted across groups, being greater in the symptomatic versus either the asymptomatic or athlete groups
- FAI should be considered a clinical diagnosis with patient history and physical examination being the cornerstone of hip evaluation.

Abstract

Background There is a wide discrepancy in reported prevalence rates for cam, pincer, and mixed femoroacetabular impingement (FAI), particularly among distinct populations, namely asymptomatic or symptomatic subjects and athletes. No systematic analysis to date has yet compared studies among these groups to determine differences in radiographic signs of FAI.

Methods A systematic review of existing literature was performed to determine the prevalence of radiographic signs of FAI among athletes, asymptomatic subjects, and symptomatic patients. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were applied to systematically search PubMed, MEDLINE, CINAHL, and Cochrane databases.

Results We identified 361 studies in our literature search. After considering the exclusion criteria, 60 were included in this systematic review: 15 in athletes, 10 in purely asymptomatic patients, and 35 in symptomatic, non-athlete populations. Cam impingement was significantly ($p=0.0003$) more common in athletes versus asymptomatic subjects but not compared to symptomatic patients ($p=0.107$). In addition, cam FAI was significantly more common in symptomatic versus asymptomatic cases ($p=0.009$). The percentage of patients with cam-type FAI showed significant differences across groups ($p=0.006$). No significant differences were found between pincer-type FAI morphology prevalence when comparing athletes to symptomatic patients. However, mixed-type FAI was significantly more common in athletes versus asymptomatic subjects ($p=0.03$) and in asymptomatic versus symptomatic subjects ($p=0.015$). The percentage of patients with mixed-type FAI showed significant differences across groups ($p=0.041$). The mean alpha angle was significantly greater in the symptomatic group versus either the asymptomatic or athlete group ($p<0.001$). Significant differences in mean alpha angles were noted across groups ($p=0.0000$).

Conclusions Imaging suspicion of FAI is common among athletes, asymptomatic, and symptomatic populations. However, significant differences in type and imaging signs of FAI exist among these groups that need to be considered in patients' decision making.

Cam and inflammation

Osteoarthritis Cartilage. 2015 Nov;23(11):1897-905. doi: 10.1016/j.joca.2015.03.026.

Associations of markers of matrix metabolism, inflammation markers, and adipokines with superior cam deformity of the hip and their relation with future hip osteoarthritis.

van Spil WE¹, Agricola R², Drossaers-Bakker KW³, Weinans H⁴, Lafeber FP⁵.

Author information

Abstract**OBJECTIVE:**

First, to study how markers of matrix metabolism, inflammation markers, and adipokines relate to (superior) cam deformity and (possible) cam impingement of the hip. Second, to investigate whether they can identify subjects with cam deformity that are at risk of future hip osteoarthritis (OA).

METHOD:

In a cohort of 1002 subjects (CHECK), (superior) cam deformity was defined by an alpha angle $>60^\circ$ on anteroposterior pelvic radiographs and (possible) cam impingement by a cam deformity together with internal hip rotation $\leq 20^\circ$. Hip OA at 5-year follow-up was defined by Kellgren and Lawrence grade ≥ 2 or total hip replacement.

RESULTS:

Subjects with (superior) cam deformity and (possible) cam impingement showed lower levels of bone turnover markers (uCTX-I, uNTX-I, sPINP, sOC) than those without. Cam deformity was positively associated with future hip OA, but associations were weaker at high levels of bone turnover. sCOMP and sHA levels were higher in subjects with cam deformity, while other cartilage and synovium markers were not. Some markers of inflammation (pLeptin, pAdiponectin, and erythrocyte sedimentation rate) were lower in presence of cam deformity and cam impingement, but high-sensitivity C-reactive protein was not. Most associations depended largely on gender differences.

CONCLUSION:

Bone metabolism may be relevant in the pathogenesis of (superior) cam deformity and in the development of (superior) cam deformity into hip OA. Subjects with cam deformity and cam impingement surprisingly showed lower levels of inflammation markers and adipokines. Associations of cartilage turnover markers with cam deformity and cam impingement were less obvious.

KEYWORDS: Adipokines; Biomarkers; Cam deformity; Cam impingement; Hip osteoarthritis; Inflammation

PMID: 26521735

32 A. KNEE/ACL**ACL/meniscus**

Knee Surg Sports Traumatol Arthrosc. 2015 Oct 16.

Timing of anterior cruciate ligament reconstruction within the first year after trauma and its influence on treatment of cartilage and meniscus pathology.

Krutsch W¹, Zellner J², Baumann F², Pfeifer C², Nerlich M², Angele P^{2,3}.

Author information

Abstract

PURPOSE:

Anterior cruciate ligament (ACL) ruptures are often associated with primary meniscal and cartilage lesions. Late reconstruction of ACL-deficient knees may increase the risk of developing secondary meniscal and cartilage lesions; hence, the timing of ACL repair is of the utmost importance. Because meniscus outcome is also a potential predictor for osteoarthritis (OA), this study compared ACL repair within the first 6 months after injury to that of surgery conducted 7-12 months after injury with regard to the incidence of meniscal and cartilage lesions.

METHODS:

This prospective cross-sectional study included all complete isolated primary ACL ruptures treated in our institution within 1 year after trauma over a 12-month period. Exclusion criteria were revision ACL, complex ligament injuries, previous knee surgery, and missing injury data. Cartilage lesions were classified according to the score established by the International Cartilage Repair Society (ICRS score) and meniscal tears according to their treatment options.

RESULTS:

Two hundred and thirty-three of 730 patients (162 men, 71 women) with ACL repair met the inclusion criteria. 86.3 % of surgical interventions were conducted within 6 months and 13.7 % after 6 months of trauma. Severe cartilage lesions grade III-IV did not significantly differ between the different time points of ACL repair (<6 months 39.9 %; >6 months 31.3 %; p = n.s.). Medial meniscus lesions received significantly higher meniscal repair in early compared to delayed ACL repair. Significantly higher rate of meniscal repair of the medial meniscus was seen in cases of early ACL repair compared to delayed (<6 months 77.2 %, >6 months 46.7; p = 0.022). The rate of medial meniscal repair in early ACL repair was significantly higher for women (89.5-0 %; p = 0.002), however, not for men (73.3-53.8 %; p = n.s.). No differences were found for lateral meniscal lesions, with regard to neither the different time points (p = n.s.) nor the sex (p = n.s.).

CONCLUSIONS:

Because of the significantly higher rate of prognostically advantageous meniscal repair, the recommendation for an ACL reconstruction within 6 months after trauma was made to preserve the meniscus and reduce the risk of developing OA.

LEVEL OF EVIDENCE: Prospective cross-sectional cohort study, Level II.

