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Purpose Our purpose was to analyse in detail the pre-operative symptoms and signs presented by patients who showed substantial relief from their back pain following spinal fusion surgery with the aim of possibly finding a pain pattern indicating segmental, discogenic pain.6

Methods We analysed 40 consecutive patients, mean age 41 years, with a history of disabling low back pain for a mean of 7.7 years. Before surgery the patients completed a detailed questionnaire concerning various aspects of their back pain, and findings at clinical examination were thoroughly noted. Monosegmental posterior lumbar interbody fusion without internal fixation was performed using microsurgical technique. Outcome was assessed at 1, 2 and 4 years after surgery and finally at 18 years, using self-reporting measures and assessment by an independent examiner. Assessment at 18 years applied the Balanced Inventory for Spinal Disorders Questionnaire and the Roland-Morris Disability Questionnaire.6

Results According to the independent observer's assessment at two years 27 of the 40 patients were much improved. Analysis of the pre-operative depiction of the back symptoms of this group revealed a rather uniform pattern, the most important being: dominating back pain originating in the midline of the spine, with a dull, aching character and stabbing pain in the same area provoked by sudden movements. Most patients in this group also had diffuse pain radiation of various extension down one or both legs and often bladder dysfunction with frequency. At clinical examination, localized interspinal tenderness was observed within the spinal area in question and the patient's back pain was provoked by pressure in that area and by tapping a neighbouring spinous process. At 18 years after surgery 19 patients assessed themselves as much improved. At that time 5 of them had pension due to age, 7 early pension, one worked full time and six patients part time. Eleven patients were re-operated due to defect bony healing.6

Conclusions The results may suggest that the use of a detailed symptom analysis and clinical examination may make it possible to select a subgroup of patients within the CLBP group likely to have better outcome following fusion surgery.6

Implications The next step would be to execute prospective studies and if our findings concerning back pain details and signs among CLPB patients can be confirmed this can provide for more accurate selection of patients suitable for fusion surgery.6

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2. LBP

Adolescent pain

Pain. 2016 Dec;157(12):2640-2656.

Systematic review with meta-analysis of childhood and adolescent risk and prognostic factors for musculoskeletal pain.

Huguet A¹, Tougas ME, Hayden J, McGrath PJ, Stinson JN, Chambers CT.

Author information

Abstract

A variety of factors may be involved in the development and course of musculoskeletal (MSK) pain. We undertook a systematic review with meta-analysis to synthesize and evaluate the quality of evidence about childhood and adolescent factors associated with onset and persistence of MSK pain, and its related disability. Studies were identified from searches of electronic databases (PubMed, EMBASE, PsycINFO, CINAHL, and Web of Science), references of included studies, and the Pediatric Pain mail list. Two independent reviewers assessed study inclusion, completed data extraction, and evaluated the quality of evidence using a modified Grading of Recommendations Assessment, Development and Evaluation (GRADE) framework. Thirty-six studies reporting on 21 cohorts were included. These studies examined 65 potential risk factors for onset of MSK pain and 43 potential prognosis factors for persistence of MSK pain. No study was identified that examined prognostic factors for MSK pain-related disability. High-quality evidence suggests that low socioeconomic status is a risk factor for onset of MSK pain in studies exploring long-term follow-up.

Moderate-quality evidence suggests that negative emotional symptoms and regularly smoking in childhood or adolescence may be associated with later MSK pain. However, moderate-quality evidence also suggests that high body mass index, taller height, and having joint hypermobility are not risk factors for onset of MSK pain. We found other risk and prognostic factors explored were associated with low or very low quality of evidence. Additional well-conducted primary studies are needed to increase confidence in the available evidence, and to explore new childhood risk and prognostic factors for MSK pain

Placebo and LBP

Pain. 2016 Dec;157(12):2766-2772.

Open-label placebo treatment in chronic low back pain: a randomized controlled trial.

Carvalho C¹, Caetano JM, Cunha L, Rebouta P, Kaptchuk TJ, Kirsch I.
Author information

Abstract

This randomized controlled trial was performed to investigate whether placebo effects in chronic low back pain could be harnessed ethically by adding open-label placebo (OLP) treatment to treatment as usual (TAU) for 3 weeks.

Pain severity was assessed on three 0- to 10-point Numeric Rating Scales, scoring maximum pain, minimum pain, and usual pain, and a composite, primary outcome, total pain score. Our other primary outcome was back-related dysfunction, assessed on the Roland-Morris Disability Questionnaire. In an exploratory follow-up, participants on TAU received placebo pills for 3 additional weeks. We randomized 97 adults reporting persistent low back pain for more than 3 months' duration and diagnosed by a board-certified pain specialist. Eighty-three adults completed the trial. Compared to TAU, OLP elicited greater pain reduction on each of the three 0- to 10-point Numeric Rating Scales and on the 0- to 10-point composite pain scale ($P < 0.001$), with moderate to large effect sizes. Pain reduction on the composite Numeric Rating Scales was 1.5 (95% confidence interval: 1.0-2.0) in the OLP group and 0.2 (-0.3 to 0.8) in the TAU group. Open-label placebo treatment also reduced disability compared to TAU ($P < 0.001$), with a large effect size. Improvement in disability scores was 2.9 (1.7-4.0) in the OLP group and 0.0 (-1.1 to 1.2) in the TAU group. After being switched to OLP, the TAU group showed significant reductions in both pain (1.5, 0.8-2.3) and disability (3.4, 2.2-4.5).

Our findings suggest that OLP pills presented in a positive context may be helpful in chronic low back pain.

3. DISC

Modic changes

Eur Spine J. 2016 Nov 24.

Modic changes in the adjacent vertebrae due to disc material infection with Propionibacterium acnes in patients with lumbar disc herniation.

Aghazadeh J¹, Salehpour F¹, Ziaei E¹, Javanshir N², Samadi A³, Sadeghi J², Mirzaei F⁴, Naseri Alavi SA¹.

Author information

Abstract

INTRODUCTION:

Modic changes (MCs) in vertebral bones are induced by two mechanisms of mechanical factors and infection. As *Propionibacterium acnes* (*P. acnes*) have been reported to be associated with LBP. The aim of this study is to evaluate the MCs in patients with disc herniation and positive for *P. acnes*.

METHODS AND MATERIAL:

A total of 120 patients with disc herniation surgery were enrolled into the study. The samples were excised during discectomy and then cultured in both anaerobic and aerobic incubations. Gram staining was employed for investigation of all colonies. The cultured *P. acnes* were detected by 16S rRNA-based polymerase chain reaction (PCR). MCs of baseline MRI were evaluated.

RESULTS:

In this study, 120 subjects (69 male and 51 female) with mean age of 43.15 ± 12.62 years were investigated. Sixty disc samples and eight muscle samples were positive for microorganisms. Moreover, 16S rDNA gene was identified in 46 (38.3%) disc samples. Moreover, 36/46 patients with *P. acnes* in their sample had MCs.

CONCLUSION:

According to the results and presence of 36/46 MCs in patients with lumbar disc herniation, positive for *P. acnes* suggests that *P. acnes* can lead to edema on the vertebrae endplates near to infected area.

Discogenic pain

Symptoms and signs possibly indicating segmental, discogenic pain. A fusion study with 18 years of follow-up

Bo Nyström Henrik Weber¹ Birgitta Schillberg Adam Taube

Specified symptoms related to a painful segment/disc are not previously reported.

We analysed symptoms of patients with back pain relief following fusion operation.

A symptom triad emerged: dominating aching midline pain, stabbing at sudden movements.

Most patients also had diffuse leg pain radiation and often bladder frequency.

Our results may improve selection of patients suitable for fusion surgery.

Background Only two out of the five existing randomized studies have reported better results from fusion surgery for chronic low back pain (CLBP) compared to conservative treatment. In these studies the back symptoms of the patients were described simply as “chronic low back pain”. One possible reason for the modest results of surgery is the lack of a description of specified symptoms that might be related to a painful segment/disc, and patient selection may therefore be more or less a matter of chance. Previous prospective studies including facet joint injections and discography and eventually MRI have failed to identify patients with a painful segment/disc that will benefit from fusion surgery.

