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ABSTRACTS

LBP

Factors limiting recovery

Eur J Pain. 2015 Jan 6. doi: 10.1002/ejp.633.

Prognosis and course of pain in patients with chronic non-specific low back pain: A 1-year follow-up cohort study.

Verkerk K¹, Luijsterburg PA, Heymans MW, Ronchetti I, Pool-Goudzwaard AL, Miedema HS, Koes BW.

Author information

Abstract

BACKGROUND:

It remains unclear to what extent patients recover from chronic non-specific low back pain (NSLBP). The objective of this study was to determine (1) the course of chronic NSLBP in tertiary care and (2) which factors predicted 5- and 12-month outcomes.

METHODS:

This prospective study includes 1760 chronic NSLBP patients from a rehabilitation clinic (mean age 40.1 years, SD 10.6). After baseline measurement, patients followed a 2-month multidisciplinary therapy programme; evaluation took place at 2, 5 and 12 months post baseline. Recovery was defined as (1) relative recovery [30% improvement on the pain, visual analogue scale (VAS) compared with baseline] and (2) absolute recovery (VAS pain \leq 10 mm). The multivariate logistic regression analysis included 23 baseline characteristics.

RESULTS:

Patient-reported intensity of back pain decreased from 55.5 (SD 23.0) at baseline to 37.0 (SD 23.8), 35.3 (SD 26.1) and 32.3 (SD 26.9) at 2-, 5- and 12-month follow-up, respectively. Younger age, back pain at baseline, no psychological/physical dysfunction (Symptom Check List-90, item 9), and higher baseline scores on the physical component scale and mental component scale of quality of life (Short Form-36) were positively associated with recovery at 5 and 12 months. At 5-month follow-up, higher work participation at baseline was also a prognostic factor for both definitions of recovery. At 12-month follow-up, having co-morbidity was predictive for both definitions.

CONCLUSION:

The results of this study indicate that in chronic NSLBP patients, bio-psychosocial prognostic factors may be important for clinicians when predicting recovery in back pain intensity during a 1-year period.

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PMID: 25565501

Reassurance and LBP

Clin J Pain. 2015 Feb;31(2):133-6. doi: 10.1097/AJP.000000000000097.

Effective Reassurance in Primary Care of Low Back Pain: What Messages From Clinicians are Most Beneficial at Early Stages?

Hasenbring MI¹, Pincus T.

Author information

Abstract

OBJECTIVES:

Effective reassurance of patients reporting symptoms, for which no clear etiological origin is available, is one of the most important challenges in the early phases of nonspecific back pain. However, there is a lack of empirical studies on the effects of reassurance and, also, the effects shown were small. Improvements are needed with respect to the process of physician-patient interaction and to the methods used by the physician.

METHODS:

We provide a short narrative review of the literature with special reference to affective and cognitive communication, based on a systematic review of 16 studies. We further consider recent evidence in the prognosis of low back pain, the role of physical activity, and subgroups-based individual differences in pain coping, questioning the information basis of reassurance.

RESULTS:

A 2-process model of affective and cognitive reassurance was supported. Recovery improved in a combination of communication of empathy with cognitive reassurance, giving concrete information and instructions. In terms of information, recent research indicate that a substantial percentage of patients do not recover within the first year after onset of back pain. Further, very low and high levels of physical activity are associated with pain and disability, associated with cognitive and behavioral pain coping.

DISCUSSION:

Reassurance of patients in early phases of persistent back pain might improve from affective and cognitive parts of communication and individually tailored information. Subgroup differences with respect to different prognosis, associated patterns of adaptive or maladaptive pain coping, and levels of health-promoting versus harmful physical activity should be considered more carefully.

PMID: 24662495

Rice farmers and LBP

Prevalence and individual risk factors associated with clinical lumbar instability in rice farmers with low back pain

Patient Preference and Adherence, 01/07/2015 Clinical Article

Puntumetakul R, et al. – This study aimed to determine the prevalence and individual associated factors of Clinical lumbar instability (CLI) in Thai rice farmers. This study provides prevalence of CLI in Thai rice farmers. Those with long-term farming experience of at least 30 years have a greater risk of CLI.

Methods

- A cross-sectional survey was conducted among 323 Thai rice farmers in a rural area of Khon Kaen province, Thailand.
- Face-to-face interviews were conducted using the 13-item Delphi criteria questionnaire, after which an objective examination was performed using aberrant movement sign, painful catch sign, and prone instability test to obtain information.
- Individual factors such as sex, body mass index, waist-hip ratio, smoking, and number of years of farming experience, were recorded during the face-to-face interview.

Results

- The prevalence of CLI in Thai rice farmers calculated by the method described in this study was 13% (age 44±10 years).
- Number of years of farming experience was found to be significantly correlated with the prevalence of CLI (adjusted odds ratio =2.02, 95% confidence interval =1.03–3.98, P<0.05).

Motor control

J Manipulative Physiol Ther. 2014 Dec 11. pii: S0161-4754(14)00243-7. doi: 10.1016/j.jmpt.2014.11.002.

A Comparison of Lumbopelvic Motion Patterns and Erector Spinae Behavior Between Asymptomatic Subjects and Patients With Recurrent Low Back Pain During Pain-Free Periods.

Sánchez-Zuriaga D¹, López-Pascual J², Garrido-Jaén D³, García-Mas MA⁴.

Author information**Abstract****OBJECTIVES:**

The purpose of this study was to determine the patterns of lumbopelvic motion and erector spinae (ES) activity during trunk flexion-extension movements and to compare these patterns between patients with recurrent low back pain (LBP) in their pain-free periods and matched asymptomatic subjects.

METHODS:

Thirty subjects participated (15 patients with disc herniation and recurrent LBP in their pain-free periods and 15 asymptomatic control subjects). A 3-dimensional videophotogrammetric system and surface electromyography (EMG) were used to record the angular displacements of the lumbar spine and hip in the sagittal plane and the EMG activity of the ES during standardized trunk flexion-extension cycles. Variables were maximum ranges of spine and hip flexion; percentages of maximum lumbar and hip flexion at the start and end of ES relaxation; average percentages of EMG activity during flexion, relaxation, and extension; and flexion-extension ratio of myoelectrical activity.

RESULTS:

Recurrent LBP patients during their pain-free period showed significantly greater ES activation both in flexion and extension, with a higher flexion-extension ratio than controls. Maximum ranges of lumbar and hip flexion showed no differences between controls and patients, although patients spent less time with their lumbar spine maximally flexed.

CONCLUSIONS:

This study showed that reduced maximum ranges of motion and absence of ES flexion-relaxation phenomenon were not useful to identify LBP patients in the absence of acute pain. However, these patients showed subtle alterations of their lumbopelvic motion and ES activity patterns, which may have important clinical implications.

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KEYWORDS:

Low Back Pain; Lumbar Region; Movement; Muscle Relaxation; Paraspinal Muscles

PMID: 25499193

DISC

Changes in discectomy

Eur Spine J. 2014 Dec 28.

Endplate changes following discectomy: natural history and associations between imaging and clinical data.

Weiner BK¹, Vilendecic M, Ledic D, Eustacchio S, Varga P, Gorensek M, Fernandez-Moure J, Hipp JA.

Author information

Abstract

PURPOSE:

Some patients will experience post-operative back pain following lumbar discectomy, and the potential sources for that pain are poorly understood. One potential source is the vertebral endplates. The goal of this study was to document the changes that occur in lumbar endplates following discectomies, and to assess associations between endplate changes and clinical outcomes.

METHODS:

Changes in lumbar endplates and discs were assessed from X-rays, CT and MRI exams by comparing preoperative imaging with imaging obtained at yearly intervals up to 5 years. 260 endplates in 137 patients with single-level herniation and discectomy were analyzed. The geometry of osseous defects in the endplates was measured from the CT exams, and marrow and disc changes adjacent to endplates were assessed from the MRI exams. Clinical outcome assessments were collected at each time point. Descriptive statistics were used to describe endplate defect sizes, and logistic regression and analysis of variance were used to identify potential associations between endplate and vertebral body changes and clinical outcomes.

RESULTS:

Approximately 14 % of the endplates had osseous defects prior to surgery. After surgery, 24 % of inferior and 43 % of superior endplates had defects. Change occurred within the first year and remained relatively constant over the next few years. Disc signal intensity worsened and disc height decreased following surgery. New Modic changes were also observed. None of these changes were associated with having achieved a clinically significant improvement in outcome scores. The follow-up rates were low at the later time points and significant associations cannot be ruled out.

CONCLUSIONS:

This study documents lesion characteristics in detail and supports that osseous defects in the endplates at the level of a lumbar discectomy may be a relatively common finding following surgery, along with disc height loss, loss of disc signal intensity, and Modic changes. The clinical significance of these imaging findings could not be conclusively determined in this study.

PMID: 25543917

SURGERY

Vit. D deficiency

Prevalence of vitamin D deficiency in patients undergoing elective spine surgery: a cross-sectional analysis

World Neurosurgery, 01/08/2015 Clinical Article Clinical Trial Below

Ravindra VM, et al

Highlights

- There is an alarmingly high incidence of vitamin D deficiency in patients with degenerative spondylosis undergoing spinal fusion.
- Middle-aged patients, males, the morbidly obese, those with a history of diabetes, and those with no history of supplementation had a higher incidence of vitamin D deficiency.
- Vitamin D is critical to bone health and maintenance. Spine surgeons should be aware of vitamin D deficiency and consider evaluation and treatment to improve bony health and minimize potentially minimize risk for fracture and spinal instrumentation failure.

Abstract

Objective

Decreased bone density secondary to osteoporosis and osteomalacia represents a significant risk factor for bony fracture and spinal instrumentation failure. We evaluated the incidence of vitamin D deficiency in patients undergoing elective spinal instrumentation to investigate which patient-level risk factors are associated with deficient vitamin D levels.

Methods

Serum 25-OH vitamin D levels were evaluated postoperatively (<72 hours) in patients undergoing elective spinal fusion from 2011 through 2012. Patients >18 years with a diagnosis of degenerative spinal spondylosis or spinal instability treated with spinal fusion were included. Risk factors for vitamin D deficiency (<20 ng/mL) were analyzed using univariate and multiple logistic regression to identify independent predictors of deficiency.