KEYWORDS: ACL repair; ACL rupture; Cartilage lesion; Meniscus repair; Osteoarthritis
PMID: 26475153

34. PATELLA

Patella tendinopathy in jumper

Rehabilitation of Patellar Tendinopathy Using Hip Extensor Strengthening and Landing-Strategy Modification: Case Report With 6-Month Follow-up

Authors: Rodrigo Scattone Silva, PT, MSc¹, Ana Luisa G. Ferreira, PT, MSc¹, Theresa H. Nakagawa, PT, PhD¹, José E. M. Santos, MD, PhD², Fábio V. Serrão, PT, PhD¹

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2015, **Volume:** 45 **Issue:** 11 **Pages:** 899-909 doi:10.2519/jospt.2015.6242

Study Design Case report.

Background Although eccentric exercises have been a cornerstone of the rehabilitation of athletes with patellar tendinopathy, the effectiveness of this intervention is sometimes less than ideal. Athletes with patellar tendinopathy have been shown to have different jump-landing patterns and lower hip extensor strength compared to asymptomatic athletes. To our knowledge, the effectiveness of an intervention addressing these impairments has not yet been investigated.

Case Description The patient was a 21-year-old male volleyball athlete with a 9-month history of patellar tendon pain. Pain was measured with a visual analog scale. Disability was measured with the Victorian Institute of Sport Assessment-patella questionnaire. These assessments were conducted before and after an 8-week intervention, as well as at 6 months after the intervention. Hip and knee kinematics and kinetics during drop vertical jump and isometric strength were also measured before and after the 8-week intervention. The intervention consisted of hip extensor muscle strengthening and jump landing strategy modification training. The patient did not interrupt volleyball practice/competition during rehabilitation.

Outcomes After the 8-week intervention and at 6 months postintervention, the athlete was completely asymptomatic during sports participation. This favorable clinical outcome was accompanied by a 50% increase in hip extensor moment, a 21% decrease in knee extensor moment, and a 26% decrease in patellar tendon force during jump landing measured at 8 weeks.

Discussion This case report provides an example of how an 8-week intervention of hip muscle strengthening and jump-landing modification decreased pain and disability and improved jump-landing biomechanics in an athlete with patellar tendinopathy.

Level of Evidence Therapy, level 4. *J Orthop Sports Phys Ther* 2015;45(11):899–909. Epub 21 Sep 2015. doi:10.2519/jospt.2015.6242

Keyword: biomechanics, jumper's knee, overuse, tendon, volleyball

Patella tendinopathy

Patellar Tendinopathy: Clinical Diagnosis, Load Management, and Advice for Challenging Case Presentations

Authors: Peter Malliaras, BPhysio (Hons), PhD^{1,2}, Jill Cook, PhD^{1,3}, Craig Purdam, MSportsPhysio³⁻⁵ Ebonie Rio, BPhysio (Hons), MSportsPhysio, PhD^{1,3}
Published: *Journal of Orthopaedic & Sports Physical Therapy*,

2015, **Volume:** 45 **Issue:** 11 **Pages:** 887-898 doi:10.2519/jospt.2015.5987

Synopsis The hallmark features of patellar tendinopathy are (1) pain localized to the inferior pole of the patella and (2) load-related pain that increases with the demand on the knee extensors, notably in activities that store and release energy in the patellar tendon. While imaging may assist in differential diagnosis, the diagnosis of patellar tendinopathy remains clinical, as asymptomatic tendon pathology may exist in people who have pain from other anterior knee sources. A thorough examination is required to diagnose patellar tendinopathy and contributing factors. Management of patellar tendinopathy should focus on progressively developing load tolerance of the tendon, the musculoskeletal unit, and the kinetic chain, as well as addressing key biomechanical and other risk factors. Rehabilitation can be slow and sometimes frustrating. This review aims to assist clinicians with key concepts related to examination, diagnosis, and management of patellar tendinopathy. Difficult clinical presentations (eg, highly irritable tendon, systemic comorbidities) as well as common pitfalls, such as unrealistic rehabilitation time frames and overreliance on passive treatments, are also discussed. *J Orthop Sports Phys Ther* 2015;45(11):887–898. Epub 21 Sep 2015. doi:10.2519/jospt.2015.5987

Keyword: anterior knee pain, eccentric exercises, knee, tendinitis

37. OSTEOARTHRITIS/KNEE

Fish oil

Ann Rheum Dis. 2015 Sep 9. pii: annrheumdis-2014-207169. doi: 10.1136/annrheumdis-2014-207169.

Fish oil in knee osteoarthritis: a randomised clinical trial of low dose versus high dose.

Hill CL¹, March LM², Aitken D³, Lester SE⁴, Battersby R⁴, Hynes K³, Fedorova T², Proudman SM⁵, James M⁵, Cleland LG⁵, Jones G³.

Author information

Abstract

OBJECTIVES:

To determine whether high-dose fish oil is superior to low-dose supplementation for symptomatic and structural outcomes in knee osteoarthritis (OA).

METHODS:

A randomised, double-blind, multicentre trial enrolled 202 patients with knee OA and regular knee pain. They were randomised 1:1 to high-dose fish oil (4.5 g omega-3 fatty acids) 15 mL/day or (2) low-dose fish oil (blend of fish oil and sunola oil; ratio of 1:9, 0.45 g omega-3 fatty acids) 15 mL/day. The primary endpoints were Western Ontario and McMaster Universities Arthritis Index (WOMAC) pain score at 3, 6, 12 and 24 months, and change in cartilage volume at 24 months. Secondary outcomes included WOMAC function, quality of life, analgesic and non-steroidal anti-inflammatory drug use and bone marrow lesion score.

RESULTS:

Although there was improvement in both groups, the low-dose fish oil group had greater improvement in WOMAC pain and function scores at 2 years compared with the high-dose group, whereas between-group differences at 1 year did not reach statistical significance. There was no difference between the two groups in cartilage volume loss at 2 years. For other secondary endpoints, there was no difference between the two groups at 2 years.

CONCLUSIONS:

In people with symptomatic knee OA, there was no additional benefit of a high-dose fish oil compared with low-dose fish oil. The combination comparator oil appeared to have better efficacy in reducing pain at 2 years, suggesting that this requires further investigation.

TRIAL REGISTRATION NUMBER:

Australian New Zealand Clinical Trials Registry (ACTRN 12607000415404).

KEYWORDS: Epidemiology; Knee Osteoarthritis; Treatment
PMID: 26353789

Trauma/inflammation/OA

Osteoarthritis Cartilage. 2015 Nov;23(11):1825-34. doi: 10.1016/j.joca.2015.08.015.

Inflammation in joint injury and post-traumatic osteoarthritis.Lieberthal J¹, Sambamurthy N², Scanzello CR³.