Purpose Our purpose was to analyse in detail the pre-operative symptoms and signs presented by patients who showed substantial relief from their back pain following spinal fusion surgery with the aim of possibly finding a pain pattern indicating segmental, discogenic pain.

Methods We analysed 40 consecutive patients, mean age 41 years, with a history of disabling low back pain for a mean of 7.7 years. Before surgery the patients completed a detailed questionnaire concerning various aspects of their back pain, and findings at clinical examination were thoroughly noted. Monosegmental posterior lumbar interbody fusion without internal fixation was performed using microsurgical technique. Outcome was assessed at 1, 2 and 4 years after surgery and finally at 18 years, using self-reporting measures and assessment by an independent examiner. Assessment at 18 years applied the Balanced Inventory for Spinal Disorders Questionnaire and the Roland-Morris Disability Questionnaire.

Results According to the independent observer's assessment at two years 27 of the 40 patients were much improved. Analysis of the pre-operative depiction of the back symptoms of this group revealed a rather uniform pattern, the most important being: dominating back pain originating in the midline of the spine, with a dull, aching character and stabbing pain in the same area provoked by sudden movements. Most patients in this group also had diffuse pain radiation of various extension down one or both legs and often bladder dysfunction with frequency. At clinical examination, localized interspinal tenderness was observed within the spinal area in question and the patient's back pain was provoked by pressure in that area and by tapping a neighbouring spinous process. At 18 years after surgery 19 patients assessed themselves as much improved. At that time 5 of them had pension due to age, 7 early pension, one worked full time and six patients part time. Eleven patients were re-operated due to defect bony healing.

Conclusions The results may suggest that the use of a detailed symptom analysis and clinical examination may make it possible to select a subgroup of patients within the CLBP group likely to have better outcome following fusion surgery.

Implications The next step would be to execute prospective studies and if our findings concerning back pain details and signs among CLPB patients can be confirmed this can provide for more accurate selection of patients suitable for fusion surgery.

7. PELVIC ORGANS/WOMAN'S HEALTH**Endometriosis****Coexistence of polycystic ovary syndrome and endometriosis in women with infertility
Journal of Endometriosis 2014; 6(2): 79 – 83**

Article Type: ORIGINAL ARTICLE

Article Subject: Infertility

Authors

Kristin J. Holoch, Ricardo F. Savaris, David A. Forstein, Paul B. Miller, H. Lee Higdon, Creighton E. Likes, Bruce A. Lessey

Abstract

The aim of this study was to investigate if there is a higher incidence of endometriosis in patients with polycystic ovary syndrome (PCOS), compared with normal fertile controls.

Women with PCOS according to Rotterdam criteria, with infertility and/or pelvic pain, were identified (n = 104), and together with fertile women seeking bilateral tubal ligation (n = 111), they were submitted to laparoscopy at the Greenville Hospital System or the University of North Carolina at Chapel Hill. A biopsy was performed in 40 patients with PCOS to confirm or not endometriosis.

Age was similar in both groups (control: 29.7 ± 0.5 years; PCOS: 29.6 ± 0.4). The incidence of suspected endometriotic lesions in controls and PCOS patients was 12.6% (95% confidence interval [95% CI], 7.6%-20%) and 74% (95% CI, 64.8%-81.5%), respectively; with an odds ratio of 19.7 (95% CI, 9.6-40.2) of finding endometriosis in PCOS ($p < 0.0001$). Our results were similar when endometriosis was confirmed by pathology report. Of the PCOS patients with endometriosis, 76% had endometriosis stage I or II, according to the revised American Society for Reproductive Medicine criteria.

In this case-control study, a significant association between endometriosis and women with PCOS with pelvic pain and/or infertility was found. The majority of endometriotic lesions (76%) were stage I or II.

Pre-terms and pain perception

Clin J Pain. 2016 Dec;32(12):1086-1093.

Neonatal Invasive Procedures Predict Pain Intensity at School Age in Children Born Very Preterm.

Valeri BO¹, Ranger M, Chau CM, Cepeda IL, Synnes A, Linhares MB, Grunau RE.
Author information

Abstract

INTRODUCTION:

Children born very preterm display altered pain thresholds. Little is known about the neonatal clinical and psychosocial factors associated with their later pain perception.

OBJECTIVE:

We aimed to examine whether the number of neonatal invasive procedures, adjusted for other clinical and psychosocial factors, was associated with self-ratings of pain during a blood collection procedure at school age in children born very preterm.

MATERIALS AND METHODS:

56 children born very preterm (24 to 32 weeks gestational age), followed longitudinally from birth, and free of major neurodevelopmental impairments underwent a blood collection by venipuncture at age 7.5 years. The children's pain was self-reported using the Coloured Analog Scale and the Facial Affective Scale. Parents completed the Child Behavior Checklist and the State-Trait Anxiety Inventory. Pain exposure (the number of invasive procedures) and clinical factors from birth to term-equivalent age were obtained prospectively. Multiple linear regression was used to predict children's pain self-ratings from neonatal pain exposure after adjusting for neonatal clinical and concurrent psychosocial factors.

RESULTS:

A greater number of neonatal invasive procedures and higher parent trait-anxiety were associated with higher pain intensity ratings during venipuncture at age 7.5 years. Fewer surgeries and lower concurrent child externalizing behaviors were associated with a higher pain intensity.

CONCLUSIONS:

In very preterm children, exposure to neonatal pain was related to altered pain self-ratings at school age, independent of other neonatal factors. Neonatal surgeries and concurrent psychosocial factors were also associated with pain ratings.

Psychological problems in pelvic pain

The psychological profile of women presenting to a multidisciplinary clinic for chronic pelvic pain: High levels of psychological dysfunction and implications for practice

Journal of Pain Research, 11/29/2016 Bryant C, et al.

The intention of this study was to describe the psychological profile of a representative sample of women presenting with chronic pelvic pain (CPP) at a tertiary referral center. This study affirms previous evidence for high levels of psychological distress and functional impairment associated with this condition, and extend these findings by including measures that are highly relevant to treatment planning, for example, thinking styles and pain self-efficacy. Hence, treatment of this complex condition needs to be holistic, and a multi-disciplinary approach is likely to be the best way to achieve this.

Natural rx for urinary track infection

Eur J Obstet Gynecol Reprod Biol. 2016 Nov 1;207:125-128. doi: 10.1016/j.ejogrb.2016.10.018.

Efficacy of an orally administered combination of hyaluronic acid, chondroitin sulfate, curcumin and quercetin for the prevention of recurrent urinary tract infections in postmenopausal women.

Torella M1, Del Deo F1, Grimaldi A1, Iervolino SA1, Pezzella M1, Tammaro C1, Gallo P2, Rappa C3, De Franciscis P1, Colacurci N1.

Author information

Abstract

OBJECTIVE:

To assess whether the orally administered combination of hyaluronic acid (HA), chondroitin sulfate (CS), curcumin and quercetin could be effective in preventing recurrent cystitis in postmenopausal women and whether its efficacy was conditioned by the concurrent use of local estrogen therapy.

STUDY DESIGN:

This was a prospective evaluation of 145 postmenopausal women consecutively recruited from the database of three different investigators. All women should have mild-to-moderate urogenital atrophy and a history of recurrent urinary tract infections (≥ 2 episodes within 6 months or ≥ 3 episodes within 12 months documented by positive urine cultures) during the last year. Patients were assigned to three different therapeutic regimens: the first group was treated only with vaginal estrogens, the second group only with HA, CS, curcumin and quercetin per os, and the third group was treated with HA, CS, curcumin and quercetin associated with local estrogens. We evaluated the number of patients with < 2 infective episodes in the 6-month follow-up and < 3 episodes in the 12-month follow-up (main aim definition) and the reduction of related symptoms through a Visual Analog Scale (VAS) and the Pelvic Pain and Urgency/Frequency (PUF) patient symptom scale. Student's t-test and chi-squared test were used for data analysis as appropriate.

RESULTS:

At 6-month follow up, the main aim rate was 8%, 11.1% and 25% in the three groups, respectively ($p < 0.05$ compared to baseline only in group 3). Although the reduction in the number of recurrent episodes became significant in all groups at 1 year follow-up, the main aim rate was almost double in women receiving both local estrogens and oral therapy (group 3) compared to those receiving single treatments. The improvement of related symptoms was significant in all groups at 12-month follow-up.