Results

The mean preoperative neck and Oswestry disability indexes of the 230 consecutive patients (mean 57±13.9 years) were 21.0±9.8 and 22.2±8.5, respectively. Mean 25-OH vitamin D level was 25.9±12.4 ng/mL (range 6–77 ng/mL). Sixty-nine (30.0%) patients had laboratory-confirmed vitamin D deficiency and 89 (38.9%) had laboratory-confirmed vitamin D insufficiency (20–30 ng/mL). The risk of vitamin D deficiency was greater in males (OR 2.53, p=0.009) aged 40–60 years (OR 2.45, p=0.018) who had body mass index >40 (OR 7.55, p=0.004), an existing diagnosis of diabetes (OR 3.29, p=0.019), and no vitamin D supplementation (OR 4.96, p=0.043).

Conclusions

Vitamin D deficiency was common in patients with degenerative spondylosis undergoing spinal fusion. Middle-aged patients, males, the morbidly obese, those with a history of diabetes, and those with no history of supplementation had a higher incidence of vitamin D deficiency.

VISCERA

IBS and fear

Neurogastroenterol Motil. 2015 Jan;27(1):114-27. doi: 10.1111/nmo.12489.

Neural circuitry of abdominal pain-related fear learning and reinstatement in irritable bowel syndrome.

Icenhour A¹, Langhorst J, Benson S, Schlamann M, Hampel S, Engler H, Forsting M, Elsenbruch S.

Author information

Abstract

BACKGROUND:

Altered pain anticipation likely contributes to disturbed central pain processing in chronic pain conditions like irritable bowel syndrome (IBS), but the learning processes shaping the expectation of pain remain poorly understood. We assessed the neural circuitry mediating the formation, extinction, and reactivation of abdominal pain-related memories in IBS patients compared to healthy controls (HC) in a differential fear conditioning paradigm.

METHODS:

During fear acquisition, predictive visual cues (CS(+)) were paired with rectal distensions (US), while control cues (CS(-)) were presented unpaired. During extinction, only CSs were presented. Subsequently, memory reactivation was assessed with a reinstatement procedure involving unexpected USs. Using functional magnetic resonance imaging, group differences in neural activation to CS(+) vs CS(-) were analyzed, along with skin conductance responses (SCR), CS valence, CS-US contingency, state anxiety, salivary cortisol, and alpha-amylase activity. The contribution of anxiety symptoms was addressed in covariance analyses.

KEY RESULTS:

Fear acquisition was altered in IBS, as indicated by more accurate contingency awareness, greater CS-related valence change, and enhanced CS(+)-induced differential activation of prefrontal cortex and amygdala. IBS patients further revealed enhanced differential cingulate activation during extinction and greater differential hippocampal activation during reinstatement. Anxiety affected neural responses during memory formation and reinstatement.

CONCLUSIONS & INFERENCES:

Abdominal pain-related fear learning and memory processes are altered in IBS, mediated by amygdala, cingulate cortex, prefrontal areas, and hippocampus. Enhanced reinstatement may contribute to hypervigilance and central pain amplification, especially in anxious patients. Preventing a 'relapse' of learned fear utilizing extinction-based interventions may be a promising treatment goal in IBS.

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KEYWORDS:

extinction; fear conditioning; irritable bowel syndrome; pain-related fear; reinstatement; visceral pain

PMID: 25557224

Acid reflux

Clin Gastroenterol Hepatol. 2014 Dec 9. pii: S1542-3565(14)01742-X. doi: 10.1016/j.cgh.2014.11.034.

Effects of Anxiety and Depression in Patients With Gastroesophageal Reflux Disease.

Kessing BF¹, Bredenoord AJ², Saleh CM², Smout AJ².

Author information**Abstract****BACKGROUND & AIMS:**

Increased levels of anxiety and depression have been associated with esophageal hyperalgesia and an increased risk of gastroesophageal reflux disease (GERD). We investigated the effects of anxiety and depression on GERD symptoms and the perception of reflux episodes in a well-characterized group of patients.

METHODS:

We performed a prospective study of 225 consecutive patients who had symptoms of GERD evaluated. Patients underwent ambulatory 24-hour pH impedance monitoring, and levels of anxiety and depression were assessed using the Hospital Anxiety and Depression Scale.

RESULTS:

GERD was diagnosed in 147 patients (78 patients had functional heartburn); 36 patients were hypersensitive to gastroesophageal reflux. Among patients with GERD, increased levels of anxiety were associated with more severe retrosternal pain and retrosternal burning. Furthermore, increased levels of anxiety and depression each were associated with lower scores of the mental component of quality of life questionnaire. Levels of anxiety or depression were not associated with the number of reflux symptoms reported during 24-hour pH impedance monitoring or with the number of symptoms associated with a reflux event. Among GERD patients with hypersensitivity to reflux, levels of anxiety and depression and decreases in quality of life were similar to those of other patients with GERD. Patients with functional heartburn had higher levels of anxiety than patients with GERD.

CONCLUSIONS:

In patients with GERD, increased levels of anxiety are associated with increased severity of retrosternal pain and heartburn and reduced quality of life. Patients with GERD with hypersensitivity to gastroesophageal reflux have similar levels of anxiety and similar quality-of-life scores as other patients with GERD.

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KEYWORDS:

Esophagus; HADS; QOL; Regurgitation; Stomach

PMID: 25496817

CERVICAL SPINE

Outcomes expectations

Expectations for treatment outcomes in neck/back patients regarding improvements in pain and function. A cross-sectional pilot study

European Journal of Physical and Rehabilitation Medicine, 01/07/2015 Clinical Article

Skatteboe S, et al. – The aim of this study is to investigate neck/back patients' expectations for treatment outcomes (pain and functional improvement) prior to their first meetings with specialists in physical medicine and rehabilitation (PMR). Few of the selected patients seemed to expect improvement. These expectations are quite pessimistic, in the authors' opinion. More elaborate studies are needed to confirm these results.

Methods

- Questionnaires were completed prior to an appointment with a PMR specialist.
- The forms consisted of one earlier designed instrument (PSOE) and one self-constructed part with six 11-point numeric rating scales (11-NRS).
- Eligible patients were randomly selected between January and June 2012.

Results

- Approximately 42 % expected their status to remain un-changed.
- A total of 17 % expected exacerbation of their status.
- No differences were found between expectations regarding pain and function.
- Full recovery was not expected.
- Highly educated patients, and those reporting high usage of analgesics, had higher expectations for improvement.

Strength training and neck pain

Effect of strength training in addition to general exercise in the rehabilitation of patients with non-specific neck pain. A randomized clinical trial **European Journal of Physical and Rehabilitation Medicine, 01/07/2015 Clinical Article**

Rolving N, et al. – The aim of this study is to compare the effect of two different exercise programs on pain, strength and fear–avoidance belief. This study indicates that in rehabilitation of subjects severely disabled by non–specific neck pain, there is no additional improvement on pain or muscle strength when neck exercises are given as a home–based program with a minimum of supervision. However, strength training of the painful muscles seems to be effective in decreasing fear–avoidance beliefs.

Methods

- Participants were randomized to either general physical activity (GPA group) or GPA and additional strength training of the neck and shoulder (SST group).
- The primary outcome was pain intensity.
- Secondary outcomes were muscle strength of the neck and shoulder and fear-avoidance belief.

Results

- Pain was significantly reduced within groups with a median of -1 (IQR: -3 to 0, $P<0.001$) in the SST group and -1 (IQR: -4 to 1, $P=0.046$) in the GPA group.
- The difference between groups was not significant.
- Changes in strength did not differ between groups.
- Both groups experienced significant increases in neck flexion strength of 14.7 N (IQR: -1 to 28.4, $P=0.001$) in the SST group and 6.9 N (IQR: -4.9 to 18.6, $P=0.014$) in the GPA group.
- Furthermore, the SST group achieved an increase of 18.6 N (IQR: -2.6 to 69.7, $P=0.005$) in neck extension.
- Fear-avoidance beliefs improved with 6 (IQR: 3 to 12, $P<0.001$) in the SST group, while the GPA group improved with 3 (IQR: 0 to 8, $P=0.004$).
- This between-group difference was significant ($P=0.046$).

UPPER C SPINE

Flexion and extension

Extension and flexion in the upper cervical spine in neck pain patients **Manual Therapy , 01/06/2015 Clinical Article**

Ernst MJ, et al.

Abstract

Neck pain is a common problem in the general population with high risk of ongoing complaints or relapses. Range of motion (ROM) assessment is scientifically established in the clinical process of diagnosis, prognosis and outcome evaluation in neck pain. Anatomically, the cervical spine (CS) has been considered in two regions, the upper and lower CS. Disorders like cervicogenic headache have been clinically associated with dysfunctions of the upper CS (UCS), yet ROM tests and measurements are typically conducted on the whole CS. A cross-sectional study assessing 19 subjects with non-specific neck pain was undertaken to examine UCS extension-flexion ROM in relation to self-reported disability and pain (via the Neck Disability Index (NDI)). Two measurement devices (goniometer and electromagnetic tracking) were employed and compared. Correlations between ROM and the NDI were stronger for the UCS compared to the CS, with the strongest correlation between UCS flexion and the NDI-headache ($r = -0.62$). Correlations between UCS and CS ROM were fair to moderate, with the strongest correlation between UCS flexion and CS extension ROM ($r = -0.49$). UCS flexion restriction is related to headache frequency and intensity.

Consistency and agreement between both measurement systems and for all tests was high. The results demonstrate that separate UCS ROM assessments for extension and flexion are useful in patients with neck pain.

WHIPLASH

Upper extremity dysfunction

Man Ther. 2014 Dec 18. pii: S1356-689X(14)00236-7. doi: 10.1016/j.math.2014.12.001.

Identifying upper limb disability in patients with persistent whiplash.

Sue See K¹, Treleaven J².

Author information

Abstract

BACKGROUND:

Patients with persistent whiplash associated disorders (WAD) report upper limb (UL) symptoms and functional difficulties but there is limited information regarding the nature of these complaints. Impairments in motor performance may relate to functional deficits.

OBJECTIVE:

To identify symptoms and the degree and nature of UL functional difficulties.

DESIGN:

Cross sectional study.