Author information

Abstract

Inflammation is a variable feature of osteoarthritis (OA), associated with joint symptoms and progression of disease. Signs of inflammation can be observed in joint fluids and tissues from patients with joint injuries at risk for development of post-traumatic osteoarthritis (PTOA). Furthermore, inflammatory mechanisms are hypothesized to contribute to the risk of OA development and progression after injury. Animal models of PTOA have been instrumental in understanding factors and mechanisms involved in chronic progressive cartilage degradation observed after a predisposing injury. Specific aspects of inflammation observed in humans, including cytokine and chemokine production, synovial reaction, cellular infiltration and inflammatory pathway activation, are also observed in models of PTOA. Many of these models are now being utilized to understand the impact of post-injury inflammatory response on PTOA development and progression, including risk of progressive cartilage degeneration and development of chronic symptoms post-injury. As evidenced from these models, a vigorous inflammatory response occurs very early after joint injury but is then sustained at a lower level at the later phases.

This early inflammatory response contributes to the development of PTOA features including cartilage erosion and is potentially modifiable, but specific mediators may also play a role in tissue repair. Although the optimal approach and timing of anti-inflammatory interventions after joint injury are yet to be determined, this body of work should provide hope for the future of disease modification in PTOA.

Published by Elsevier Ltd.

KEYWORDS: Chemokines; Cytokines; Inflammation; Joint injury; Osteoarthritis; Post-traumatic arthritis

PMID: 26521728

Exercise and OA

Clin J Sport Med. 2015 Nov;25(6):509-17. doi: 10.1097/JSM.000000000000170.

Efficacy of Hip Strengthening Exercises Compared With Leg Strengthening Exercises on Knee Pain, Function, and Quality of Life in Patients With Knee Osteoarthritis.

Lun V¹, Marsh A, Bray R, Lindsay D, Wiley P.

Author information

Abstract

OBJECTIVE:

The purpose of this study was to compare the efficacy of hip and leg strengthening exercise programs on knee pain, function, and quality of life (QOL) of patients with knee osteoarthritis (KOA).

DESIGN:

Single-Blinded Randomized Clinical Trial.

SETTING:

Patients with KOA.

PARTICIPANTS:

Male and female subjects were recruited from patients referred to the University of Calgary Sport Medicine Center and from newspaper advertisements.

INTERVENTIONS:

Thirty-seven and 35 patients with KOA were randomly assigned to either a 12-week hip or leg strengthening exercise program, respectively. Both exercise programs consisted of strengthening and flexibility exercises, which were completed 3 to 5 days a week. The first 3 weeks of exercise were supervised and the remaining 9 weeks consisted of at-home exercise.

MAIN OUTCOME MEASURES:

Knee Injury and Osteoarthritis Score (KOOS) and Western Ontario McMaster Arthritis Index (WOMAC) questionnaires, 6-minute walk test, hip and knee range of motion (ROM), and hip and leg muscle strength.

RESULTS:

Statistically and clinically significant improvements in the KOOS and WOMAC pain subscale scores were observed in both the hip and leg strengthening programs. There was no statistical difference in the change in scores observed between the 2 groups. Equal improvements in the KOOS and WOMAC function and QOL subscales were observed for both programs. There was no change in hip and knee ROM or hip and leg strength in either group.

CONCLUSIONS:

Isolated hip and leg strengthening exercise programs seem to similarly improve knee pain, function, and QOL in patients with KOA.

CLINICAL RELEVANCE:

The results of this study show that both hip and leg strengthening exercises improve pain and QOL in patients with KOA and should be incorporated into the exercise prescription of patients with KOA.

PMID: 25591130

Hyaluronic acid

BMC Musculoskelet Disord. 2015 Oct 26;16(1):321. doi: 10.1186/s12891-015-0775-z.

The mechanism of action for hyaluronic acid treatment in the osteoarthritic knee: a systematic review.

Altman RD¹, Manjoo A², Fierlinger A³, Niazi F⁴, Nicholls M⁵.

Author information

Abstract

BACKGROUND:

Knee osteoarthritis (OA) is one of the leading causes of disability within the adult population. Current treatment options for OA of the knee include intra-articular (IA) hyaluronic acid (HA), a molecule found intrinsically within the knee joint that provides viscoelastic properties to the synovial fluid. A variety of mechanisms in which HA is thought to combat knee OA are reported in the current basic literature.

METHODS:

We conducted a comprehensive literature search to identify currently available primary non-clinical basic science articles focussing on the mechanism of action of IA-HA treatment. Included articles were assessed and categorized based on the mechanism of action described within them. The key findings and conclusions from each included article were obtained and analyzed in aggregate with studies of the same categorical assignment.

RESULTS:

Chondroprotection was the most frequent mechanism reported within the included articles, followed by proteoglycan and glycosaminoglycan synthesis, anti-inflammatory, mechanical, subchondral, and analgesic actions. HA-cluster of differentiation 44 (CD44) receptor binding was the most frequently reported biological cause of the mechanisms presented. High molecular weight HA was seen to be superior to lower molecular weight HA products. HA derived through a biological fermentation process is also described as having favorable safety outcomes over avian-derived HA products.

CONCLUSIONS:

The non-clinical basic science literature provides evidence for numerous mechanisms in which HA acts on joint structures and function. These actions provide support for the purported clinical benefit of IA-HA in OA of the knee. Future research should not only focus on the pain relief provided by IA-HA treatment, but the disease modification properties that this treatment modality possesses as well.

PMID: 26503103

Glucosamine helpful

Effects of Glucosamine Sulfate on the use of Rescue Non-Steroidal Anti-Inflammatory Drugs in Knee Osteoarthritis: Results From The Pharmaco-Epidemiology Of Gonarthrosis (PEGASus) Study

Lucio C. Rovati, MD Federica Girolami, PharmD, MSc Massimo D'Amato, MD,
Giampaolo Giacobelli, PhD

Background and Objective

The use of Symptomatic Slow-Acting Drugs in Osteoarthritis (SYSADOAs) may be expected to decrease the use of concomitant medications for rescue analgesia, including non-steroidal anti-inflammatory drugs (NSAIDs). The Pharmaco-Epidemiology of GonArthroSis (PEGASus) study was designed to assess this possibility.