CONCLUSIONS:

In postmenopausal women, the combination of HA, CS, curcumin and quercetin per os was effective in preventing recurrent urinary tract infections, especially if administered with vaginal estrogen therapy.

8. VISCERA

GERD and anxiety

J Gastroenterol Hepatol. 2016 Nov 11. doi: 10.1111/jgh.13650.

The association between gastroesophageal reflux disease (GERD) with sleep quality, depression and anxiety in a cohort study of Australian men.

On ZX^{1,2}, Grant J², Shi Z^{1,2}, Taylor AW^{1,2}, Wittert GA¹, Tully PJ¹, Hayley AC^{3,4}, Martin S¹.
Author information

Abstract

BACKGROUND & AIM:

Previous clinical studies have demonstrated a relationship between gastro-esophageal reflux disease (GERD) with anxiety and depression; however few population-based studies have controlled for sleep disorders. The current study aimed to assess the relationship between GERD and anxiety, depression, and sleep disorders in a community-based sample of Australian men.

METHODS:

Participants comprised a sub-set of 1,612 men (mean age: 60.7 years, range: 35 - 80) who participated in the Men Androgen Inflammation Lifestyle Environment and Stress (MAILES) Study during the years 2001-2012, who had complete GERD measures [Gastroesophageal Reflux Disease Questionnaire (GerdQ)] and were not taking medications known to impact gastrointestinal function (excluding drugs taken for acid-related disorders). Current depression and anxiety were defined by (i) physician diagnosis, (ii) symptoms of depression (Beck Depression Inventory and Centre for Epidemiological Studies Depression Scale) or anxiety (Generalized Anxiety Disorder-7), and/or current depressive or anxiolytic medication use. Previous depression was indicated by past depressive diagnoses/medication use. Data on sleep quality, daytime sleepiness and obstructive sleep apnea were collected along with several health, lifestyle and medical factors, and these were systematically evaluated in both univariate and multivariable analyses.

RESULTS:

Overall 13.7% (n = 221) men had clinically-significant GERD symptoms. In the adjusted models, an association between GERD and anxiety (OR 2.7; 95% CI 1.0 - 6.8) and poor sleep quality (OR 1.8; 95% CI 1.2 - 2.9) was observed, however no effect was observed for current depression (OR 1.5; 95% CI 0.8 - 2.7). After removing poor sleep quality from the model, an independent association between current depression (OR 2.6; 95% CI 1.7 - 3.8) and current anxiety (OR 3.2; 95% CI 1.8 - 6.0) and GERD was observed, but not for previous depression (OR 1.4; 95% CI 0.7 - 2.8).

CONCLUSION:

In this sample of urban-dwelling men, we observed a strong independent association between GERD, anxiety and current depression, the latter appearing to be partly mediated by poor sleep quality. Patients presenting with GERD should have concurrent mental health assessments in order to identify potential confounders to the successful management of their symptoms.

Nerve growth factor and IBS

Aliment Pharmacol Ther. 2016 Nov 9. doi: 10.1111/apt.13848.

Increased expression of nerve growth factor correlates with visceral hypersensitivity and impaired gut barrier function in diarrhoea-predominant irritable bowel syndrome: a preliminary explorative study.

Xu XJ^{1,2}, Zhang YL², Liu L³, Pan L⁴, Yao SK^{1,2}.

Author information

Abstract

BACKGROUND:

Neural-immune-endocrine network mechanism has attracted increased attention in diarrhoea-predominant irritable bowel syndrome (IBS-D). Pre-clinical evidence indicates that nerve growth factor (NGF) mediates visceral hypersensitivity and gut barrier dysfunction, via interactions with mast cells and sensory nerve fibres.

AIM:

To explore the role of nerve growth factor, as well as mast cell-nerve growth factor-nerve interaction in IBS-D pathophysiology.

METHODS:

In this cross-sectional study, IBS-D patients and healthy controls first underwent clinical and psychological assessments. Visceral sensitivity to rectal distension was tested. As gut barrier function markers, serum diamine oxidase and d-lactate were detected. Rectosigmoid biopsies were taken for the analyses of nerve growth factor expression, mast cell count and activation, and sensory nerve fibres expressing transient receptor potential vanilloid 1 and calcitonin gene-related peptide. Correlations between these parameters were examined in patients.

RESULTS:

Thirty-eight IBS-D patients (28 males, 10 females; average age 30.2 years) and 20 healthy controls (12 males, 8 females; average age 26.8 years) participated in the study. The patients presented increased psychological symptoms, visceral hypersensitivity and impaired gut barrier function. NGF gene expression, mast cell count and sensory nerve fibres were significantly increased in the patients ($P < 0.05$). In correlation analysis, NGF expression was positively correlated with the disease severity, anxiety and serum diamine oxidase; visceral sensitivity thresholds were negatively associated with NGF expression (Bonferroni corrected $P < 0.0029$).

CONCLUSIONS:

Elevated mucosal NGF may interact with mast cells and sensory nerve fibres, contributing to visceral hypersensitivity and impaired gut barrier function in IBS-D.

Meat intake and CR CA

Eur J Nutr. 2016 Nov 24.

Meat intake, cooking methods and doneness and risk of colorectal tumours in the Spanish multicase-control study (MCC-Spain).

de Batlle J¹, Gracia-Lavedan E^{2,3,4}, Romaguera D^{5,6,7}, Mendez M^{8,9}, Castaño-Vinyals G^{2,3,4,10}, Martín V^{3,11}, Aragonés N^{3,12,13,14}, Gómez-Acebo I^{3,15}, Olmedo-Requena R^{3,16,17}, Jimenez-Moleon JJ^{3,16,17}, Guevara M^{3,18}, Azpiri M¹⁹, Llorens-Ivorra C²⁰, Fernandez-Tardon G^{3,21}, Lorca JA²², Huerta JM²³, Moreno V^{3,24,25}, Boldo E^{3,12,13,14}, Pérez-Gómez B^{3,12,13,14}, Castilla J^{3,18}, Fernández-Villa T¹¹, Barrio JP¹¹, Andreu M²⁶, Castells A²⁷, Dierssen T^{3,15}, Altzibar JM^{3,19}, Kogevinas M^{2,3,4,10}, Pollán M^{3,12,13,14}, Amiano P^{3,19}.

Author information

Abstract

PURPOSE:

Although there is convincing evidence that red and processed meat intake increases the risk of colorectal cancer (CRC), the potential role of meat cooking practices has not been established yet and could partly explain the current heterogeneity of results among studies. Therefore, we aimed to investigate the association between meat consumption and cooking practices and the risk of CRC in a population-based case-control study.

METHODS:

A total of 1671 CRC cases and 3095 controls recruited in Spain between September 2008 and December 2013 completing a food frequency questionnaire with a meat-specific module were included in the analyses. Odds ratios (OR) and confidence intervals (CI) were estimated by logistic regression models adjusted for known confounders.

RESULTS:

Total meat intake was associated with increased risk of CRC (OR_{T3-T1} 1.41; 95% CI 1.19-1.67; $p_{\text{trend}} < 0.001$), and similar associations were found for white, red and processed/cured/organ meat. Rare-cooked meat preference was associated with low risk of CRC in red meat (OR_{rare vs. medium} 0.66; 95% CI 0.51-0.85) and total meat (OR_{rare vs. medium} 0.56; 95% CI 0.37-0.86) consumers, these associations being stronger in women than in men. Griddle-grilled/barbecued meat was associated with an increased CRC risk (total meat: OR 1.45; 95% CI 1.13-1.87). Stewing (OR 1.25; 95% CI 1.04-1.51) and oven-baking (OR 1.18; 95% CI 1.00-1.40) were associated with increased CRC risk of white, but not red, meat.

CONCLUSIONS:

Our study supports an association of white, red, processed/cured/organ and total meat intake with an increased risk of CRC. Moreover, our study showed that cooking practices can modulate such risk.

Childrens BM's

Pediatr Int. 2016 Nov 22. doi: 10.1111/ped.13206.

Lifestyle and Bowel Movements in School Children: results from the Toyama Birth Cohort Study.