METHODS:

Twenty-four age matched subjects with persistent WAD and healthy controls were surveyed using the Disabilities of the Arm, Shoulder and Hand (DASH), Neck Disability Index (NDI) and Patient Specific Functional Scale (PSFS). A series of case studies on six subjects with persistent WAD and thirteen age and gender matched controls also had their motor performance assessed using a specialised UL testing battery, including reaction time, movement speed, accuracy, co-ordination and tapping speed.

RESULTS:

The results suggest that UL symptoms and functional deficits are prevalent in persistent WAD. All individual item scores on the DASH, except one, were significantly higher in the WAD group and the DASH moderately correlated to pain, NDI and PSFS. Four-choice reaction time was the only motor performance measure that was significantly impaired in the WAD compared to control group and this correlated to pain levels.

CONCLUSIONS:

The findings suggest the DASH is a suitable measure for subjects with persistent WAD and could be administered when high NDI scores are present or the patient specifically reports difficulty with UL activities. Further investigation regarding UL motor performance in subjects with persistent WAD is warranted to determine relationships between symptoms and reported functional deficits.

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KEYWORDS:

Questionnaire; Upper limb symptoms; Whiplash

PMID: 25554214

CRANIUM/TMJ

Dental care

J Clin Periodontol. 2014 Dec 12. doi: 10.1111/jcpe.12339.

Effect of professional mechanical plaque removal performed on a long-term, routine basis in the secondary prevention of periodontitis. A systematic review.

Trombelli L¹, Franceschetti G, Farina R.

Author information

Abstract

AIMS:

to systematically review the evidence evaluating the efficacy of long-term, routine, professional mechanical plaque removal (PMPR) in the prevention of periodontitis progression.

METHODS:

A literature search was conducted to identify prospective studies evaluating the effect of PMPR in periodontitis patients undergoing active periodontal therapy and enrolled in a maintenance program including PMPR for at least 3 years.

RESULTS:

No RCTs evaluating the efficacy of the intervention when compared to no treatment during maintenance were found. Nineteen prospective studies assessing the effect of PMPR as part of the supportive therapy were included. In general, studies reported no to low incidence of tooth loss during follow-up. The weighted mean yearly rate of tooth loss was 0.15 ± 0.14 and 0.09 ± 0.08 for follow-up of 5 years or 12-14 years, respectively, with no significant differences between groups. Mean clinical attachment loss was < 1 mm at follow-up ranging from 5 to 12 years.

CONCLUSIONS:

Supportive therapy, which encompasses PMPR, may limit the incidence and yearly rate of tooth loss as well as the loss in clinical attachment in patients treated for periodontitis. However, whether and to what extent the intervention may impact on long-term periodontal parameters still needs to be assessed. This article is protected by copyright. All rights reserved.

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PMID:25495875

Cardiovascular risk

J Clin Periodontol. 2014 Nov 10. doi: 10.1111/jcpe.12335.

Cardiovascular Risks Associated with Incident and Prevalent Periodontal Disease.

Yu YH¹, Chasman DI, Buring JE, Rose L, Ridker PM.

Author information**Abstract****AIM:**

While prevalent periodontal disease associates with cardiovascular risk, little is known about how incident periodontal disease influences future vascular risk. We compared effects of incident versus prevalent periodontal disease in developing major cardiovascular diseases (CVD), myocardial infarction (MI), ischemic stroke and total CVD.

MATERIAL AND METHODS:

In a prospective cohort of 39863 predominantly white women, age > 45 years and free of cardiovascular disease at baseline were followed for an average of 15.7 years. Cox proportional hazard models with time-varying periodontal status (prevalent [18%], incident [7.3%] vs. never [74.7%]) were used to assess future cardiovascular risks.

RESULTS:

Incidence rates of all CVD outcomes were higher in women with prevalent or incident periodontal disease. For women with incident periodontal disease, risk factor adjusted hazard ratios (HRs) were 1.42 (95% CI, 1.14-1.77) for major CVD, 1.72 (1.25-2.38) for MI, 1.41(1.02-1.95) for ischemic stroke, and 1.27(1.06-1.52) for total CVD. For women with prevalent periodontal disease, adjusted HRs were 1.14 (1.00-1.31) for major CVD, 1.27 (1.04-1.56) for MI, 1.12(0.91-1.37) for ischemic stroke, and 1.15(1.03-1.28) for total CVD.

CONCLUSION:

New cases of periodontal disease, not just those that are pre-existing, place women at significantly elevated risks for future cardiovascular events. This article is protected by copyright. All rights reserved.

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KEYWORDS:

C-reactive protein; Diabetes; Smoking; cardiovascular diseases; family history of MI; periodontal diseases; survival analyses

PMID: 25385537

HEADACHES

Trigger points and head aches

Clin J Pain. 2015 Feb;31(2):159-68. doi: 10.1097/AJP.0000000000000091.

Myofascial Trigger Point-focused Head and Neck Massage for Recurrent Tension-type Headache: A Randomized, Placebo-controlled Clinical Trial.

Moraska AF¹, Stenerson L, Butryn N, Krutsch JP, Schmiede SJ, Mann JD.

Author information

Abstract

OBJECTIVE:

Myofascial trigger points (MTrPs) are focal disruptions in the skeletal muscle that can refer pain to the head and reproduce the pain patterns of tension-type HA (TTH). The present study applied massage focused on MTrPs of patients with TTH in a placebo-controlled, clinical trial to assess efficacy on reducing headache (HA) pain.

METHODS:

Fifty-six patients with TTH were randomized to receive 12 massage or placebo (detuned ultrasound) sessions over 6 weeks, or to wait-list. Trigger point release massage focused on MTrPs in cervical musculature. HA pain (frequency, intensity, and duration) was recorded in a daily HA diary. Additional outcome measures included self-report of perceived clinical change in HA pain and pressure-pain threshold at MTrPs in the upper trapezius and suboccipital muscles.

RESULTS:

From diary recordings, group differences across time were detected in HA frequency ($P=0.026$), but not for intensity or duration. Post hoc analysis indicated that HA frequency decreased from baseline for both massage ($P<0.0003$) and placebo ($P=0.013$), but no difference was detected between massage and placebo. Patient report of perceived clinical change was greater reduction in HA pain for massage than placebo or wait-list groups ($P=0.002$). Pressure-pain threshold improved in all muscles tested for massage only (all P 's <0.002).

DISCUSSION:

Two findings from this study are apparent: (1) MTrPs are important components in the treatment of TTH, and (2) TTH, like other chronic conditions, is responsive to placebo. Clinical trials on HA that do not include a placebo group are at risk for overestimating the specific contribution from the active intervention.

PMID:25329141

Cupping!!

Comparative efficacy trial of cupping and serkangabin versus conventional therapy of migraine headaches: A randomized, open-label, comparative efficacy trial **Journal of Research in Medical Sciences, 01/06/2015 Clinical Article**

Firoozabadi MD, et al. – Global emergence of alternative medicine led us to examine the efficacy of cupping therapy plus serkangabin syrup in the treatment of migraine headaches. This study suggests that there was no significant difference between cupping plus serkangabin therapy and conventional treatment in the treatment and prophylaxis of migraine. The alternative therapy may be used in cases of drug intolerance, no medication response, and in primary care.

Methods

- This study was a randomized, controlled, open-label, comparative efficacy trial.
- The authors randomly assigned patients with migraine into cupping therapy plus serkangabin group (30 patients) and conventional treatment group (30 patients).
- An investigator assessed the severity of headache, frequency of attacks in a week and duration of attacks per hour in 5 visits (at the end of 2 weeks, 1, 3 and 6 months).
- Generalized estimating equations approach was used to analyze repeated measures data to compare outcomes in both groups.

Results

- Average age for cupping therapy group and conventional treatment group were 31.7 (± 7.6) and 32.6 (± 12.7) years, respectively ($P = 0.45$).
- After treatment for 2 weeks; and 1, 3 and 6 months, severity of headache ($P = 0.80$), frequency of migraine attacks ($P = 0.63$) and duration of attacks per hours ($P = 0.48$) were similar in conventional and cupping groups but these symptoms were decreased in each group during the study ($P < 0.001$).

CONCUSSIONS

Measurements

Clin J Sport Med. 2015 Jan;25(1):36-42. doi: 10.1097/JSM.0000000000000102.

Prospective clinical assessment using sideline concussion assessment tool-2 testing in the evaluation of sport-related concussion in college athletes.

Putukian M¹, Echemendia R, Dettwiler-Danspeckgruber A, Duliba T, Bruce J, Furtado JL, Murugavel M.

Author information

Abstract

OBJECTIVE:

To evaluate the utility of the Sideline Concussion Assessment Tool (SCAT)-2 in collegiate athletes with sport-related concussion.

DESIGN:

Prospective cross-sectional study with baseline testing and serial repeat testing after concussion in contact sport athletes and non-concussed control athletes.

SETTING:

Division I University.

PARTICIPANTS:

Male and female club rugby and varsity athletes.

INTERVENTIONS:

Baseline measures of concussion symptoms, cognitive function, and balance were obtained using the SCAT-2. Serial postinjury testing was conducted as clinically indicated.

MAIN OUTCOME MEASURES:

The SCAT-2 total and subset scores were calculated and evaluated at baseline and after injury.

RESULTS:

The total SCAT-2 score and the composite scores of symptoms, symptom severity, and balance were significantly different in concussed groups after injury when compared with baseline. When comparing performance in concussed versus control athletes, all subcomponents of the SCAT-2 were significantly different. No differences in baseline SCAT-2 scores were seen based on self-reported history of concussion. At baseline, anxiety and depression screening scores were associated with higher symptom scores. When compared with baseline, a 3.5-point drop in SCAT-2 score had 96% sensitivity and 81% specificity in detecting concussion. When examined to exclude baseline scores, a cutoff value of 74.5 was associated with 83% sensitivity and 91% specificity in predicting concussion versus control status.

CONCLUSIONS:

The SCAT-2 total composite score and each subcomponent are useful in the assessment of concussion. As SCAT-3 is similar to SCAT-2, it is expected that it too will be a useful tool.

PMID: 24915173

SHOULDER GIRDLE

Exercise/adding trunk rotation

J Shoulder Elbow Surg. 2015 Jan 1. pii: S1058-2746(14)00576-X. doi: 10.1016/j.jse.2014.10.010.