Methods

PEGASus was a cohort study of continuous recruitment of patients with “dynamic” exposure to the investigated SYSADOA (crystalline glucosamine sulfate, glucosamine hydrochloride, chondroitin sulfate, diacerein, avocado soybean unsaponifiables, all at approved dosages). Investigators were rheumatologists or general practitioners randomly selected from French telephone lists. Patients diagnosed with knee osteoarthritis (OA) were recruited when consulting an investigator for a symptom flare and were prescribed, or not, one of the SYSADOAs as per clinical judgment. Follow-up visits were as per routine medical practice in the 12 months following enrolment, with telephone interviews after 1 month and at 4-month intervals thereafter up to 24 months. Use of NSAIDs was recorded, as well as the dynamism of treatment exposure consisting of continuing the prescribed SYSADOA, switching, discontinuation or initiation of a SYSADOA. Patient exposure was expressed in two-month time units, with any NSAID use as Yes/No binary outcome during each unit. Odds ratios (OR and 95% confidence interval [CI]) of NSAID use were calculated for periods of exposure to each SYSADOA, by multivariate logistic regression for an 80% power and 95% confidence to see a decrease of at least 15%.

Results

This report consists of the full data pertaining to crystalline glucosamine sulfate, while results of other SYSADOAs were summarized as available from the French Health Authority (HAS) website (www.has-sante.fr). Of 6451 patients in the PEGASus cohort, 315 patients received crystalline glucosamine sulfate, they were exposed for 481 two-month time units and had an incident use of NSAIDs of 18.7%. In the control cohort (9237 time units) NSAID incident use was 23.8%. Crystalline glucosamine sulfate significantly decreased the risk of NSAID consumption by up to 36% (OR =0.64; 95% CI: 0.45 to 0.92) in the primary analysis foreseen by the protocol; OR =0.74; 95% CI: 0.54 to 1.01) at the very limit of significance in a sensitivity analysis accounting for an extension of the study and of the control cohort. None of the other SYSADOAs showed any hint of a decrease in the use of NSAIDs.

Conclusion

Crystalline glucosamine sulfate was the only SYSADOA that decreased the use of NSAIDs in this pharmaco-epidemiology study in patients with knee OA.

Keywords:

Knee osteoarthritis, Glucosamine sulfate, Glucosamine hydrochloride, SYSADOA, Non-steroidal anti-inflammatory drugs (NSAIDs), Pharmaco-epidemiology

38 A. FOOT AND ANKLE

Limited dorsi flexion

Man Ther. 2015 Sep 21. pii: S1356-689X(15)00184-8. doi: 10.1016/j.math.2015.09.010.

The association between loss of ankle dorsiflexion range of movement, and hip adduction and internal rotation during a step down test.

Bell-Jenje T¹, Olivier B², Wood W¹, Rogers S¹, Green A³, McKinon W³.

Author information**Abstract**

A pattern of excessive hip adduction and internal rotation with medial deviation of the knee has been associated with numerous musculo-skeletal dysfunctions. Research into the role that ankle dorsiflexion (DF) range of motion (ROM) play in lower limb kinematics is lacking. The objective of this cross-sectional, observational study was to investigate the relationship between ankle DF ROM, and hip adduction and hip internal rotation during a step-down test with and without heel elevation in a healthy female population. Hip and ankle ROM was measured kinematically using a ten-camera Optitrack motion analysis system. Thirty healthy female participants (mean age = 20.4 years; SD = 0.9 years) first performed a step-down test with the heel of the weight bearing foot flat on the step and then with the heel elevated on a platform. Ankle DF, hip adduction and hip internal rotation were measured kinematically for the supporting leg. Participants who had 17° or less of ankle DF ROM displayed significantly more hip adduction ROM ($p = 0.001$; Cohen's d effect size = 1.2) than the participants with more than 17° of DF during the step-down test. Participants with limited DF ROM showed a significant reduction in hip adduction ROM during the elevated-heel step-down test ($p = 0.008$). Hip internal rotation increased in both groups during the EHSD compared to the step-down test ($p > 0.05$) Reduced ankle DF ROM is associated with increased hip adduction utilised during the step-down test. Ankle DF should be taken into account when assessing patients with aberrant frontal plane lower limb alignment.

KEYWORDS: Alignment; Kinematics; Range of movement
PMID: 26432547

40. ANKLE SPRAINS AND INSTABILITY

High ankle

J Am Acad Orthop Surg. 2015 Nov;23(11):661-73. doi: 10.5435/JAAOS-D-13-00135.

High Ankle Sprains and Syndesmotic Injuries in Athletes.

Hunt KJ, Phisitkul P, Pirolo J, Amendola A.

Abstract

Treatment of athletes with ligamentous injuries of the tibiofibular syndesmosis can be problematic. The paucity of historic data on this topic has resulted in a lack of clear guidelines to aid in imaging and diagnosing the injury, assessing injury severity, and making management decisions. In recent years, research on this topic has included an abundance of epidemiologic, clinical, and basic science investigations of syndesmotic injuries that are purely ligamentous or associated with ankle fracture. Several classification systems can be used to classify ligamentous injury to the syndesmosis. These systems integrate clinical and radiographic findings but do not address the location of the injury or its severity. Injury to the syndesmosis can be purely ligamentous; however, many unstable syndesmotic injuries are associated with fractures. Nonsurgical management can be used for stable ligamentous injuries without frank diastasis, but surgical management, including screw or suture-button fixation, is indicated for fractures with unstable syndesmotic injuries.

KEYWORDS: ankle arthroscopy; ankle injuries; external rotation; pronation; stress radiography; suture button; syndesmosis; syndesmotic screws

PMID: 26498585

41 A. ACHILLES TENDON AND CALF

Return to sports

CLINICAL COMMENTARY

A Proposed Return-to-Sport Program for Patients With Midportion Achilles Tendinopathy: Rationale and Implementation

Authors: Karin Grävare Silbernagel, PT, ATC, PhD¹, Kay M. Crossley, BAppSc (Physio), PhD²

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2015, **Volume:** 45 **Issue:** 11 **Pages:** 876-886 doi:10.2519/jospt.2015.5885

Synopsis Achilles tendinopathy is a common overuse injury in athletes involved in running and jumping activities and sports. The intervention with the highest level of evidence is exercise therapy, and it is recommended that all patients initially be treated with exercise for at least 3 months prior to considering other treatment options. Recovery from Achilles tendinopathy can take up to a year, and there is a high propensity for recurrence, especially during the return-to-sport phase. The extent of the tendon injury, the age and sex of the athlete, the magnitude of pain/symptoms, the extent of impairments, and the demands of the sport all need to be considered when planning for return to sport. This clinical commentary describes an approach to return to sport for patients with midportion Achilles tendinopathy. The aim of the return-to-sport program is to facilitate the decision-making process in returning an athlete with midportion Achilles tendinopathy back to full sport participation and to minimize the chances for recurrence of the injury. *J Orthop Sports Phys Ther* 2015;45(11):876–886. Epub 21 Sep 2015. doi:10.2519/jospt.2015.5885

Keyword: Achilles tendon, eccentric, exercise, jumping, running, tendinosis

42. PLANTAR SURFACE

Comparison of different treatment strategies

Effect of stretching with and without muscle strengthening exercises for the foot and hip in patients with plantar fasciitis: A randomized controlled single-blind clinical trial

Danilo H. Kamonseki Geiseane A. Gonçalves Liu C. Yi Império L. Júnio

Highlights

- •Daily stretching exercises are effective at improving pain and function.
- •Stretching with strengthening did not achieve better results than stretching alone.
- •The three treatment groups had high drop-out rate.
- •Natural progression cannot be inferred because of the lack of non-treatment group.