Yamada M¹, Sekine M¹, Tatsuse T¹.

Author information

Abstract

BACKGROUND:

Constipation is prevalent health disorder and it has been bothering many pediatricians as well as people suffering from constipation. There have been few epidemiological surveys about constipation in Japanese children. This study aims to evaluate the prevalence of non-daily bowel movements (BM) and irregular BM among children and to identify modifiable lifestyle factors relevant to their bowel habits.

METHODS:

Subjects were from the Toyama Birth Cohort Study in Japan. 7,762 children aged 9-10 years were investigated by questionnaire in 1999. We evaluated the children's bowel habits and the relationship between lifestyles and BM. Frequency of 'non-daily BM' and regularity of 'totally irregular BM' were defined as dependent variables in our study.

RESULTS:

Non-daily BM were reported by 21.8% of boys and 31.6% of girls, while 10.6% of boys and 18.3% of girls had totally irregular BM. Non-daily BM were significantly associated with skipping breakfast (odds ratio (OR), 1.23), slow eating (OR, 1.13), physical inactivity (OR, 1.50) and late wake-up (OR, 1.29). Totally irregular BM were significantly correlated with skipping breakfast (OR, 1.30), slow eating (OR, 1.41), physical inactivity (OR, 1.27), long TV viewing (OR, 1.52), late bedtime (OR, 1.43), and short sleep duration (OR, 1.33). More girls had non-daily and totally irregular BM than boys, and these sex differences hardly attenuated after adjusting for lifestyle variables

CONCLUSIONS: Non-daily and totally irregular BM are commonly seen among children, and there are many relevant lifestyle factors. Establishing regular lifestyles may lessen their constipation. This article is protected by copyright. All rights reserved.

Non Coronary chest pain

BMC Fam Pract. 2016 Nov 16;17(1):159.

Non-coronary chest pain does not affect long-term mortality: a prospective, observational study using a matched population control.

Nilsson S^{1,2}, Järemo P³.

Author information

Abstract

BACKGROUND:

Chest pain assumed to be of non-coronary origin (NCCP) may be linked to enhanced mortality due to coronary heart disease (CHD). The aim of this study was to follow NCCP patients, as defined in primary care, with respect to mortality and long-term morbidity of CHD. We further examined if NCCP associates with risk factors for CHD.

METHODS:

Patients consulting general practitioners (GPs) in 1998-2000 in three primary care centers in the southeast Sweden for chest pain regarded as NCCP were compared with controls matched for age, gender and residential area. Causes of death were gathered from registry data and death certificates. In 2005 a postal questionnaire was distributed to the survivors to collect demographic and clinical data. If participants had CHD diagnosed by a physician prior to inclusion they were excluded.

RESULTS:

Patients with NCCP (n = 382) and population controls (n = 746) did not differ with respect to mortality and incidence of CHD. The NCCP group reported more ongoing chest pain (OR 3.34 95 % CI 2.41-4.62), they more often had elevated blood pressure (OR 1.86 95 % CI 1.32-2.60), consumed more β -blockers (p < 0.001), aspirin (p = 0.013), thiazides (p = 0.004) and long-acting nitrates (p = 0.002). They further had more remedies for acid-related disorders (p = 0.014) and obstructive pulmonary disease (p < 0.001).

CONCLUSIONS:

The study suggests that individuals with chest pain judged by GPs to be NCCP do not develop CHD more frequently than population controls. It is evident that NCCP often lasts for many years and that the condition associates with hypertension.

Inflammation and CA

Cancer Res. 2016 Nov 7. pii: canres.1359.2016.

Dietary emulsifier-induced low-grade inflammation promotes colon carcinogenesis.

Viennois E¹, Merlin D¹, Gewirtz AT¹, Chassaing B².

Author information

Abstract

The increased risks conferred by inflammatory bowel disease (IBD) to the development of colorectal cancer (CRC) gave rise to the term "colitis-associated cancer" and the concept that inflammation promotes colon tumorigenesis. A condition more common than IBD is low-grade inflammation, which correlates with altered gut microbiota composition and metabolic syndrome, both present in many cases of CRC. Recent findings suggest that low-grade inflammation in the intestine is promoted by consumption of dietary emulsifiers, a ubiquitous component of processed foods which alter the composition of gut microbiota. Here, we demonstrate in a pre-clinical model of colitis-induced CRC that regular consumption of dietary emulsifiers carboxymethylcellulose or polysorbate-80 exacerbated tumor development. Enhanced tumor development was associated with an altered microbiota metagenome characterized by elevated levels of lipopolysaccharide and flagellin. We found that emulsifier-induced alterations in the microbiome were necessary and sufficient to drive alterations in major proliferation and apoptosis signaling pathways thought to govern tumor development. Overall, our findings support the concept that perturbations in host-microbiota interactions that cause low-grade gut inflammation can promote colon carcinogenesis

10 A. CERVICAL SPINE**Centralization of pain**

Measurement of outcomes for patients with centralising versus non-centralising neck pain
Terrence Rose, Joshua Butler, Nicholaus Salinas, Ryan Stolfus, Tanisha Wheatley & Ron Schenk

Abstract

Objective: The purpose of this study is to determine whether individuals with neck pain who demonstrate centralisation of symptoms have more favourable outcome than individuals who do not demonstrate centralisation.

Methods: Eleven subjects with neck pain were evaluated and treated by two physical therapists certified in Mechanical Diagnosis and Therapy (MDT). Eleven physical therapy patients underwent a routine initial evaluation and were treated 2–3 times per week using MDT principles and other physical therapy interventions. The Neck Disability Index (NDI) tool was administered at the initial examination, approximately 2 weeks following the initial examination, each subsequent re-evaluation, and at discharge from the study to measure changes in functional outcomes for each subject. Patients continued with treatments until they were discharged or removed from the study. Four subjects were referred back to their physician by treating physical therapist secondary to non-centralisation (NC) and worsening of symptoms.

Results: Of the 11 subjects, six demonstrated centralisation (CEN) and five demonstrated NC. At initial evaluation, the average NDI score for the CEN group was 51.0 (SD ± 19.4) and 56.4 (SD ± 17.6) for the NC group. For the CEN group, the average change in NDI score between initial evaluation and discharge was 41.2 (SD ± 13.2) and 12.2 (SD ± 13.0) for the NC group. The correlation coefficient of CEN and change in NDI score was 0.772 and was statistically significant ($P = 0.005$).

Conclusions: In this limited sample, people with neck pain demonstrated more favourable outcomes when the CEN phenomenon was observed. Future research on CEN should be investigated with a larger sample size and with a greater number of clinicians trained in the MDT approach.

12 A. WHIPLASH**Integrated approach to neck pain**

J Manipulative Physiol Ther. 2016 Oct;39(8):523-564.e27. doi: 10.1016/j.jmpt.2016.08.007.

The Treatment of Neck Pain-Associated Disorders and Whiplash-Associated Disorders: A Clinical Practice Guideline.

Bussi eres AE¹, Stewart G², Al-Zoubi F³, Decina P⁴, Descarreaux M⁵, Hayden J⁶, Hendrickson B⁷, Hincapi  C⁸, Pag  I⁹, Passmore S¹⁰, Srbely J¹¹, Stupar M⁴, Weisberg J¹², Ornelas J¹³.

Author information

Abstract

OBJECTIVE:

The objective was to develop a clinical practice guideline on the management of neck pain-associated disorders (NADs) and whiplash-associated disorders (WADs). This guideline replaces 2 prior chiropractic guidelines on NADs and WADs.

METHODS:

Pertinent systematic reviews on 6 topic areas (education, multimodal care, exercise, work disability, manual therapy, passive modalities) were assessed using A Measurement Tool to Assess Systematic Reviews (AMSTAR) and data extracted from admissible randomized controlled trials. We incorporated risk of bias scores in the Grading of Recommendations Assessment, Development, and Evaluation. Evidence profiles were used to summarize judgments of the evidence quality, detail relative and absolute effects, and link recommendations to the supporting evidence. The guideline panel considered the balance of desirable and undesirable consequences. Consensus was achieved using a modified Delphi. The guideline was peer reviewed by a 10-member multidisciplinary (medical and chiropractic) external committee.