The effect of trunk rotation during shoulder exercises on the activity of the scapular muscle and scapular kinematics.

Yamauchi T¹, Hasegawa S², Matsumura A³, Nakamura M⁴, Ibuki S², Ichihashi N².

Author information

Abstract

BACKGROUND:

In patients with shoulder disease, kinetic chain exercises including hip or trunk movement are recommended. However, the actual muscle activation and scapular kinematics of these exercises are not known. The purpose of this study was to examine the effect of trunk rotation on shoulder exercises that are devised to improve scapular function.

METHODS:

Thirteen healthy young men participated in this study. Scaption, external rotation in the first and second positions, and prone scapular retraction at 45°, 90°, and 145° of shoulder abduction were performed with and without trunk rotation. Electromyography was used to assess the scapular muscle activity of the upper trapezius (UT), middle trapezius (MT), lower trapezius (LT), and serratus anterior (SA), and electromagnetic motion capture was used to assess scapular motion. The muscle activity ratio, which is the activity of the UT to the MT, LT, and SA, was calculated. These data were compared between 2 conditions (with and without trunk rotation) for each exercise.

RESULTS:

Adding trunk rotation to scaption, the first external rotation, and the second external rotation significantly increased scapular external rotation and posterior tilt, and all 3 exercises increased LT activation. In addition, trunk rotation with scapular retraction at 90° and 145° of shoulder abduction significantly decreased the UT/LT ratio.

CONCLUSIONS:

Our findings suggest that shoulder exercises with trunk rotation in this study may be effective in patients who have difficulty in enhancing LT activity and suppressing excessive activation of the UT or in cases in which a decreased scapular external rotation or posterior tilt is observed.

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KEYWORDS:

Shoulder exercise; kinetic chain; muscle activation ratio; rehabilitation; scapular kinematics; trunk rotation

PMID:25556806

OA**Golfing and hip DJD**

Am J Sports Med. 2015 Jan;43(1):113-20. doi: 10.1177/0363546514555698. Epub 2014 Nov 14.

Lumbopelvic kinematic characteristics of golfers with limited hip rotation.

Kim SB¹, You JS², Kwon OY³, Yi CH³.

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

While the biomechanical characteristics of the golf swing are well established, the lumbopelvic kinematic characteristics of professional golfers with limited hip internal rotation warrant further investigation.

PURPOSE:

The specific aim was to ascertain mechanical differences in lumbopelvic-hip movement of asymptomatic professional golfers with and without limited hip internal rotation during the golf swing.

STUDY DESIGN:

Controlled laboratory study.

METHODS:

Thirty professional male golfers (aged 25-35 years and 0 handicap matched) were classified into either the limited hip internal motion (LHIM) group (range of motion <20°) or the normal hip internal motion (NHIM) group (range of motion ≥30°). All participants underwent clinical tests (muscle strength, muscle length, and range of motion) and a biomechanical assessment using 8 infrared optic cameras in a motion analysis system. Independent t tests were performed to determine potential mean differences in muscle strength, length, and range of motion and lumbopelvic kinematics at P < .05.

RESULTS:

Kinematic analysis revealed that the LHIM group showed significantly greater lumbar flexion (P < .001), right and left axial rotation (P < .025), and right-side lateral bending (P = .003) than the NHIM group. A greater pelvic posterior tilt was observed in the LHIM group when compared with the NHIM group (P = .021). Clinical tests showed reduced internal rotator muscle strength and shorter muscle length in the iliopsoas (P = .017) and hamstring (P < .001) among those in the LHIM group when compared with the NHIM group.

CLINICAL RELEVANCE:

The study data suggest that constraints to hip joint internal rotation, along with muscle strength imbalances between the agonist and antagonist muscles and muscle tightness, are associated with substantially greater lumbopelvic movement during the golf swing.

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KEYWORDS:

golf; limited hip rotation; lumbopelvic kinematics; muscle imbalance

PMID: 25398245

MENISCUS

Assessment

Am J Sports Med. 2015 Jan;43(1):128-37. doi: 10.1177/0363546514557937. Epub 2014 Dec 1.

Cost-effectiveness Analysis of the Diagnosis of Meniscus Tears.

Mather RC 3rd¹, Garrett WE², Cole BJ³, Hussey K³, Bolognesi MP², Lassiter T⁴, Orlando LA⁵.

Author information

Abstract

BACKGROUND:

Diagnostic imaging represents the fastest growing segment of costs in the US health system. This study investigated the cost-effectiveness of alternative diagnostic approaches to meniscus tears of the knee, a highly prevalent disease that traditionally relies on MRI as part of the diagnostic strategy.

PURPOSE:

To identify the most efficient strategy for the diagnosis of meniscus tears.

STUDY DESIGN:

Economic and decision analysis; Level of evidence, 1.

METHODS:

A simple-decision model run as a cost-utility analysis was constructed to assess the value added by MRI in various combinations with patient history and physical examination (H&P). The model examined traumatic and degenerative tears in 2 distinct settings: primary care and orthopaedic sports medicine clinic. Strategies were compared using the incremental cost-effectiveness ratio (ICER).

RESULTS:

In both practice settings, H&P alone was widely preferred for degenerative meniscus tears. Performing MRI to confirm a positive H&P was preferred for traumatic tears in both practice settings, with a willingness to pay of less than US\$50,000 per quality-adjusted life-year. Performing an MRI for all patients was not preferred in any reasonable clinical scenario. The prevalence of a meniscus tear in a clinician's patient population was influential. For traumatic tears, MRI to confirm a positive H&P was preferred when prevalence was less than 46.7%, with H&P preferred above that. For degenerative tears, H&P was preferred until the prevalence reaches 74.2%, and then MRI to confirm a negative was the preferred strategy. In both settings, MRI to confirm positive physical examination led to more than a 10-fold lower rate of unnecessary surgeries than did any other strategy, while MRI to confirm negative physical examination led to a 2.08 and 2.26 higher rate than H&P alone in primary care and orthopaedic clinics, respectively.

CONCLUSION:

For all practitioners, H&P is the preferred strategy for the suspected degenerative meniscus tear. An MRI to confirm a positive H&P is preferred for traumatic tears for all practitioners. Consideration should be given to implementing alternative diagnostic strategies as well as enhancing provider education in physical examination skills to improve the reliability of H&P as a diagnostic test.

CLINICAL RELEVANCE:

Alternative diagnostic strategies that do not include the use of MRI may result in decreased health care costs without harm to the patient and could possibly reduce unnecessary procedures. © 2014 The Author(s).

KEYWORDS:

MRI; cost; cost-effectiveness analysis; decision analysis; economic analysis; health policy; meniscus tears; physical examination

PMID:25451791

PATELLA

Femoral nerve and PF pain/slump test

Predictors for identifying patients with patellofemoral pain syndrome responding to femoral nerve mobilization

Archives of Physical Medicine and Rehabilitation, 01/08/2015 Clinical Article

Huang BY, et al.

Abstract

Objective

- To identify the predictors for successful neurodynamic management in patients with patellofemoral pain syndrome.

Design

Prospective Cohort, prediction rule study.

Setting

Hospital.

Participants

Fifty-one patients with patellofemoral pain syndrome underwent clinical examination and measurement of physical parameters including femoral slump test, lower extremity alignment, flexibility and muscle strength, and functional level.

Interventions

Patients received 6 treatment sessions of femoral nerve mobilization within two weeks.

Main outcome measures

The pain level during functional testing was assessed before and after the 1st and 6th session of treatment. Patients were then grouped into responder and non-responder groups. Criteria for the responder group was a pain score decrease $\geq 50\%$ or global rating scale ≥ 4 . Chi-square and independent t test were used to identify potential variables with a significance level of 0.1, and stepwise logistic regression was used to find predictors with a significance level of 0.05.

Results

Twenty-five patients responded to the initial treatment (immediate effect) and 28 patients responded after 6 sessions (longer-term effect). A positive femoral slump test was identified as the predictor for the immediate treatment effect. The prediction factors for the longer-term effect included responding to femoral nerve mobilization the first time and a bilateral difference in hip extension angles. Application of the clinical predictors improved the success rate to 90% for one treatment session and 93% for six treatment sessions.

Conclusions

Clinicians could use the positive femoral slump test and a bilateral difference in hip extension angles during femoral slump test to determine whether or not patients with patellofemoral pain syndrome might benefit from femoral nerve mobilization.

Kinematics

Am J Sports Med. 2015 Jan;43(1):186-94. doi: 10.1177/0363546514554553. Epub 2014 Nov 3.

The effect of tibial tuberosity medialization and lateralization on patellofemoral joint kinematics, contact mechanics, and stability.

Stephen JM¹, Lumpaopong P¹, Dodds AL¹, Williams A², Amis AA³.

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

Tibial tuberosity (TT) transfer is a common procedure to treat patellofemoral instability in patients with elevated TT-trochlear groove (TG) distances. However, the effects of TT lateralization or medialization on patellar stability, kinematics, and contact mechanics remain unclear.

HYPOTHESIS:

Progressive medialization and lateralization will have increasingly adverse effects on patellofemoral joint kinematics, contact mechanics, and stability.

STUDY DESIGN:

Controlled laboratory study.

METHODS:

Eight fresh-frozen cadaveric knees were placed on a testing rig, with a fixed femur and tibia mobile through 90° of flexion. Individual quadriceps heads and the iliotibial band were separated and loaded with 205 N in anatomic directions using a weighted pulley system. Patellofemoral contact pressures and patellar tracking were measured at 0°, 10°, 20°, 30°, 60°, and 90° of flexion using pressure-sensitive film behind the patella and an optical tracking system. The intact knee was measured with and without a 10-N patellar lateral displacement load, and recordings were repeated after TT transfer of 5, 10, and 15 mm medially and laterally. Statistical analysis used repeated-measures analysis of variance, Bonferroni post hoc analysis, and Pearson correlations.

RESULTS:

Tibial tuberosity lateralization significantly elevated lateral joint contact pressures, increased lateral patellar tracking, and reduced patellar stability ($P < .048$). There was a significant correlation between mean lateral contact pressure and the TT position ($r = 0.810$, $P < .001$) at 10°. Tibial tuberosity medialization reduced lateral contact pressures ($P < .002$) and did not elevate peak medial contact pressures ($P > .11$).