Abstract

Objective

to compare the effect of stretching with and without muscle strengthening of the foot alone or foot and hip on pain and function in patients with plantar fasciitis.

Design

Single blind randomized controlled trial.

Method

Eighty-three patients with plantar fasciitis were allocated to one of three treatment options for an eight-week period: Foot Exercise Group (FEG – extrinsic and intrinsic foot muscles), Foot and Hip (abductor and lateral rotator muscles) Exercise Group (FHEG) and Stretching Exercise Group (SEG). Main measures: A visual analog scale for pain, the Foot and Ankle Outcome Score and the Star Excursion Balance Test. All evaluations were performed before treatment and after the last treatment session.

Results

Improvements were found in all groups regarding the visual analog scale, the pain, activities of daily living, sports and recreation, quality of life ($p < 0.001$) and other symptoms ($p < 0.01$) subscales of the Foot and Ankle Outcome Score as well as posterolateral movement, posteromedial movement and composite score ($p < 0.001$) on the Star Excursion Balance Test. No time-group interactions were found for any of the variables ($p > 0.05$).

Conclusions

All three exercise protocols analyzed led to improvements at eight-week follow-up in pain, function and dynamic lower limb stability in patients with plantar fasciitis.

The trial is registered at ClinicalTrials.gov.br, number: 05439012.0.0000.5505.

Keywords: plantar fasciitis, muscle stretching exercises, resistance training, randomized controlled trial

45 D. MANUAL THERAPY EXTREMITIES

Hip OA and MWM

Immediate effects of hip mobilization with movement in patients with hip osteoarthritis: a randomised controlled trial

Carlos Bezelga (Physical Therapist), Francisco Neto (Physical Therapist), Francisco Albuquerque-Sendín (Physical Therapist), Toby Hall, Natália Oliveira-Campelo (Professor)

Highlights

- Immediate effects of hip MWM and placebo were evaluated in patients with hip OA.
- MWM decreased pain, improved ROM, and physical function greater than placebo.
- These results direct future studies to investigate long-term efficacy.

Abstract

Background

Mobilization with movement (MWM) has been shown to reduce pain, increase range of motion (ROM) and physical function in a range of different musculoskeletal disorders. Despite this evidence, there is a lack of studies evaluating the effects of MWM for hip osteoarthritis (OA).

Objectives

To determine the immediate effects of MWM on pain, ROM and functional performance in patients with hip OA.

Design

Randomized controlled trial with immediate follow-up.

Method

Forty consenting patients (mean age 78 ± 6 years; 54% female) satisfied the eligibility criteria. All participants completed the study. Two forms of MWM techniques (n=20) or a simulated MWM (sham) (n=20) were applied. Primary outcomes: pain recorded by numerical rating scale (NRS). Secondary outcomes: hip flexion and internal rotation ROM, and physical performance (timed up and go, sit to stand, and 40m self placed walk test) were assessed before and after the intervention.

Results

For the MWM group, pain decreased by 2 points on the NRS, hip flexion increased by 12.2° , internal rotation by 4.4° , and functional tests were also improved with clinically relevant effects following the MWM. There were no significant changes in the sham group for any outcome variable.

Conclusions

Pain, hip flexion ROM and physical performance immediately improved after the application of MWM in elderly patients suffering hip OA. The observed immediate changes were of clinical relevance. Future studies are required to determine the long-term effects of this intervention.

48 A. STM

TA sliding enhanced after MFR

Increased Sliding of Transverse Abdominis during Contraction after Myofascial Release in Patients with Chronic Low Back Pain

Yen-Hua Chen Huei-Ming Chai Yio-Wha Shau Chung-Li Wang Shwu-Fen Wang

Highlights

- Increased change of thickness of TrA is noted after release in patients and control.
- Increased sliding is noted in the both ends of musculofascial junctions of the TrA.
- The musculofascial corset was shifted anteriorly in patients after release.

Abstract**Purpose**

Recent evidence suggested the significance of integrity of the tension balance of the muscle-fascia corset system in spinal stability, particularly the posterior musculofascial junction which is adjacent to dorsal located paraspinal muscles joining each other at lateral raphe (LR). The purpose of this study was to compare the contraction of the transversus abdominis (TrA) at both anterior and posterior musculofascial muscle-fascia junctions in patients with low back pain (LBP) and asymptomatic participants before and immediately after a sustained manual pressure to LR.

Methods

The present observational cohort study used a single-instance, test-retest design. The outcome variables included the resting thickness (Tr), the thickness during contraction (Tc), change in thickness (ΔT), sliding of musculofascial junction (ΔX), muscle length at rest (L) and displacement pattern (ΔD) of the TrA using ultrasonography. Vertical tolerable pressure at the LR was applied manual for one minute. Tr, Tc, ΔT , and ΔX were analyzed by three-way ANOVA (musculofascial junction sites*group* pre-post manual release). ΔL and ΔD were analyzed by two-way ANOVA (group* pre-post manual release).

Results

Participants with LBP revealed less Tc, ΔT and ΔX at both sites ($p < 0.005$). After myofascial release, LBP group demonstrated a positive ΔD of the musculofascial junctions at both end ($p < 0.001$). Nevertheless, both groups increased the ΔT and ΔX at both sites ($p < 0.001$ and 0.001 , respectively).

Conclusion

The result indicated immediately effect of sustained manual pressure on musculofascial junction of TrA and supported the concept that the possible imbalanced tension of the myofascia corset of TrA in patients with LBP.

Keywords: Abdominal drawing-in maneuver, Transversus abdominis, Musculofascial junction, Tensegrity, Lateral raphe

48 B. TRIGGER POINTS NEEDLING/ACUPUNCTURE**Review**

Arch Phys Med Rehabil. 2015 Oct 14. pii: S0003-9993(15)01242-3. doi: 10.1016/j.apmr.2015.09.021.

The Prevalence of Myofascial Trigger Points in Spinal Disorders: a Systematic Review and Meta-Analysis.

Chiarotto A¹, Clijisen R², Fernandez-de-Las-Penas C³, Barbero M⁴.
Author information

Abstract

OBJECTIVE:

To retrieve, appraise, and synthesize the results of studies on the prevalence of active and latent myofascial trigger points (MTrPs) in subjects with spinal pain disorders.