RESULTS:

For recent-onset (0-3 months) neck pain, we suggest offering multimodal care; manipulation or mobilization; range-of-motion home exercise, or multimodal manual therapy (for grades I-II NAD); supervised graded strengthening exercise (grade III NAD); and multimodal care (grade III WAD). For persistent (>3 months) neck pain, we suggest offering multimodal care or stress self-management; manipulation with soft tissue therapy; high-dose massage; supervised group exercise; supervised yoga; supervised strengthening exercises or home exercises (grades I-II NAD); multimodal care or practitioner's advice (grades I-III NAD); and supervised exercise with advice or advice alone (grades I-II WAD). For workers with persistent neck and shoulder pain, evidence supports mixed supervised and unsupervised high-intensity strength training or advice alone (grades I-III NAD).

CONCLUSIONS:

A multimodal approach including manual therapy, self-management advice, and exercise is an effective treatment strategy for both recent-onset and persistent neck pain

Arcuate foramen

Eur Spine J. 2016 Nov 7.

Acute headache attributed to whiplash in arcuate foramen and non-arcuate foramen subjects.

Ríos L^{1,2}, Mata-Escolano F^{3,4}, Blanco-Pérez E⁵, Llidó S², Bastir M¹, Sanchis-Gimeno JA⁶.
Author information

Abstract

PURPOSE:

To test the association between arcuate foramen (AF) in the first cervical vertebra with acute headache attributed to whiplash.

METHODS:

Retrospective study of 128 patients that suffered a whiplash. The presence or absence of AF was recorded after a radiographic study, as well as the presence or absence of acute headache after the whiplash.

RESULTS:

The frequency of AF was 17.2%. Patients with bilateral AF presented a significant ($p = 0.000$, Fisher's test) increase in the frequency of acute headache (90.9%) in comparison with the non-AF group (5.7%). The ratio between the presence and absence of acute headache was 166.6 times higher (IC 95% 18.2-1526.22) in subjects with bilateral AF in comparison with non-AF subjects.

CONCLUSIONS:

The presence of bilateral AF is associated to an increased frequency of acute headache after suffering a whiplash, information of interest for the attention to these patients.

13. CRANIUM/TMJ

Chondromalacia as pathological finding in arthroscopy of the temporomandibular joint: A retrospective study

Rafael Martin-Granizo (Attending Surgeon)

Diana Carolina Correa-Muñoz (Oral and Maxillofacial Surgeon Rotating surgeon)

Summary

Objective

The objective of this study was to describe the arthroscopic findings of chondromalacia and its relation with the internal derangement of the temporomandibular joint (TMJ).

Patients and Methods

A total of 161 patients (299 TMJs) who underwent arthroscopy were included in the study. The TMJs were evaluated objectively under arthroscopic vision, and 4 groups of patients were established according to the degree of involvement, degree I, II, III and IV. Statistical analyses were conducted using logistic regression models ($P < 0.05$).

Results

It was observed that 95 patients (59%) had no sign of chondromalacia and 66 (41%) in 88 joints exhibited some degree of chondromalacia (44 patients unilaterally and 22 bilaterally). Of the 88 joints with chondromalacia, 14 (15.9%) had chondromalacia degree I, 12 (13.6%) chondromalacia degree II, 20 (22.7%) chondromalacia degree III and 42 (47.7%) chondromalacia degree IV. The chondromalacia was more significantly found in patients with ADDwR and discal perforation ($P < 0.05$), even as a common finding in patients without any internal derangement. Chondromalacia degree IV was a significant finding in cases of ADDwoR ($P = 0.000619$).

Conclusions

Chondromalacia of the TMJ is a common finding in patients with internal derangement even at the early stage

Tooth loss

J Dent Res. 2016 Dec;95(13):1464-1471. Epub 2016 Sep 21.

Reduced Bone Stiffness in Women Is Associated with Clinical Attachment and Tooth Loss: The Study of Health in Pomerania.

Silveira JL^{1,2}, Albers M³, Vargas DM^{4,5}, Santa Helena ET^{4,5}, Cordova CM⁶, Hannemann A⁷, Wallaschofski H⁷, Meisel P⁸, Pink C⁸, Samietz S⁹, Schmidt CO³, Holtfreter B⁸, Völzke H^{3,10}, Dörr M^{10,11}, Kocher T⁸, Markus MR^{3,10,11,12}.

Author information

Abstract

The authors evaluated the association of reduced bone stiffness of the calcaneus with clinical attachment loss (CAL) and tooth loss. The authors analyzed data from 4,678 subjects (2,384 women), aged 20 to 88 y, from the second follow-up of the population-based Study of Health in Pomerania (SHIP-2) and the baseline examination of the SHIP-Trend cohort. Bone stiffness, characterized by the stiffness index (SI) and the osteoporotic fracture risk (OFR), was assessed by quantitative ultrasound of the heel. SI and OFR were significantly associated with the mean CAL in women. While 1) the SI showed a significant association with the mean CAL and 2) the OFR with the median number of teeth in just the postmenopausal women, the OFR showed a significant association with mean CAL for both pre- and postmenopausal women. In postmenopausal women, a 10-unit increase in the SI was associated with a decrease in the mean CAL of 0.05 mm (95% confidence interval [CI]: -0.10 to 0.00; P = 0.046). Moreover, the adjusted median number of teeth was 21.4 (95% CI: 20.9 to 21.9) among the postmenopausal women with a low OFR, while it was 19.1 (95% CI: 17.8 to 20.3; P = 0.001) among the postmenopausal women with a high OFR. For the premenopausal women with a low OFR, the mean CAL was 1.60 mm (95% CI: 1.53 to 1.66), while for the premenopausal women with a high OFR, it was 2.24 mm (95% CI: 1.78 to 2.69; P = 0.006).

Reduced bone stiffness was associated with clinical attachment and tooth loss in women but not in men.

Sleep and CV disease

The prevalence of poor sleep quality and its association with depression and anxiety scores in patients admitted for cardiovascular disease: A cross-sectional designed study

International Journal of Cardiology, 11/23/2016

Matsuda R, et al. – Researchers attempted to assess the prevalence of poor sleep quality and its relationship with depression and anxiety in cardiovascular patients and explored whether sex and cardiovascular comorbidities modified these associations. In the result, they found that poor sleep quality was highly prevalent and related to depression and anxiety in cardiovascular patients. These affiliations may be modified by sex and the presence of coronary artery diseases.

Methods

- An aggregate of 1071 patients hospitalized for a broad spectrum of cardiovascular diseases at a single university hospital were evaluated (790 men, mean age 64 ± 14 years).
- The researchers evaluated sleep quality during their index hospitalization period using the Pittsburgh Sleep Quality Index (PSQI); poor sleep quality was defined as $PSQI > 5$.
- After that, depression and anxiety were assessed with the Hospital Anxiety and Depression Scale (HADS).

Results

- According to the findings obtained, the median PSQI score was 5.0 [3.0–7.0], and 461 inpatients (43%) had poor sleep quality.
- Multivariate regression analysis adjusting for patient background, medical risk factors, and laboratory data uncovered that poor sleep quality was connected with higher HADS subscores for depression (HADS-depression; odds ratio [OR]: 1.09, 95% confidence interval [CI]: 1.03–1.15) and anxiety (HADS-anxiety; OR: 1.17, 95% CI: 1.11–1.24).
- The findings suggested that poor sleep quality was connected with markedly higher HADS-depression among women than men (p value for interaction: 0.008).
- It was also observed in the findings that the relationship between poor sleep quality and HADS-anxiety was more significant among patients without coronary artery diseases (p value for interaction: 0.017).

14. HEADACHES**HA and changes in cranial sensation**

Headache. 2016 Nov 25. doi: 10.1111/head.12984.

Differences in Topographical Pressure Pain Sensitivity Maps of the Scalp Between Patients With Migraine and Healthy Controls.

Barón J¹, Ruiz M¹, Palacios-Ceña M², Madeleine P³, Guerrero ÁL¹, Arendt-Nielsen L⁴, Fernández-de-Las-Peñas C^{2,4}.

Author information

Abstract

OBJECTIVE:

To investigate differences in topographical pressure pain sensitivity maps of the scalp between patients with migraine and healthy controls considering the chronicity (episodic/chronic) and side (strictly unilateral/bilateral) of the symptoms.