CONCLUSION:

Progressive TT lateralization elevated lateral contact pressures, increased lateral patellar tracking, and reduced patellar stability. Medial contact pressure and tracking did alter with progressive TT medialization, but the changes were smaller.

CLINICAL RELEVANCE:

Lateral patellofemoral joint contact pressures increased with progressive lateralization of the TT; medialization of the TT reduced these effects, restoring patellar stability, and did not cause excessive peak pressures. These data provide a rationale for medial TT transfer surgery in patients with elevated TT-TG distances.

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KEYWORDS:

contact pressures; patellar instability; patellofemoral tracking; surgery; tibial tuberosity-trochlear groove (TT-TG) PMID:25367019

OSTEOARTHRITIS/KNEE

Changes in function

Am J Phys Med Rehabil. 2015 Jan;94(1):70-81. doi: 10.1097/PHM.000000000000143.

Men with early degrees of knee osteoarthritis present functional and morphological impairments of the quadriceps femoris muscle.

Serrão PR¹, Vasilceac FA, Gramani-Say K, Lessi GC, Oliveira AB, Reiff RB, Mattiello-Sverzut AC, Mattiello SM.

Author information

Abstract

OBJECTIVE:

Quadriceps muscle weakness is common in knee osteoarthritis (OA). Reasons for weakness may include atrophy, reduction in the muscle fibers number, and changes in the muscle activation. It is uncertain when these muscular changes begin to appear. Therefore, the purpose of this study was to determine whether men with early stages of knee OA already had functional and quadriceps muscle morphologic alterations.

DESIGN:

Forty men were divided into two groups: control group (healthy subjects) and OA group (subjects with knee OA). A biopsy of the vastus lateralis muscle was performed for morphometric analysis. Isokinetic evaluation of knee extensor torque, concentric and eccentric (90 and 180 degrees/sec), was performed simultaneously with vastus lateralis electromyographic activity evaluation.

RESULTS:

Significant differences were found in knee extensor torque ($P < 0.05$) and in normalized root mean square ($P < 0.01$) during the eccentric contractions (both velocities), with higher values for the control group. No differences were found during concentric contractions. The OA group presented greater values of the minimum diameter of type 1 fibers and greater proportion and relative cross-sectional area of type 2b fibers ($P < 0.05$).

CONCLUSIONS:

Men with early stages of knee OA do not present alterations of concentric strength but had decreased eccentric strength and morphologic quadriceps muscle changes, indicating neuromuscular adaptations.

PMID:25122094

FOOT AND ANKLE**Impact on knee**

Clin Orthop Relat Res. 2015 Jan;473(1):166-74. doi: 10.1007/s11999-014-3801-9.

Correlation of Knee and Hindfoot Deformities in Advanced Knee OA: Compensatory Hindfoot Alignment and Where It Occurs.

Norton AA¹, Callaghan JJ, Amendola A, Phisitkul P, Wongsak S, Liu SS, Fruehling-Wall C.

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

Many patients undergoing TKA have both knee and ankle pathology, and it seems likely that some compensatory changes occur at each joint in response to deformity at the other. However, it is not fully understood how the foot and ankle compensate for a given varus or valgus deformity of the knee.

QUESTIONS/PURPOSES:

(1) What is the compensatory hindfoot alignment in patients with end-stage osteoarthritis who undergo total knee arthroplasty (TKA)? (2) Where in the hindfoot does the compensation occur?

METHODS:

Between January 1, 2005, and December 31, 2009, one surgeon (JJC) obtained full-length radiographs on all patients undergoing primary TKA (N = 518) as part of routine practice; patients were analyzed for the current study and after meeting inclusion criteria, a total of 401 knees in 324 patients were reviewed for this analysis. Preoperative standing long-leg AP radiographs and Saltzman hindfoot views were analyzed for the following measurements: mechanical axis angle, Saltzman hindfoot alignment and angle, anatomic lateral distal tibial angle, and the ankle line convergence angle. Statistical analysis included two-tailed Pearson correlations and linear regression models. Intraobserver and interobserver intraclass coefficients for the measurements considered were evaluated and all were excellent (in excess of 0.8).

RESULTS:

As the mechanical axis angle becomes either more varus or valgus, the hindfoot will subsequently orient in more valgus or varus position, respectively. For every degree increase in the valgus mechanical axis angle, the hindfoot shifts into varus by -0.43° (95% confidence interval [CI], -0.76° to -0.1° ; $r = -0.302$, $p = 0.0012$). For every degree increase in the varus mechanical axis angle, the hindfoot shifts into valgus by -0.49° (95% CI, -0.67° to -0.31° ; $r = -0.347$, $p < 0.0001$). In addition, the subtalar joint had a strong positive correlation ($r = 0.848$, $r(2) = 0.72$, $p < 0.0001$) with the Saltzman hindfoot angle, whereas the anatomic lateral distal tibial angle ($r = 0.450$, $r(2) = 0.20$, $p < 0.0001$) and the ankle line convergence angle ($r = 0.319$, $r(2) = 0.10$, $p < 0.0001$) had a moderate positive correlation. The coefficient of determination ($r(2)$) shows that 72% of the variance in the overall hindfoot angle can be explained by changes in the subtalar joint orientation.

CONCLUSIONS:

These findings have implications for treating patients with both knee and foot/ankle problems. For example, a patient with varus arthritis of the knee should be examined for fixed hindfoot valgus deformity. The concern is that patients undergoing TKA, who also present with a stiff subtalar joint, may have exacerbated, post-TKA foot/ankle pain or disability or malalignment of the lower extremity mechanical axis as a result of the inability of the subtalar joint to reorient itself after knee realignment. A prospective study is underway to confirm this speculation.

LEVEL OF EVIDENCE:

Level III, therapeutic study. See Guidelines for Authors for a complete description of levels of evidence. PMID:25024033

Balance

Am J Phys Med Rehabil. 2015 Jan;94(1):20-7. doi: 10.1097/PHM.0000000000000137.

Ankle muscular proprioceptive signals' relevance for balance control on various support surfaces: an exploratory study.

Forestier N¹, Terrier R, Teasdale N.

Author information

- ¹From the Laboratoire de Physiologie de l'Exercice EA4338, Université de Savoie, France (NF, RT); CEVRES Santé, le Bourget du Lac, France (RT); Faculté de Médecine, Département de kinésiologie Université Laval, Québec, Canada (NT); and Centre d'excellence sur le vieillissement de Québec-CHUQ, Québec, Canada (NT).

Abstract

OBJECTIVE:

The purpose of this study was to test the effect of various unstable support surfaces on the relevance of muscular proprioceptive signals originating from the ankle joint.

DESIGN:

Ten healthy subjects were instructed to stand as still as possible on a force plate during 40 secs on three different surfaces: (1) stable, (2) unstable-unspecific (foam), and (3) unstable-specific (inspired from rearfoot anatomy). Muscular vibration was applied on the paraspinals and fibularis muscles. The effects of vibrations on postural stability as well as fibularis longus and tibialis anterior electrical activities for each support condition were investigated.

RESULTS:

The unstable-specific support surface was associated with higher fibularis muscular activity and greater postural perturbations when fibularis muscles were vibrated than the unspecific-unstable surface.

CONCLUSION:

Balance control on unstable-specific support surface maintains the relevance on muscular proprioceptive signals originating from ankle and increases ankle evertor muscle activity.

PMID:24919080

STRETCHING/MUSCLES

Causes of increased ROM

Clin J Sport Med. 2015 Jan;25(1):55-60. doi: 10.1097/JSM.0000000000000069.

Assessment of muscle architecture of the biceps femoris and vastus lateralis by ultrasound after a chronic stretching program.

E Lima KM¹, Carneiro SP, de S Alves D, Peixinho CC, de Oliveira LF.

Author information

Abstract

OBJECTIVE:

To evaluate the chronic effects of a static stretching program on the muscle architecture of biceps femoris (BF) and vastus lateralis (VL) muscles in ultrasound (US) images.

DESIGN:

Randomized controlled longitudinal trial.

SETTING:

Biomechanics Laboratory of Physical Education School of the Army, Rio de Janeiro, Brazil.

PARTICIPANTS:

The study included 24 healthy and physically active male volunteers (19.05 ± 1.40 years, 1.73 ± 0.07 m, and 73.15 ± 8.33 kg), randomly allocated to 1 of 2 groups: stretching group (SG, $n = 12$) and control group ($n = 12$).

INTERVENTIONS:

The SG was submitted to 3 sets of 30 seconds of static stretching 3 times a week during 8 weeks.

MAIN OUTCOME MEASURES:

Ultrasound equipment (7.5 MHz) was used for the evaluation of BF and VL muscle architecture variables (pennation angle, fiber length, muscle thickness, and fascicle displacement) before and after training. Knee range of motion (ROM) and isometric flexion and extension torque (TQ) were also measured.

RESULTS:

There were no significant changes in muscle architecture, TQ, and maximum knee flexion angle ($P > 0.05$). However, maximum knee extension angle (MEA) increased significantly in the SG (pretraining: 159.37 ± 7.27 degrees and posttraining: 168.9 ± 3.7 degrees; $P < 0.05$).

CONCLUSIONS:

Volume or intensity (or both) of the stretching protocol was insufficient to cause structural changes in the VL and BF muscles. The increase in MEA could not be explained by muscle architecture changes.

CLINICAL RELEVANCE:

To describe changes in the VL and BF muscle tendon unit using US after a long-term stretching program to identify which structures are responsible for ROM increase.

PMID:24451696

STM

Sensitization patterns in muscle and fascia

Muscle Nerve. 2014 Dec 18. doi: 10.1002/mus.24537.

Comparison of NGF-induced sensitization pattern in lumbar and tibial muscle and fascia.

Weinkauff B¹, Deising S, Obreja O, Hoheisel U, Mense S, Schmelz M, Rukwied R.

Author information

Abstract

Introduction: Nerve growth factor (NGF) induces profound hyperalgesia. We explored patterns of NGF sensitization in muscle and fascia of distal and paraspinal sites.