DATA SOURCES:

The databases PubMed, EMBASE, and CINAHL were searched, with no date or language restrictions. Search terms included controlled and free text terms for spinal disorders and MTrPs. Further searches were conducted in Google Scholar and by contacting three experts in this field. Citation tracking of eligible studies was performed.

STUDY SELECTION:

Two reviewers independently selected observational studies assessing the prevalence of active and/or latent MTrPs in at least one group of adults with a spinal disorder. Twelve studies met the eligibility criteria.

DATA EXTRACTION:

Methodological quality was assessed by two reviewers independently using a modified version of the Downs and Black checklist. Two reviewers also used a customized form to extract studies and subjects' characteristics, and the proportions of subjects with active and/or latent MTrPs in each muscle assessed.

DATA SYNTHESIS:

A meta-analysis was performed when there was sufficient clinical homogeneity in at least two studies for the same spinal disorder. The GRADE approach was used to rate the body of evidence in each meta-analysis. A qualitative description of the results of single studies was provided. Low-quality evidence underpinned pooled estimates of MTrPs in the upper body muscles of subjects with chronic neck pain. The point prevalence of MTrPs in different muscles of other disorders (e.g., whiplash-associated disorders, non-specific low back pain) was extracted from single studies with low methodological quality and small samples. Active MTrPs were found to be present in all assessed muscles of subjects diagnosed with different spinal pain disorders. Latent MTrPs were not consistently more prevalent in subjects with a spinal disorder than in healthy controls.

CONCLUSIONS:

The MTrPs point prevalence estimates in this review should be viewed with caution, as future studies with large samples and high methodological quality are likely to change them substantially.

KEYWORDS: Low Back Pain; Neck Pain; Prevalence; Trigger Points; Whiplash Injuries
PMID: 26475933

52. EXERCISE

Exercise and inflammation

Intermittent bout exercise training down-regulates age-associated inflammation in skeletal musclesJeong-Seok Kim^{a, b}, Ho-Keun Yi^{a, *}

Highlights

- Intermittent bout exercise training reduces serum and muscle inflammatory molecules in old rats.
- Intermittent bout exercise training activates skeletal muscle growth factors in old rats.
- Intermittent bout exercise training has to reduce age-associated inflammatory molecules.

Abstract

Aging is characterized the progressive decline in mass and function of the skeletal muscle along with increased susceptibility to inflammation, oxidative stress, and atrophy. In this study, we investigate the effect of intermittent bout and single bout exercise training on inflammatory molecules in young (3 months) and old (22 months) male Sprague–Dawley rats. The rats were divided into 6 groups. Young and old rats were randomly assigned for control and two exercise training groups, single bout (S type): 30 min/day, 5 days/week for 6 weeks and intermittent bout (I type): three times for 10 min/day, 5 days/week for 6 weeks respectively. The exercise training was carried out a treadmill at a speed of 15 m/min (young) or 10 m/min (old) with a slope of 5°. After 48 h of the final exercise bout, muscle samples were collected for biochemical assay. I type exercise training reduced the serum levels of inflammatory molecules such as interleukin-1 β (IL-1 β), tumor necrosis factor-alpha (TNF- α), interleukin-6 (IL-6), and malondialdehyde (MDA) in old rats. In contrast, interleukin-4 (IL-4) and Superoxide dismutase (SOD) were elevated. Consequently in skeletal muscles, inducible nitric oxide synthase (iNOS) and cyclooxygenase-2 (COX-2) were decreased significantly in the old group of I type. However, the matrix metalloproteinase-2 (MMP-2) level had not positive effects. Also, phosphorylation of mammalian target of rapamycin (p-mTOR) and myogenic differentiation (MyoD) were increased markedly in S and I types of old rats. These results suggest that I type exercise training appears more effective to reduce age-associated inflammatory molecules, and may recommend in regulating against chronic complicated disease induced by aging.

54. POSTURE

Forward head

Eur Spine J. 2015 Oct 17.

Evaluation of forward head posture in sitting and standing positions.

Shaghayegh Fard B¹, Ahmadi A^{2,3}, Maroufi N¹, Sarrafzadeh J¹.
Author information

Abstract

PURPOSE:

Head postural assessment is part of the orthopaedic physical examination process and could help to identify faulty head postures. One of the most common faulty postures of the craniocervical region is the forward head posture (FHP). There are several methods to evaluate FHP but it is not clear which method is more precise. The aim of this study was to compare the craniovertebral angle (CVA) between a FHP and a healthy group in sitting and standing positions.

METHODS:

Twenty-five subjects with FHP (22.9 ± 2 years) and 25 normal subjects (21.9 ± 5 years) participated in this case-control study. Photography of the sagittal view was done in standing and relaxed sitting postures to determine the amount of the FHP.

RESULTS:

The results of independent t test showed a significant difference in the CVA between the FHP and healthy groups ($P < 0.001$). The result of paired t test showed a significant difference between CVA in standing and sitting postures for both groups ($P < 0.001$). Furthermore, the BMI had a significant negative correlation with CVA in standing position ($P < 0.01$).

CONCLUSIONS:

Our results indicated that the CVA was increased in the sitting posture compared to the standing posture and introduced the standing posture as a more sensitive posture to evaluate the FHP.

KEYWORDS: Cervical spine; Craniovertebral angle; Forward head posture; Position
PMID: 26476717

Six lumbar vertebrae's effect on posture

Eur Spine J. 2015 Oct 19.

Spinopelvic alignment and sagittal balance of asymptomatic adults with 6 lumbar vertebrae.

Yokoyama K¹, Kawanishi M², Yamada M², Tanaka H², Ito Y², Kawabata S³, Kuroiwa T³.

Author information

Abstract

PURPOSE:

The purpose of this study was to evaluate total spinal alignment in asymptomatic individuals with 6 lumbar vertebrae (LVs).

METHODS:

The present study comprised 167 Japanese adult volunteers with no spinal symptoms. In all individuals, standing radiographs of the entire spine were taken to measure the pelvic incidence (PI), sacral slope (SS), pelvic tilt (PT), lumbar lordosis (LL), C7 sagittal vertical axis (C7SVA), T1 slope, thoracic kyphosis (TK), C2-C7 sagittal vertical axis (C2-C7 SVA), and C2-C7 lordosis (C2-C7L). We used these parameters to compare individuals with 5LVs to those with 6LVs. We performed additional investigations regarding the relationship between L6 morphological characteristics and parameters.