BACKGROUND:

It seems that the trigeminal area is sensitized in migraine. No study has investigated topographical pressure sensitivity maps of the scalp in patients with migraine.

METHODS:

Pressure pain thresholds (PPTs) were assessed from 21 points distributed over the scalp in 86 patients with episodic migraine, 76 with chronic migraine, and 42 healthy age and matched healthy controls in a blinded design. Topographical pressure pain sensitivity maps based on interpolation of the PPTs were constructed. Clinical features of migraine, anxiety, and depression (Hospital Anxiety and Depression Scale, HADS) were collected.

RESULTS:

The multivariate ANCOVA revealed significant differences in PPT between points ($F = 55.674$; $P < .001$) and groups ($F = 5.316$; $P = .006$), but not sides ($F = 0.880$; $P = .417$). No significant effect of gender ($F = 0.897$; $P = .656$), depression ($F = 1.109$; $P = .220$), or anxiety ($F = 0.981$; $F = 0.569$) was found. Post hoc comparisons revealed: (1) lower PPTs in both migraine groups than in healthy controls in all points ($P < .001$); (2) no significant differences between chronic or episodic migraine ($P > .335$) except for Fp1 ($P = .045$) and Fp2 ($P = .017$) points where subjects with chronic migraine had lower PPTs than those with episodic migraine; (3) no differences between bilateral/unilateral migraine ($P > .417$). An anterior to posterior gradient was found, with the lowest PPTs located in frontal regions and the highest PPTs in occipital areas (all groups, $P < .001$).

CONCLUSIONS:

We found that patients with migraine exhibited generalized pressure pain hypersensitivity in the head as compared to healthy controls and that hypersensitivity was similar between episodic/chronic and unilateral/bilateral migraine. Topographical pressure pain sensitivity maps revealed an anterior to posterior gradient of pressure pain sensitivity in both migraine and control groups.

Use of complimentary services

Headache. 2016 Nov 25. doi: 10.1111/head.12986.

Gender Differences in the Use of Complementary and Alternative Medicine and Their Association With Moderate Mental Distress in U.S. Adults With Migraines/Severe Headaches.

Rhee TG¹, Harris IM^{1,2}.

Author information

Abstract

OBJECTIVE:

We examined whether the prevalence of complementary and alternative medicine (CAM) use varies by gender, and assessed the interaction of gender and CAM use on moderate mental distress (MMD) in U.S. adults with migraines/severe headaches.

METHODS:

We used data from the 2012 National Health Interview Survey, which represents non-institutionalized U.S. adults with migraines/severe headaches (n = 4645 unweighted). Using a cross-sectional design with survey sampling techniques, we conducted descriptive analyses for prevalence of CAM use by gender. Multivariate logistic regression analyses were run to investigate potential roles of migraines/severe headaches and CAM use on MMD by gender.

RESULTS:

The overall prevalence of past year CAM use was 44.4%. Women consistently used CAM more frequently than men (P = .004). The most commonly used CAM types included herbal supplements (22.2%), massage (14.2%), and chiropractic/osteopathic (13.9%). After controlling for covariates, the odds of MDD were increased by the presence of migraines/severe headaches (P < .001) and the use of any CAM (P < .001). The interaction effect of migraines/severe headaches and CAM use decreased the odds of MMD by 27% in women (P < .05), but not in men.

CONCLUSION:

Women used CAM more frequently than men among adults with migraines/severe headaches in the United States. In addition, the interaction of gender and CAM use exists; the CAM use was associated with decreased odds of MMD among women only, suggesting that women with migraines/severe headaches may have benefited from CAM for their mental distress. Future research is needed to explore why such patterns vary by gender.

Postural HA's

Headache. 2016 Nov 10. doi: 10.1111/head.12974.

Postural Headaches Due to Cerebrospinal Fluid Leakage Through Subarachnoid-Pleural Fistula: A Case Report.

Lin SF¹, Weng HY².
Author information

Abstract

BACKGROUND:

Postural headaches are commonly associated with spontaneous intracranial hypotension and cerebrospinal fluid (CSF) leakage from the spine. A subarachnoid-pleural fistula (SPF) is a very rare and serious type of CSF fistula that has mostly been reported following traumatic causes.

CASE REPORT:

Here, the case of a 36-year-old woman who suffered from postural headaches after chiropractic manipulation of her neck was reported. Brain and spinal magnetic resonance (MR) imaging showed brain sagging, a C7-T1 dural defect, and overt CSF leakage. Heavy T2-weighted MR myelography revealed paravertebral fluid collections, communicating with pleural effusions through bilateral SPFs. The postural headaches were relieved by 3 courses of epidural blood patches.

DISCUSSIONS:

From the patient's history, her severe SPFs were attributed to rupture of the spinal leptomeninges during vigorous chiropractic manipulation of her neck. Heavy T2-weighted MR myelography could delineate the route of SPFs and CSF leakages.

Manip. And massage for HA's

The effect of manipulation plus massage therapy versus massage therapy alone in people with tension-type headache. A randomized controlled clinical trial

European Journal of Physical and Rehabilitation Medicine, 11/30/2016

Espi-Lopez GV, et al. – A randomized, single-blinded, controlled clinical trial was conducted to compare the impact of spinal manipulation combined with massage versus massage alone on range of motion of the cervical spine, headache frequency, intensity and disability in patients with tension-type headache (TTH). The results obtained from the study support the advantage of treating TTH with either massage or massage combined with a manipulative technique. However, the addition of manipulative technique was more effective for increasing range of motion of the upper cervical spine and for decreasing the effect of headache.

Methods

- In the present study, 105 subjects with TTH were enrolled.
- Participants were divided into 2 groups:
 - Manipulation and massage;
 - Massage only (control).
- 4 treatment sessions were applied over 4 weeks.
- The Headache Disability Inventory (HDI) and range of upper cervical and cervical motion were assessed at baseline, immediately after the intervention and at a follow-up, 8 weeks after completing the intervention.

Results

- The results of this study showed that both groups exhibited a large ($f=1.22$) improvement on their HDI scores.
- In addition, those that received manipulation reported a medium-sized reduction ($f=0.33$) in headache frequency across all data points ($P<0.05$) compared to the control group.
- Researchers observed that both groups demonstrated a large within-subject effect for upper cervical extension ($f=0.62$), a medium-sized effect for cervical extension ($f=0.39$), and large effects for upper cervical ($f=1.00$) and cervical ($f=0.27$) flexion.
- According to the findings obtained, the addition of manipulation resulted in larger gains of upper cervical flexion range of motion, and this difference remained stable at the follow-up.

Prevalence of

Headache. 2016 Nov 12. doi: 10.1111/head.12962.

Cardiovascular Events, Conditions, and Procedures Among People With Episodic Migraine in the US Population: Results from the American Migraine Prevalence and Prevention (AMPP) Study.

Buse DC¹, Reed ML², Fanning KM², Kurth T³, Lipton RB⁴.

Author information

Abstract

BACKGROUND: Though migraine, particularly migraine with aura, is a cardiovascular (CV) risk factor, the scope and distribution of cardiovascular disease in representative samples of people with migraine are not known. This is important because many widely used acute migraine treatments, including triptans, ergot alkaloids, and nonsteroidal anti-inflammatory drugs, carry precautions, warnings, or contraindications for use in persons with CV disease.

OBJECTIVES: To assess the scope and distribution of cardiovascular events, conditions, and procedures in persons with episodic migraine in a representative sample of the US population, using data from the American Migraine Prevalence and Prevention (AMPP) Study.

METHODS: Eligible subjects completed the 2009 AMPP survey, met ICHD-3beta criteria for migraine, and had a headache frequency of less than 15 days per month (episodic migraine). A survey on cardiovascular events (ie, myocardial infarction), conditions (ie, angina), and procedures (ie, carotid endarterectomy) was adopted from the Women's Health Study and the Physician's Health Studies. Cardiovascular events and conditions were defined by participant reports of having both experienced and received a physician diagnosis for a particular event or condition. The distribution of CV events, conditions, and procedures was summarized for the entire migraine sample and in groups defined by gender and age (22-39, 40-59, and ≥ 60). To assess the numbers of persons with episodic migraine in the US, we applied age and gender stratified estimates of migraine prevalence to the 2015 Census data. To estimate the number of cardiovascular events, conditions, and procedures in the US migraine population, we applied age and gender stratified event rates to the number of persons with episodic migraine in each stratum.