Methods: We injected 1 µg NGF into human (n=8) tibialis anterior and erector spinae muscles and their fasciae. The spatial extent of pressure sensitization, pressure pain threshold, and mechanical hyperalgesia (150 kPa, 10 sec) was assessed at days 0.25, 1, 3, 7, 14, and 21. Chemical sensitization was explored by acidic buffer injections (pH4, 100 µl) at days 7 and 14.

Results: The mechanical hyperalgesia area was larger in tibial fascia than in muscle. Pressure pain thresholds were lower, tonic pressure pain ratings, and citrate buffer evoked pain higher in fascia than in muscle.

Conclusions: Spatial mechanical sensitization differs between muscle and fascia. Thoracolumbar fasciae appear more sensitive than tibial fasciae and might be important structures contributing to low back pain, but the temporal sensitization profile is similar between paraspinal and distal sites. This article is protected by copyright. All rights reserved.

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KEYWORDS: Hyperalgesia; TrkA; low back pain; low pH; neurotrophin
PMID:25521275

Trigger points and headaches

Clin J Pain. 2015 Feb;31(2):159-68. doi: 10.1097/AJP.0000000000000091.

Myofascial Trigger Point-focused Head and Neck Massage for Recurrent Tension-type Headache: A Randomized, Placebo-controlled Clinical Trial.

Moraska AF¹, Stenerson L, Butryn N, Krutsch JP, Schmiege SJ, Mann JD.

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

Myofascial trigger points (MTrPs) are focal disruptions in the skeletal muscle that can refer pain to the head and reproduce the pain patterns of tension-type HA (TTH). The present study applied massage focused on MTrPs of patients with TTH in a placebo-controlled, clinical trial to assess efficacy on reducing headache (HA) pain.

METHODS:

Fifty-six patients with TTH were randomized to receive 12 massage or placebo (detuned ultrasound) sessions over 6 weeks, or to wait-list. Trigger point release massage focused on MTrPs in cervical musculature. HA pain (frequency, intensity, and duration) was recorded in a daily HA diary. Additional outcome measures included self-report of perceived clinical change in HA pain and pressure-pain threshold at MTrPs in the upper trapezius and suboccipital muscles.

RESULTS:

From diary recordings, group differences across time were detected in HA frequency ($P=0.026$), but not for intensity or duration. Post hoc analysis indicated that HA frequency decreased from baseline for both massage ($P<0.0003$) and placebo ($P=0.013$), but no difference was detected between massage and placebo. Patient report of perceived clinical change was greater reduction in HA pain for massage than placebo or wait-list groups ($P=0.002$). Pressure-pain threshold improved in all muscles tested for massage only (all P 's <0.002).

DISCUSSION:

Two findings from this study are apparent: (1) MTrPs are important components in the treatment of TTH, and (2) TTH, like other chronic conditions, is responsive to placebo. Clinical trials on HA that do not include a placebo group are at risk for overestimating the specific contribution from the active intervention.

PMID:25329141

Myofascial release

The immediate effect of bilateral self myofascial release on the plantar surface of the feet on hamstring and lumbar spine flexibility: A pilot randomised controlled trial

Journal of Bodywork & Movement Therapies , 01/05/2015 Clinical Article

Grieve R, et al

Abstract

Background

Self myofascial release (SMR) via a tennis ball to the plantar aspect of the foot is widely used and advocated to increase flexibility and range of movement further along the posterior muscles of a proposed "anatomy train". To date there is no evidence to support the effect of bilateral SMR on the plantar aspect of the feet to increase hamstring and lumbar spine flexibility.

Aim

The primary aim was to investigate the immediate effect of a single application of SMR on the plantar aspect of the foot, on hamstring and lumbar spine flexibility. The secondary aim was to evaluate the method and propose improvements in future research.

Design

A pilot single blind randomised control trial.

Participants

Twenty four healthy volunteers (8 men, 16 women; mean age 28 years \pm 11.13).

Method

Participants underwent screening to exclude hypermobility and were randomly allocated to an intervention (SMR) or control group (no therapy). Baseline and post intervention flexibility was assessed by a sit-and-reach test (SRT). Descriptive statistics for baseline and post intervention SRT and an independent t-test comparing differences in SRT change scores were conducted.

Results

A statistically significant ($p=0.02$), greater increase of SRT change scores in the SMR intervention compared to the control group was found with a large effect size ($d= 1.05$).

Conclusion

An immediate clinical benefit of SMR on the flexibility of the hamstrings and lumbar spine was indicated and suggestions for methodological improvements may inform future research.

MUSCLES

Compartment syndrome fasciotomy

Arthroscopy. 2014 Dec 25. pii: S0749-8063(14)00905-0. doi: 10.1016/j.arthro.2014.10.018.

Assessing Outcomes in Individuals Undergoing Fasciotomy for Chronic Exertional Compartment Syndrome of the Leg.

Pasic N¹, Bryant D², Willits K³, Whitehead D³.

Author information

Abstract

PURPOSE:

The purposes of this study were to evaluate patient-reported outcomes after fasciotomy of the leg for chronic exertional compartment syndrome (CECS) and to determine the rate at which revision surgery was required and the prognostic value of intracompartmental pressure (ICP) testing.

METHODS:

This was a retrospective consecutive case series of patients with CECS who underwent preoperative ICP testing and surgical fasciotomy for treatment of CECS of the leg between September 2001 and January 2012.

RESULTS:

Of 69 eligible patients, 46 were evaluated at a mean follow-up time of 54.9 months (range, 3.9 to 127.3 months). Forty-two patients met the Pedowitz criteria for CECS diagnosis. Mean score on the Lower Extremity Functional Scale (LEFS) was 70.4 (standard deviation [SD] \pm 11.2) at follow-up and 72.3 (SD \pm 11.2) at the patient-perceived time of best outcome. Best outcome was reported at a mean time of 14.3 months (range, 0.5 to 84 months). Five of 46 (11%) patients required a revision fasciotomy. Thirty-six of 46 (78%) patients reported being either satisfied (n = 14) or very satisfied (n = 22) at follow-up. The Pedowitz criteria were highly sensitive (97%) but not specific (10%) and had a positive predictive value (PPV) of 79%.

CONCLUSIONS:

Functional outcomes after fasciotomy for CECS were favorable. ICP testing was shown to be sensitive but not specific. Revision surgery was required for 5 of the 46 patients (11%). Patient satisfaction rates, return to sport, return to preoperative activity levels, and LEFS scores were all high. This case series confirms that fasciotomy is a safe and effective surgical treatment for CECS.

LEVEL OF EVIDENCE:

Level IV, therapeutic case series.

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PMID:25543245

BET**LBP and motor control training****The effect of motor control and tactile acuity training on patients with non-specific low back pain and movement control impairment****Journal of Bodywork & Movement Therapies , 01/05/2015 Clinical Article**

Gutknecht M, et al

Summary**Background**

Movement control impairment is a clinical subgroup of non-specific low back pain which can be assessed reliably. There is a strong correlation between tactile acuity and movement control suggesting these two treatments might have additive effects. The first research aim was to determine if patients with a motor control impairment demonstrated improvement in outcome with combined tactile acuity and motor control training. The second aim was to determine if tactile acuity training enhanced the effect of motor control training.

Method

The primary study was a single-arm cohort study conducted in three physiotherapy practices in the German-speaking part of Switzerland. 40 patients (23 males and 17 females) suffering from non-specific low back pain (NSLBP) and movement control impairment were treated. Patients were assessed at baseline and immediately post treatment. Treatment included exercises to lumbopelvic control and graphaesthesia training to improve tactile acuity. Treatment effects were evaluated using the Roland Morris disability questionnaire (RMQ) and the patient-specific functional scale (PSFS). The performance on a set of six movement control tests and lumbar two-point discrimination were also assessed. The results of this cohort study were compared with a historic control group which was comparable with the primary study but included only motor control exercises.

Results

All the outcomes improved significantly with the combined training (RMQ - 2.2 pts., PSFS - 2.8 pts.; MCTB - 2.02 pts. & TPD - 17.07mm; all $p < 0.05$). In comparison to the outcomes of the historic control, there was no significant differences in movement control, patient-specific functional complaints or disability between the groups.

Conclusions

The results of this study, based on a before and after intervention comparison, showed that outcome improved significantly following combined tactile acuity and motor control training. However, compared to an earlier study, the tactile acuity training did not have an additional effect to the results. The use of historical controls does not control for allocation bias and the results obtained here require verification in a randomized controlled trial.

EXERCISE

Stab ex and lumbar discectomy

Effects of dynamic lumbar stabilization exercises following lumbar microdiscectomy on pain, mobility and return to work. Randomized controlled trial

European Journal of Physical and Rehabilitation Medicine, 01/07/2015 Clinical Article

Demir S, et al. – This study investigates the effects of supervised dynamic lumbar stabilization exercises during postoperative rehabilitation on spinal mobility, pain, functional status, return to work, quality of life, and fear/regression attitude of patients who underwent lumbar microdiscectomy for the first time. DLS exercises may be recommended to patients following spinal surgery due to their benefits in reducing pain, increasing spinal mobility, and ensuring faster return to work periods.

Methods

- Forty-four patients were randomly divided into two equal groups of 22 subjects, respectively, as a study group with Dynamic Lumbar Stabilization (DLS) exercises and home exercises, and a control group with only home exercises for a period of four weeks.

Results

- Leg pain decreased more in the study group compared with the control group ($P=0.004$).
- Spinal mobility scores demonstrated greater increases in the study group ($P<0.001$).
- Statistically greater reductions were observed in the study group regarding ODI and FABQ scores ($P<0.017$).

Exercise in youth and LBP

Phys Ther. 2014 Dec 11.

Daily Exercises and Education for Preventing Low Back Pain in Children: A Cluster Randomized Controlled Trial.

Hill JJ¹, Keating JL².

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

Children report low back pain (LBP) as young as 8 years. Preventing LBP in children may prevent or delay adult incidence.

OBJECTIVES:

To determine whether education and daily exercise affect LBP episodes in children compared to education alone.

DESIGN:

Prospective, multicentre cluster randomized controlled trial.

SETTING:

Seven New Zealand primary schools.

PARTICIPANTS:

Children (n=708), 8 to 11 years. Seven schools, stratified by sample size (36, 114, 151, 168, 113, 45, 83) were randomised and allocated to two masked groups; intervention (4 schools, n=469) or control (3 schools, n=239).