RESULTS:

Out of 167 individuals, 6LVs were present in 29 (17.4 %). PI was significantly greater in individuals with 6LVs ($64.8^\circ \pm 9.54^\circ$) than in those with 5LVs ($51.3^\circ \pm 10.1^\circ$, $P < 0.0001$). Individuals with 6LVs also had significantly larger SS, PT, and C7SVA values (SS: $P = 0.0125$, PT: $P < 0.0001$, C7SVA: $P = 0.0172$). LL tended to be nonsignificantly greater in individuals with 6LVs ($P = 0.1588$). All of these changes were more noticeable in individuals in whom the L6 vertebra was classified as type II and III according to the Castellvi classification. Meanwhile, the presence of 6LVs has little influence on the alignment of the superior lumbar vertebrae.

CONCLUSIONS:

Asymptomatic individuals with 6LVs presented with different spinopelvic alignment compared to those with 5LVs. We need to establish a treatment strategy for symptomatic 6LV cases.

KEYWORDS: 6 lumbar vertebrae; Sagittal balance; Spinopelvic alignment

PMID: 26482498

56. ATHLETICS

Osteoporosis and activity

Phys Ther. 2015 Jul 23.

"You Have to Keep Moving, Be Active": Perceptions and Experiences of Habitual Physical Activity in Older Women With Osteoporosis.

Dohrn IM¹, Ståhle A², Roaldsen KS³.

Author information

Abstract

BACKGROUND:

Physical activity (PA) is essential for older adults with osteoporosis, and health care professionals play important roles in promoting PA and encouraging patients to make healthy choices. However, many factors influence habitual PA, and there is only limited knowledge about the perceptions and experiences of PA among older women with osteoporosis.

OBJECTIVES:

The purpose of this study was to describe perceptions and experiences of PA and the factors that influence habitual PA among older adults with osteoporosis, impaired balance, and fear of falling.

DESIGN:

This was a qualitative interview study applying interpretive content analysis with an inductive approach.

METHODS:

Informants were a purposeful sample of 18 women, aged 66 to 86 years, with osteoporosis, impaired balance, and fear of falling. Individual, semistructured, face-to-face interviews were recorded, transcribed, condensed, and coded to find subthemes and themes.

RESULTS:

The overall theme found was "Physical activity-a tool for staying healthy with osteoporosis." This overall theme comprised 2 main themes interpreting the challenges and possibilities of being physically active with osteoporosis. These themes were not separate but rather linked to each other like 2 sides of the same coin, with factors that could act as both barriers to and facilitators of PA. Personal preferences and osteoporosis-related concerns influenced habitual PA, and individualization was perceived as important.

LIMITATIONS:

Some results may be context specific and limit the transferability to people with other cultural or socioeconomic backgrounds.

CONCLUSIONS:

The women perceived that PA was an important tool to maintain health with osteoporosis and believed that they had a responsibility to use this tool. They had adapted to disease-specific limitations and developed strategies to overcome challenges and barriers to PA. Lack of PA promotion and conflicting advice about PA from physicians created uncertainty. Encouragement and guidance from physical therapists, individually or in groups, were very important.

PMID:26206217

Overtraining

Clin Physiol Funct Imaging. 2015 Oct 7. doi: 10.1111/cpf.12296.

A programme based on repeated hypoxia-hyperoxia exposure and light exercise enhances performance in athletes with overtraining syndrome: a pilot study.Susta D¹, Dudnik E², Glazachev OS².

Author information

Abstract

Overtraining syndrome (OTS) is a major concern among endurance athletes and is a leading cause in preventing them to perform for long periods. Intermittent exposure to hypoxia has been shown to be an effective way of improving performance without exercising. Aim of this pilot study was to evaluate intermittent hypoxia-hyperoxia training combined with light exercise as an intervention to facilitate athletes with OTS to restore their usual performance level. Thirty-four track and field athletes were recruited: 15 athletes with OTS volunteered to participate and undertook a conditioning programme consisting of repeated exposures to hypoxia (O₂ at 10%) and hyperoxia (O₂ at 30%) (6-8 cycles, total time 45 min-1 h), three times a week, delivered 1.5-2 h after a low-intensity exercise session (2 bouts of 30 min, running at 50% of VO_{2max} with 10 min rest between bouts) over 4 weeks. Nineteen healthy track and field athletes volunteered to participate as a control group and followed their usual training schedule. Measurements before and after the intervention included exercise capacity, analysis of heart rate variability and hematological parameters. In athletes with OTS, a 4-week light exercise combined with intermittent hypoxia-hyperoxia training improved exercise performance (191.9 ± 26.9 W versus 170.8 ± 44.8 W in exercise capacity test, $P = 0.01$). Heart rate variability analysis revealed an improved sympatho-parasympathetic index (low frequency/high frequency ratio, 8.01 ± 7.51 before and 1.45 ± 1.71 after, $P = 0.007$). Hematological parameters were unchanged. Our pilot study showed that intermittent hypoxia-hyperoxia training and low-intensity exercise can facilitate functional recovery among athletes with OTS in a relatively short time.

KEYWORDS: athletic performance; cardiac autonomic control; exercise tolerance; heart rate variability; intermittent hypoxic training; recovery of function

PMID:26443707

57. GAIT

Treadmill grade

A comparison of variability in spatiotemporal gait parameters between treadmill and overground walking conditions

John H. Hollman Molly K. Watkins Angela C. Imhoff Carly E. Braun Kristen A. Akervik Debra K. Ness

Highlights

- Variability in gait parameters may differ between treadmill and overground walking.
- We examined stride-to-stride variability with Poincaré analyses.
- Mean values were equivalent between treadmill and overground walking.
- Short- and long-term variability indicators were reduced on the treadmill.
- Treadmill training may induce invariant gait patterns.

Abstract

Motorized treadmills are commonly used in biomechanical and clinical studies of human walking. Whether treadmill walking induces identical motor responses to overground walking, however, is equivocal. The purpose of this study was to examine differences in the spatiotemporal gait parameters of the lower extremities and trunk during treadmill and overground walking using comparison of mean and variability values. Twenty healthy participants (age 23.8 ± 1.2 years) walked for 6 min on a treadmill and overground while wearing APDM 6 Opal inertial monitors. Stride length, stride time, stride velocity, cadence, stance phase percentage, and peak sagittal and frontal plane trunk velocities were measured. Mean values were calculated for each parameter as well as estimates of short- (*SD1*) and long-term variability (*SD2*) using Poincaré analyses. The mean, *SD1*, and *SD2* values were compared between overground and treadmill walking conditions with paired *t*-tests ($\alpha = 0.05$) and with effect size estimates using Cohen's *d* statistic. Mean values for each of the gait parameters were statistically equivalent between treadmill and overground walking ($p > 0.05$). The *SD1* and *SD2* values representing short- and long-term variability were considerably reduced ($p < 0.05$) on the treadmill as compared to overground walking. This demonstrates the importance of consideration of gait variability when using treadmills for research or clinical purposes. Treadmill training may induce invariant gait patterns, posing difficulty in translating locomotor skills gained on a treadmill to overground walking conditions.