RESULTS: The 2009 AMPP Study survey was returned by 11,792 study participants out of 16,983 (64.9% response rate), including 6723 individuals who met study criteria for episodic migraine (5227 women and 1496 men). Among 22-39 year olds with episodic migraine, 3.4% reported having received a physician diagnosis of CV events or conditions and 1.1% reported undergoing CV related procedures. Among 40-59 year olds, 10.2% reported having received a physician diagnosis of CV events or conditions and 3.5% reported CV related procedures. For those age 60 or older, 22.3% reported CV events or conditions and 8.8% reported CV procedures. Prevalence of events, conditions, and procedures was higher in men than women and also in older age groups. However, the absolute number of CV events, procedures, and conditions was greater for women than men due to the higher population prevalence of episodic migraine in women. We projected that 2.0 million women and 665,000 men in the US had episodic migraine and a history of one or more CV event, condition, or procedure. By age group, it is estimated that 579,000 among those aged 22-39, 1.37 million of those aged 40-59, and 696,000 of those 60 and older with episodic migraine have ever had at least one CV event, procedure, or condition.

CONCLUSION: Based on these analyses, we estimate that there are roughly 2.6 million people with episodic migraine aged 22 and older in the US with one or more prior CV event, condition, or procedure. For this group, cardiovascular contraindications to many migraine-specific acute migraine therapies may make treatment challenging.

19. GLENOHUMERAL/SHOULDER

Muscle activity

Shoulder muscle activity during the modified dynamic relocation test and side-lying shoulder external rotation: a cross-sectional study on asymptomatic individuals

Daniel Cury Ribeiro, Jonathan Shemmell, Carrie Falling & Gisela Sole

Objectives: (1) to compare activity levels between monitored muscles during the dynamic relocation test (DRT); (2) to assess changes in muscle activation variability over 10 trials; (3) to assess within-muscle difference activity levels between the DRT and the unloaded side-lying shoulder external rotation exercise.

Methods: This is a cross-sectional, laboratory-based, repeated measures study. Thirty asymptomatic individuals performed the DRT and unloaded side-lying external rotation. The order of exercises was randomized. Superficial electromyography was used for recording the supraspinatus, infraspinatus, middle deltoid, posterior deltoid, pectoralis major, and latissimus dorsi muscles. The main outcome measures were mean muscle activity, expressed as % of maximal isometric voluntary contraction.

Results: We found significant between-muscles differences in activity ($F_t = 14.11, p < 0.001$) during the DRT. Post hoc analysis suggested between-trial variability did not change over the 10 trials, ($F = 18.2, p < 0.001$). Within-muscle comparisons between the DRT and side-lying shoulder external rotation suggested significant differences between these exercises ($F = 32.37, p < 0.001$).

Conclusions: considering the monitored muscles, supraspinatus, infraspinatus, pectoralis major, and latissimus dorsi are the main muscles contracting during the DRT. Of all monitored muscles, supraspinatus muscle was the only one presenting higher activity levels during the DRT when compared to the unloaded side-lying shoulder external rotation.

20 A. ROTATOR CUFF**Neuropathic pain**

BMC Musculoskelet Disord. 2016 Nov 2;17(1):451.

Neuropathic pain in patients with rotator cuff tears.

Karasugi T¹, Ide J², Kitamura T³, Okamoto N¹, Tokunaga T¹, Mizuta H¹.

Author information

Abstract

BACKGROUND:

Recent studies have confirmed the existence of neuropathic pain (NeP) components in patients with musculoskeletal disorders. However, the presence of NeP in patients with rotator cuff tears has not been investigated thus far. Therefore, we studied the prevalence of NeP and the prognostic factors for NeP in patients with rotator cuff tears.

METHODS:

Data were collected from 110 patients with rotator cuff tears, diagnosed by physical examination and magnetic resonance imaging, who attended an outpatient clinic between August 2013 and August 2014. The measured parameters included visual analog scale (VAS) pain scores, painDETECT questionnaire (PDQ) responses, a physical examination, and magnetic resonance imaging. To evaluate the factors associated with NeP, we performed a two-stage analysis. For univariate analysis, we used the Mann-Whitney U test. For multivariate analysis, forward stepwise regression was performed using factors that demonstrated statistical significance in the univariate analysis.

RESULTS:

Patients were classified into three groups according to their PDQ score: an NeP group (n = 12; 10.9 %), possible NeP group (n = 33; 30.0 %), and a nociceptive pain (NoP) group (n = 65; 59.1 %). In the univariate analysis between the NeP group and NoP group, NeP was affected by sex (p = 0.034), VAS score (average pain during the past 4 weeks; p = 0.013), and positive Neer and Hawkins impingement signs (p = 0.039). In the multivariate analysis, VAS score (p = 0.031) was an independent prognostic factor for NeP.

CONCLUSIONS:

Using the PDQ, we found that 10.9 % of patients with rotator cuff tears may have NeP. The VAS score (average pain during the past 4 weeks) was a prognostic factor for NeP. Clinicians should remain vigilant for heterogeneous etiologies of pain in patients with rotator cuff tears.

28. REPLACEMENTS**Changes in pelvic motions****The Impact of Total Hip Arthroplasty on Pelvic Motion and Functional Component Position is Highly Variable****Abstract****Background**

It has been hypothesized that preoperative functional imaging could aid in predicting an ideal, patient-specific total hip arthroplasty (THA) component position. This study's purpose was to determine the impact of THA implantation on pelvic motion, and to assess motion in patients with a history of lumbar fusion or prosthetic dislocation.

Methods

This was an IRB-approved, prospective investigation of three cohorts: 1) patients without a history of lumbar surgery undergoing THA (Group A), 2) patients with a lumbar fusion (Group B), and 3) patients with a THA prosthetic dislocation (Group C). All patients received both standing and sitting lateral pelvis images to measure sacral slope and pelvic tilt in the sagittal plane.

Results

58 patients were enrolled (24 Group A, 27 Group B, 7 Group C), with no differences in age, gender, or BMI ($p=0.1$ to 0.7). In Group A, the mean change in sacral slope from standing to sitting was $22.1^\circ + 15.2^\circ$ preoperatively and $19.5^\circ + 14.8^\circ$ postoperatively. However, in 13 patients the difference in pelvic motion from the standing to seated position, from preoperatively to postoperatively, was $>5^\circ$ and in 10 patients this difference was $>10^\circ$.

The change in standing to sitting sacral slope was significantly less in patients with a lumbar fusion ($9.8^\circ + 8.2^\circ$) and history of prosthetic dislocation ($12.5^\circ + 4.7^\circ$) versus Group A ($p < 0.001$ and $p=0.008$).

Conclusion

Implantation of a THA can increase or decrease sagittal plane pelvic motion from the standing to seated position with a high degree of variability. Thus, the ability to predict ideal component positioning from preoperative images may be challenging.

32 A. KNEE/ACL**Hip rotation and ACL**

Arthroscopy. 2016 Nov 10. pii: S0749-8063(16)30620-X. doi: 10.1016/j.arthro.2016.08.014.

Restricted Hip Rotation Is Correlated With an Increased Risk for Anterior Cruciate Ligament Injury.

VandenBerg C¹, Crawford EA², Sibilsky Enselman E², Robbins CB², Wojtys EM², Bedi A².
Author information

Abstract

PURPOSE:

The primary purpose was to compare ipsilateral hip internal rotation (IR) in male and female athletes with or without an anterior cruciate ligament (ACL) tear. A secondary purpose was to compare radiographic markers of femoroacetabular impingement (FAI) in patients with or without an ACL tear.