INTERVENTIONS:

Intervention participants were taught four spinal movements for daily practice. Both groups participated in education that emphasized 'back awareness'.

MEASUREMENTS:

LBP history at baseline was assessed. Children reported episodes of LBP during the previous week on trial Days 7, 21, 49, 105, 161 and 270. Analysis was at the individual participant level, with adjustment for school clusters.

RESULTS:

There were no significant differences between groups in the odds of reporting no LBP in the previous week during the study period (OR0.72, 95%CI=0.46-1.14, p=0.16). Intervention participants reported significantly fewer episodes of LBP (OR0.54, 95%CI=0.39-0.74, p<.001) and significantly fewer lifetime first episodes of LBP (34%, n=86) than controls (47%, n=58) (OR0.60, 95%CI=0.39-0.91, p=0.02). The odds of an episode of LBP were greater in participants with a history of LBP (OR 4.21, 95%CI=3.07-5.78 p<0.001). LBP episodes decreased across the trial period for both groups (OR0.89, 95%CI=0.84-0.95, p<0.001). Adherence to exercise was poor.

LIMITATIONS:

Replication in other settings is required.

CONCLUSIONS:

Regular exercise and education appear to reduce LBP episodes in children 8-11 years compared to education alone. PMID:25504487

CORE**Core for LBP****Efficacy of core muscle strengthening exercise in chronic low back pain patients
Journal of Back and Musculoskeletal Rehabilitation, 12/24/2014 Clinical Article**

Kumar T, et al. – This study evaluated the effect of core muscle strengthening intervention on chronicity of chronic low back pain. This study concludes that core muscle strengthening exercise along with lumbar flexibility and gluteus maximus strengthening is an effective rehabilitation technique for all chronic low back pain patients irrespective of different duration (less than one year and more than one year) of their pain.

Methods

- Thirty patients were recruited from the outpatient department of the National Institute for the Orthopedically Handicapped.
- These 30 patients were divided into two groups: A and B on the basis of duration of low back pain.
- Group–A patients complain about pain duration for more than twelve months and Group B complains about pain duration from three to twelve months.
- Both the groups were received same intervention for six weeks.
- Assessment was done pre intervention and post intervention after six weeks for both the groups.
- For both the groups the assessment was done after six weeks for pre and post intervention.

Results

- The result described both the groups showed improvement in all the outcome measures including pain as well as in function using Numerical pain rating scale, Oswestry Disability Index, Sorensen test, Gluteus Maximus Strength, Activation of transversus abdominis and Modified–Modified Schober's Test.
- The improvement was statistically non–significant with inter groups and significant within group

ATHLETICS

Young pitchers and arm pain

Am J Sports Med. 2015 Jan;43(1):41-6. doi: 10.1177/0363546514555506. Epub 2014 Nov 3.

Arm pain in youth baseball players: a survey of healthy players.

Makhni EC¹, Morrow ZS¹, Luchetti TJ², Mishra-Kalyani PS³, Gualtieri AP¹, Lee RW¹, Ahmad CS⁴.

Author information

Abstract

BACKGROUND:

Overuse injury in youth baseball players is increasing in prevalence, and these injuries have been correlated to pitching mechanics and pitch counts/types. Prior studies regarding arm pain in these athletes have focused simply on presence or absence of pain during the season rather than on detailed factors related to arm pain with respect to frequency, severity, and associated performance and psychosocial effect.

HYPOTHESIS/PURPOSE:

The goal of this study was to investigate frequency, quality, and effect of arm pain in healthy youth baseball players. The hypothesis was that arm pain will affect a majority of healthy baseball players and will be associated with adverse psychosocial effects.

STUDY DESIGN:

Descriptive epidemiological study.

METHODS:

A novel survey focusing on arm pain in youth baseball players was developed for the purpose of this study. Survey questions were formulated by a consortium of trainers, clinicians, and coaches. Surveys were administered to healthy youth baseball players throughout the states of New Jersey and New York.

RESULTS:

A total of 203 healthy players completed the survey; 23% of players (n = 47) reported a prior overuse injury. Only 26% and 20% of players reported that their arm never hurt when throwing or the day after throwing, respectively; 30% of players reported that arm pain at least sometimes caused them to have less fun playing; and 46% of players reported at least once being encouraged to keep playing despite having arm pain. Pitchers were more likely to report arm pain while throwing and the day after throwing and to indicate that arm pain held them back from being a better player (all P < .05). Those with prior overuse injury were more likely to have arm pain while throwing, to have arm fatigue during a game or practice, and to be encouraged to keep playing despite having pain (all P < .05).

CONCLUSION:

A majority of healthy (actively competing) youth baseball players report at least some baseline arm pain and fatigue, and many players suffer adverse psychosocial effects from this pain.

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KEYWORDS: overuse injury; survey study; youth baseball

PMID: 25367016

GAIT**Walking and chronic pain**

Arch Phys Med Rehabil. 2014 Dec 18. pii: S0003-9993(14)01314-8. doi: 10.1016/j.apmr.2014.12.003.

Walking Exercise for Chronic Musculoskeletal Pain: Systematic Review and Meta-Analysis.

O'Connor SR¹, Tully MA², Ryan B³, Bleakley CM⁴, Baxter GD³, Bradley JM⁵, McDonough SM⁶.

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

To systematically review the evidence examining effects of walking interventions on pain and self-reported function in individuals with chronic musculoskeletal pain.

DATA SOURCES:

Six electronic databases (Medline, CINAHL, PsychINFO, PEDro, Sport Discus and the Cochrane Central Register of Controlled Trials) were searched from January 1980 up to March 2014.

STUDY SELECTION:

Randomized and quasi-randomized controlled trials in adults with chronic low back pain, osteoarthritis or fibromyalgia comparing walking interventions to a non-exercise or non-walking exercise control group.

DATA EXTRACTION:

Data were independently extracted using a standardized form. Methodological quality was assessed using the United States Preventative Services Task Force (USPSTF) system.

DATA SYNTHESIS:

Twenty-six studies (2384 participants) were included and suitable data from 17 were pooled for meta-analysis with a random effects model used to calculate between group mean differences and 95% confidence intervals. Data were analyzed according to length of follow-up (short-term: ≤ 8 weeks post randomization; medium-term: > 2 months - 12 months; long-term: > 12 months). Interventions were associated with small to moderate improvements in pain at short (mean difference (MD) -5.31, 95% confidence interval (95% CI) -8.06 to -2.56) and medium-term follow-up (MD -7.92, 95% CI -12.37 to -3.48). Improvements in function were observed at short (MD -6.47, 95% CI -12.00 to -0.95), medium (MD -9.31, 95% CI -14.00 to -4.61) and long-term follow-up (MD -5.22, 95% CI 7.21 to -3.23).

CONCLUSIONS:

Evidence of fair methodological quality suggests that walking is associated with significant improvements in outcome compared to control interventions but longer-term effectiveness is uncertain. Using the USPSTF system, walking can be recommended as an effective form of exercise or activity for individuals with chronic musculoskeletal pain but should be supplemented with strategies aimed at maintaining participation. Further work is also required examining effects on important health related outcomes in this population in robustly designed studies.

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KEYWORDS:

Meta-analysis; chronic musculoskeletal pain; exercise; walking

PMID:25529265

PAIN**Neuropathic pain research**

Clin J Pain. 2015 Feb;31(2):169-76. doi: 10.1097/AJP.0000000000000088.

Outcome Measures in Randomized-controlled Trials of Neuropathic Pain Conditions: A Systematic Review of Systematic Reviews and Recommendations for Practice.

Mehta P¹, Claydon L, Hendrick P, Winser S, Baxter GD.

Author information**Abstract****OBJECTIVES:**

Neuropathic pain (NeP) is a prevalent, disabling, multidimensional condition with significant morbidity; however, there appears to be a variable approach in the use of outcome measures in NeP trials. A search of systematic reviews of interventional randomized-controlled trials for NeP was undertaken to investigate the range and types of outcome measures used to determine treatment effects.

METHODS:

Keywords and MESH searches were conducted in 5 electronic databases from inception to January 31, 2012. Full-text English-language reviews based on various acute and chronic NeP conditions were included. Two independent reviewers screened papers for inclusion, extracted data, and assessed the quality of reviews. Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines were used to critically appraise the reviews.

RESULTS:

A total of 46 studies were identified: the majority of reviews (n=28/46, 61%) scored well on the PRISMA (PRISMA scores of 20-27/27). Change in levels or intensity of pain were used by the majority of studies as the primary outcome measure in intervention studies (n=40/46 studies, 87%). Few studies used a functional outcome measure as either a primary or secondary outcome measure (n=7/46, 15% of studies).

DISCUSSION:

These results demonstrate that measures of pain are predominantly used in trials of NeP conditions and highlight the scant usage of functional outcome measures. The lack of standardization for the diagnostic criteria in NeP trials is also an issue that needs to be considered for future research and guideline development.

PMID:24662497

Restless leg syndrome

Eur J Pain. 2014 Nov;18(10):1402-9. doi: 10.1002/ejp.504. Epub 2014 Apr 3.

High prevalence of restless legs syndrome among women with multi-site pain: a population-based study in Dalarna, Sweden.

Stehlik R¹, Ulfberg J, Hedner J, Grote L.

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

The chronic pain (CP) and chronic multi-site pain (CMP) condition is a highly prevalent health problem. Several studies have reported a high (31-64%) prevalence of co-morbid restless legs syndrome (RLS) in patients with fibromyalgia, one specifically defined form of chronic widespread pain. The current study explored the association between CMP and RLS.

METHOD:

The study included 4040 respondents to a postal questionnaire sent to 10,000 women in the age range of 18-64 years and randomly selected from the general population. Complete questionnaire data on type (acute/chronic), degree (mild to severe) and spreading (0-5 body zones) of pain, as well as RLS symptoms (validated questionnaire), were obtained from 3060 subjects. Information on lifestyle, anthropometrics, co-morbidities and medication was collected.