Keywords: Walking, Locomotion, Treadmill test, Humans, Healthy volunteers

59. PAIN

Central sensitization of tendon pain

RESEARCH REPORT

Evidence of Nervous System Sensitization in Commonly Presenting and Persistent Painful Tendinopathies: A Systematic Review

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Study Design Systematic review.

Objectives To elucidate if there is sensitization of the nervous system in those with persistent rotator cuff (shoulder), lateral elbow, patellar, and Achilles tendinopathies.

Background Tendinopathy can be difficult to treat, and persistent intractable pain and dysfunction are frequent. It is hypothesized that induction or maintenance of persistent pain in tendinopathy may be, at least in part, based on changes in the nervous system.

Methods The PRISMA guidelines were followed. Relevant articles were identified through a computerized search in Embase, PubMed, and Web of Science, followed by a manual search of reference lists of retained articles. To be eligible, studies had to include quantitative sensory testing and evaluate individuals diagnosed with a persistent tendinopathy of the rotator cuff (shoulder), lateral elbow, patella, or Achilles tendon. Methodological quality assessment was evaluated with the Newcastle-Ottawa Scale.

Results In total, 16 full-text articles met the criteria for inclusion, of which the majority were case-control studies with heterogeneous methodological quality. No studies on Achilles tendinopathy were found. Mechanical algometry was the predominant quantitative sensory testing used. Lowered pressure pain threshold was observed across different tendinopathies at the site of tendinopathy, as well as at other sites, the latter being suggestive of central sensitization.

Conclusion Although more research on sensory abnormalities is warranted, it appears likely that there is an association between persistent tendon pain and sensitization of the nervous system. This evidence is primarily from studies of upper-limb tendinopathy, and caution should be exercised with inference to lower-limb tendinopathy.

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doi:10.2519/jospt.2015.5895

Keyword: athletic injuries, central sensitization, chronic pain, pain threshold

Patient practitioner communications important

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The effect of patient-practitioner communication on pain: a systematic review.

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Author information

Abstract

BACKGROUND AND OBJECTIVE:

Communication between patients and health care practitioners is expected to benefit health outcomes. The objective of this review was to assess the effects of experimentally varied communication on clinical patients' pain.

DATABASES AND DATA TREATMENT:

We searched in July 2012, 11 databases supplemented with forward and backward searches for (quasi-) randomized controlled trials in which face-to-face communication was manipulated. We updated in June 2015 using the four most relevant databases (CINAHL, Cochrane Central, Psychinfo, PubMed).

RESULTS:

Fifty-one studies covering 5079 patients were included. The interventions were separated into three categories: cognitive care, emotional care, procedural preparation. In all but five studies the outcome concerned acute pain. We found that, in general, communication has a small effect on (acute) pain. The 19 cognitive care studies showed that a positive suggestion may reduce pain, whereas a negative suggestion may increase pain, but effects are small. The 14 emotional care studies showed no evidence of a direct effect on pain, although four studies showed a tendency for emotional care lowering patients' pain. Some of the 23 procedural preparation interventions showed a weak to moderate effect on lowering pain.

CONCLUSIONS:

Different types of communication have a significant but small effect on (acute) pain. Positive suggestions and informational preparation seem to lower patients' pain. Communication interventions show a large variety in quality, complexity and methodological rigour; they often used multiple components and it remains unclear what the effective elements of communication are. Future research is warranted to identify the effective components.

PMID: 26492629

Chronic pain feedback

Clin J Pain. 2015 Nov;31(11):992-7. doi: 10.1097/AJP.000000000000188.

Student Expectations of Peer and Teacher Reactions to Students With Chronic Pain: Implications for Improving Pain-related Functioning.

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Abstract

OBJECTIVES:

Social interactions can influence the experience and impact of chronic pain. Children and adolescents expectations of how others respond to them could therefore influence their adjustment to pain. This study examined how children and adolescents expected their peers and teachers would react to classmates with chronic pain.

METHODS:

211 school children participated in this study. We presented each participant 1 of 4 vignettes that described a boy or a girl who did or did not have chronic pain. Participants were then asked to describe how they think other children and their teachers would react to the child depicted in the vignette with respect to solicitous, discouraging, and coping responses.

RESULTS:

Discouraging responses from peers and teachers were viewed as being relatively unlikely. However, both coping and solicitous responses-the latter being a response known to be linked to increased pain and disability in children and adults-were viewed by the participating children as being relatively likely. Moreover, the expected likelihood of solicitous responses from teachers was thought to be even more probable for children and adolescents with chronic pain than for those without chronic pain.

DISCUSSION:

The results of this study have important practical implications, given the well-known importance of significant other's responses to chronic pain problems. Further research is needed to understand how social interactions at school may influence functioning of children with chronic pain and their development. This information could provide an important empirical basis for determining how best to manage individuals with chronic pain problems in the school setting.

PMID:25503597

60. COMPLEX REGIONAL PAIN

CRPS 12 month recovery

Eur J Pain. 2015 Nov 2. doi: 10.1002/ejp.813.

Extent of recovery in the first 12 months of complex regional pain syndrome type-1: A prospective study.

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Author information

Abstract

BACKGROUND:

The literature concerning the outcomes of complex regional pain syndrome (CRPS) is contradictory, with some studies suggesting high rates of symptom resolution, whilst others demonstrate that CRPS symptoms can persist and lead to significant disability. The aim of the present study was to carefully document the extent of recovery from each of the signs and symptoms of CRPS.

METHODS:

A sample of 59 patients with recently onset (<12 weeks) CRPS-1 were followed prospectively for 1 year, during which time they received treatment-as-usual. At baseline, 6 and 12 months, the following were measured: CRPS severity scores (symptoms and signs of CRPS), pain, disability, work status and psychological functioning.

RESULTS:

Analyses showed that rates of almost all signs and symptoms of CRPS reduced significantly over 1 year. Reductions in symptom severity were clinically relevant and were greatest in the first 6 months and plateaued thereafter. However, at 1 year, nearly 2/3 of patients continued to meet the IASP-Orlando criteria for CRPS and 1/4 met the Budapest research criteria for CRPS. Only 5.4% of patients were symptom-free at 12 months.

CONCLUSIONS:

Overall the results were less optimistic than several previously conducted prospective studies and suggest that few cases of CRPS resolve completely within 12 months of onset. Improvements were generally greater in the first 6 months, and suggest that it may be worth exploring early interventions to prevent long-term disability in CRPS.

PMID: 26524108