RESULTS:

RLS prevalence increased from 9.6% in subjects with no report of pain to 23.9%, 26.4%, 39.2%, 44.9% and 54.8% in those reporting one, two, three, four and five pain areas, respectively ($p < 0.001$). Further, RLS prevalence increased from 9.6% (no pain) to 27.9%, 37.9% and 42.4% in subjects with mild, moderate and severe chronic pain ($p < 0.001$). Multi-site pain, pain localized in the leg, extended pain duration and co-morbid psychiatric disorder were all independently associated with a RLS diagnosis in a multiple regression analysis.

CONCLUSION:

The prevalence of RLS increased progressively with pain severity and even more sharply with the degree of pain spreading in women recruited from the general population. Both acute and chronic pain was associated with RLS-related symptoms.

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PMID:24700622

Persistent pain in the USA

J Pain. 2014 Oct;15(10):979-84. doi: 10.1016/j.jpain.2014.05.009.

Prevalence of persistent pain in the U.S. Adult population: new data from the 2010 national health interview survey.

Kennedy J¹, Roll JM², Schraudner T³, Murphy S³, McPherson S².

Author information**Abstract**

Published adult prevalence estimates of chronic pain in the United States vary significantly. A more consistent pain measure is needed to assess unmet need for pain management in the general population. In this study, secondary analyses of the 2010 Quality of Life Supplement of the National Health Interview Survey are used to calculate the point prevalence of "persistent pain," which we defined as constant or frequent pain persisting for at least 3 months. Rates of persistent pain are also calculated by risk group, chronic condition, and disability status. Findings show that about 19.0% of adults in the United States report persistent pain. Rates of persistent pain are higher among women, adults aged 60 to 69, adults who rate their health as fair or poor, adults who are overweight or obese, and those who were hospitalized 1 or more times in the preceding year. Most adults who report conditions such as arthritis, carpal tunnel syndrome, or back or joint pain do not describe their pain as "persistent." Of the estimated 39.4 million adults who report persistent pain, 67.2% say their pain is "constantly present," and 50.5% say their pain is sometimes "unbearable and excruciating."

PERSPECTIVE:

Persistent pain, defined as self-reported pain "every day" or "most days" in the preceding 3 months, is a useful way to characterize health-related quality of life in the general population, and policy makers should consider including this core measure in ongoing health surveys like the National Health Interview Survey and the Medical Expenditure Panel Survey, the authors conclude.

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KEYWORDS: Chronic pain; National Health Interview Survey; health-related quality of life; persistent pain

PMID: 25267013

COMPLEX REGIONAL PAIN

Sympathetic blocks for

Pain. 2014 Nov;155(11):2274-81. doi: 10.1016/j.pain.2014.08.015. Epub 2014 Aug 19.

Thoracic sympathetic block for the treatment of complex regional pain syndrome type I: A double-blind randomized controlled study.

de Oliveira Rocha R¹, Teixeira MJ², Yeng LT³, Cantara MG³, Faria VG³, Liggieri V³, Loduca A⁴, Müller BM⁴, Souza AC⁴, de Andrade DC⁵.

Author information

Abstract

Pain relief in complex regional pain syndrome (CRPS) remains a major challenge, in part due to the lack of evidence-based treatment trials specific for this condition. We performed a long-term randomized, double-blinded active-control study to evaluate the efficacy of thoracic sympathetic block (TSB) for upper limb type I CRPS. The study objective was to evaluate the analgesic effect of TSB in CRPS. Patients with CRPS type I were treated with standardized pharmacological and physical therapy and were randomized to either TSB or control procedure as an add-on treatment. Clinical data, pain intensity, and interference (Brief Pain Inventory), pain dimensions (McGill Pain Questionnaire [MPQ]), neuropathic characteristics (Neuropathic Pain Symptom Inventory [NPSI]), mood, upper limb function (Disabilities of Arm, Shoulder and Hand), and quality of life were assessed before, and at 1 month and 12 months after the procedure. Thirty-six patients (19 female, 44.7±11.1 years of age) underwent the procedure (17 in the TSB group). Average pain intensity at 1 month was not significantly different after TSB (3.5±3.2) compared to control procedure (4.8±2.7; P=0.249). At 12 months, however, the average pain item was significantly lower in the TSB group (3.47±3.5) compared to the control group (5.86±2.9; P=0.046). Scores from the MPQ, evoked-pain symptoms subscores (NPSI), and depression scores (Hospital Anxiety and Depression Scale) were significantly lower in the TSB group compared to the control group at 1 and at 12 months. Other measurements were not influenced by the treatment. Quality of life was only slightly improved by TSB. No major adverse events occurred. Larger, multicentric trials should be performed to confirm these original findings.

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KEYWORDS: Complex regional pain syndrome; Sympathetic nerve block; Thoracic column; Upper limbs

PMID: 25149143

New hope

New hope for patients with Complex Regional Pain Syndrome

University of Liverpool News, 12/09/2014

Researchers at the University of Liverpool have shown for the first time that the majority of patients with Complex Regional Pain Syndrome (CRPS), a severe post-traumatic pain condition in the limbs, have specific blood-antibodies that may activate the condition. The team examined the blood from patients who had previously participated in a trial on an immune treatment for CRPS.

Researchers anticipated that they might find blood-antibodies in approximately 25% of patients, but unexpectedly, they detected evidence for abnormal antibody activity in almost two thirds of study-participants, suggesting that having these antibodies is the 'rule' rather than the exception.

Healthy volunteers, patients with other types of chronic pain, or with established autoimmune disorder, did not have these blood-antibodies. The next stage of the research is to investigate how antibodies may contribute to causing and sustaining CRPS. The research is published in PAIN, a journal of the International Association for the Study of Pain.

NUTRITION/VITAMINS

Fish Oil

Ann Rheum Dis. 2015 Jan;74(1):89-95. doi: 10.1136/annrheumdis-2013-204145. Epub 2013 Sep 30.

Fish oil in recent onset rheumatoid arthritis: a randomised, double-blind controlled trial within algorithm-based drug use.

Proudman SM¹, James MJ¹, Spargo LD², Metcalf RG², Sullivan TR³, Rischmueller M⁴, Flabouris K⁵, Wechalekar MD², Lee AT², Cleland LG¹.

Author information

Abstract

BACKGROUND:

The effects of fish oil (FO) in rheumatoid arthritis (RA) have not been examined in the context of contemporary treatment of early RA. This study examined the effects of high versus low dose FO in early RA employing a 'treat-to-target' protocol of combination disease-modifying anti-rheumatic drugs (DMARDs).

METHODS:

Patients with RA <12 months' duration and who were DMARD-naïve were enrolled and randomised 2:1 to FO at a high dose or low dose (for masking). These groups, designated FO and control, were given 5.5 or 0.4 g/day, respectively, of the omega-3 fats, eicosapentaenoic acid + docosahexaenoic acid. All patients received methotrexate (MTX), sulphasalazine and hydroxychloroquine, and DMARD doses were adjusted according to an algorithm taking disease activity and toxicity into account. DAS28-erythrocyte sedimentation rate, modified Health Assessment Questionnaire (mHAQ) and remission were assessed three monthly. The primary outcome measure was failure of triple DMARD therapy.

RESULTS:

In the FO group, failure of triple DMARD therapy was lower (HR=0.28 (95% CI 0.12 to 0.63; p=0.002) unadjusted and 0.24 (95% CI 0.10 to 0.54; p=0.0006) following adjustment for smoking history, shared epitope and baseline anti-cyclic citrullinated peptide. The rate of first American College of Rheumatology (ACR) remission was significantly greater in the FO compared with the control group (HRs=2.17 (95% CI 1.07 to 4.42; p=0.03) unadjusted and 2.09 (95% CI 1.02 to 4.30; p=0.04) adjusted). There were no differences between groups in MTX dose, DAS28 or mHAQ scores, or adverse events.

CONCLUSIONS:

FO was associated with benefits additional to those achieved by combination 'treat-to-target' DMARDs with similar MTX use. These included reduced triple DMARD failure and a higher rate of ACR remission.

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KEYWORDS: Combination DMARDs; Fish Oil; Rheumatoid Arthritis; Treat to Target
PMID:24081439

PHARMACOLOGY

Antibiotics and obesity in infants

Int J Obes (Lond). 2014 Nov 11. doi: 10.1038/ijo.2014.180.

Prenatal exposure to antibiotics, cesarean section and risk of childhood obesity.

Mueller NT¹, Whyatt R², Hoepner L², Oberfield S³, Dominguez-Bello MG⁴, Widen EM¹, Hassoun A³, Perera F², Rundle A⁵.

Author information

Abstract

Background/Objectives: Cesarean section (CS) and antibiotic use during pregnancy may alter normal maternal-offspring microbiota exchange, thereby contributing to aberrant microbial colonization of the infant gut and increased susceptibility to obesity later in life. We hypothesized that (i) maternal use of antibiotics in the second or third trimester of pregnancy and (ii) CS are independently associated with higher risk of childhood obesity in the offspring. **Subjects/Methods:** Of the 727 mothers enrolled in the Northern Manhattan Mothers and Children Study, we analyzed the 436 mother-child dyads followed until 7 years of age with complete data. We ascertained prenatal antibiotic use by a questionnaire administered late in the third trimester, and delivery mode by medical record. We derived age- and sex-specific body mass index (BMI) z-scores using the CDC SAS Macro, and defined obesity as BMI z-score \geq 95th percentile. We used binary regression with robust variance and linear regression models adjusted for maternal age, ethnicity, pre-gravid BMI, maternal receipt of public assistance, birth weight, sex, breastfeeding in the first year and gestational antibiotics or delivery mode. **Results:** Compared with children not exposed to antibiotics during the second or third trimester, those exposed had 84% (33-154%) higher risk of obesity, after multivariable adjustment. Second or third trimester antibiotic exposure was also positively associated with BMI z-scores, waist circumference and % body fat (all $P < 0.05$). Independent of prenatal antibiotic usage, CS was associated with 46% (8-98%) higher offspring risk of childhood obesity. Associations were similar for elective and non-elective CS.

Conclusions: In our cohort, CS and exposure to antibiotics in the second or third trimester were associated with higher offspring risk of childhood obesity. Future studies that address the limitations of our study are warranted to determine if prenatal antibiotic use is associated with offspring obesity. Research is also needed to determine if alterations in neonatal gut microbiota underlie the observed associations. *International Journal of Obesity* advance online publication, 11 November 2014; doi:10.1038/ijo.2014.180.

PMID:25298276