METHODS:

In this prospective case-control study, based on a power analysis, a convenience sample of 25 ACL-injured and 25 control patients matched by age and gender were examined over 14 months. The ACL injury group included preoperative patients 12-40 years old with an ACL rupture within the previous 3 months with no prior lower extremity injuries, ligamentous laxity, or arthralgias. Controls included patients presenting with an upper extremity complaint with no history of knee injury. In the outpatient clinic, hip axial rotation range of motion was measured with a goniometer on physical examination and hip radiographs were evaluated for morphologic variations consistent with FAI. Univariate analysis of variance was used to examine differences between groups.

RESULTS:

Each group had 13 males and 12 females, average ages of 22.8 ± 7.2 years (ACL group) versus 24.5 ± 7.9 years (controls; $P = .439$). The average sum of hip rotation (internal plus external) in patients with an ACL tear was $60.3 \pm 12.4^\circ$ compared with $72.6 \pm 17.2^\circ$ in controls ($P = .006$). ACL-injured patients had decreased hip IR compared with controls, with respective mean measurements of $23.4 \pm 7.6^\circ$ versus $30.4 \pm 10.4^\circ$ ($P = .009$). For every 10° increase in hip IR, the odds of having an ACL tear decreased by a factor of 0.419 ($P = .015$).

CONCLUSIONS:

Risk of ACL injury is associated with restricted hip IR, and as hip IR increases, the odds of having an ACL tear decreases. In addition, ACL injury is associated with FAI in a generalized population of male and female athletes, although causality cannot be determined and most ACL-injured patients do not exhibit hip complaints.

LEVEL OF EVIDENCE:

Level II, prognostic, prospective cohort study

35. KNEE/TOTAL**Altitude and infection**

Arthroscopy. 2016 Nov 18. pii: S0749-8063(16)30664-8. doi: 10.1016/j.arthro.2016.07.031.

High Altitude Is an Independent Risk Factor for Postoperative Symptomatic Venous Thromboembolism After Knee Arthroscopy: A Matched Case-Control Study of Medicare Patients.

Cancienne JM¹, Diduch DR¹, Werner BC².

Author information

Abstract

PURPOSE:

To use a national database of Medicare patients to evaluate the association of uncomplicated knee arthroscopy performed at high altitude with the incidence of postoperative venous thromboembolism (VTE).

METHODS:

The 100% Medicare Standard Analytical File database was queried for all patients undergoing isolated arthroscopic partial meniscectomy and/or chondroplasty from 2005-2012. Patients with more complex open or additional arthroscopic knee procedures, a personal history of VTE, or any hypercoagulable state were excluded. The result of this query was then stratified by the altitude of the hospital ZIP code in which the procedure was performed. The appropriate patients were placed into a high-altitude group ($\geq 4,000$ ft) and matched to patients who underwent the same procedures at an altitude less than or equal to 100 ft on the basis of age, sex, and medical comorbidities. The rate of VTE was then assessed for both the high-altitude and matched low-altitude patients within 30 days and 90 days postoperatively.

RESULTS:

The rate of combined VTE (deep venous thrombosis [DVT] and/or pulmonary embolism [PE]) (odds ratio [OR], 2.0; $P = .0003$), the rate of PE (OR, 2.5; $P = .0099$), and the rate of DVT (OR, 1.7; $P = .0066$) within 30 days were all significantly higher in patients with procedures performed at high altitude compared with matched patients with the same procedures performed at low altitude. At 90 days postoperatively, similarly elevated risks of VTE, PE, and DVT were found in patients with procedures performed at high altitude.

CONCLUSIONS:

In this study of knee arthroscopy in Medicare patients, a procedure performed at an altitude $\geq 4,000$ ft was a significant risk factor for the development of postoperative VTE compared with matched patients undergoing the same procedure at an altitude less than or equal to 100 ft.

SEX AND TOTAL KNEE

Improvements in Sexual Activity After Total Knee Arthroplasty

Gregory S. Kazarian, BS Jess H. Lonner, MD William J. Hozack, MD
Laura Woodward, RN Antonia F. Chen, MD, MBA

Abstract**Background**

Sexual limitations in the setting of total knee arthroplasty (TKA) are poorly understood.

Methods

Surveys designed to assess pre- and postoperative sexual function and limitations were retrospectively administered to 91 sexually active TKA patients at an average 2.1 years (range 0.5-4.0) after surgery. Pre- and postoperative responses were compared using one-tailed two-proportion z-tests, with $p < 0.05$ as the threshold for significance.

Results

Prior to TKA, sexual quality/frequency was limited in 45% of patients due to their knee. Patients experienced an average 17.1 months (range 0-60) of sexual limitations prior to surgery, resulting largely from pain (87%) and diminished range of motion or flexibility (44%). 55% of patients reported the need to change their sexual positions to accommodate their knee, with 97% of these patients indicating the need to avoid kneeling during sex.

Postoperatively, fewer patients had to adjust their sexual positions to accommodate their knee (55% vs. 28%, $p = 0.0005$) and avoid bearing weight on the afflicted knee during sex (97% vs. 79%, $p = 0.0213$). Patients resumed sexual activity after an average of 2.4 months (range 0-18).

Despite these general improvements, 25% of individuals had less sex in the first year after surgery. After 1 year of recovery, however, 60% indicated that they more easily engaged in sexual activity than in the previous year, with 84% of these patients experiencing less pain, and 30% experiencing greater mobility or range of motion.

Conclusions

TKA does not eliminate sexual limitations, but it significantly decreases kneeling dysfunction and gives patients more liberty in selecting their sexual positions.

37. OSTEOARTHRITIS/KNEE**OA and diminished strength**

Osteoarthritis Cartilage. 2016 Nov 9. pii: S1063-4584(16)30372-7. doi: 10.1016/j.joca.2016.10.026.

Association of knee pain with a reduction in thigh muscle strength - a cross-sectional analysis including 4553 osteoarthritis initiative participants.

Ruhdorfer A¹, Wirth W², Eckstein F³.

Author information

Abstract

OBJECTIVE:

To cross-sectionally determine the quantitative relationship of age-adjusted, sex-specific isometric knee extensor and flexor strength to patient-reported knee pain.

METHODS:

Difference of thigh muscle strength by age, and that of age-adjusted strength per unit increase on the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) knee pain scale, was estimated from linear regression analysis of 4553 Osteoarthritis Initiative (OAI) participants (58% women). Strata encompassing the minimal clinically important difference (MCID) in knee pain were compared to evaluate a potentially non-linear relationship between WOMAC pain levels and muscle strength.

RESULTS:

In OAI participants without pain, the age-related difference in isometric knee extensor strength was -9.0%/-8.2% (women/men) per decade, and that of flexor strength was -11%/-6.9%. Differences in age-adjusted strength values for each unit of WOMAC pain (1/20) amounted to -1.9%/-1.6% for extensor and -2.5%/-1.7% for flexor strength. Differences in torque/weight for each unit of WOMAC pain ranged from -3.3 to -2.1%. There was no indication of a non-linear relationship between pain and strength across the range of observed WOMAC values, and similar results were observed in women and men.

CONCLUSION:

Each increase by 1/20 units in WOMAC pain was associated with a ~2% lower age-adjusted isometric extensor and flexor strength in either sex. As a reduction in muscle strength is known to prospectively increase symptoms in knee osteoarthritis (KOA) and as pain appears to reduce thigh muscle strength, adequate therapy of pain and muscle strength is required in KOA patients to avoid a vicious circle of self-sustaining clinical deterioration.

38 A. FOOT AND ANKLE**Toe flexor strength and age****RESEARCH REPORT****Effects of Age on Strength and Morphology of Toe Flexor Muscles**

Authors: Karen J. Mickle, PhD^{1,2}, Salih Angin, PT, PhD³, Gillian Crofts, PhD⁴, Christopher J. Nester, PhD⁴

Published: *Journal of Orthopaedic & Sports Physical Therapy*,
2016 **Volume:**46 **Issue:**12 **Pages:**1065–1070 **DOI:** 10.2519/jospt.2016.6597

Study Design

Descriptive, cross-sectional.

Background

Age-related muscle atrophy is common in lower-limb muscles. We therefore speculated that foot muscles may also diminish with age. However, there is a paucity of literature characterizing foot muscle strength and morphology, and any relationship between these 2, in older people.

Objective

To compare the strength and size of the toe flexor muscles of older adults relative to their younger counterparts.

Methods

Seventeen young adults with a normal foot type were matched by sex and body mass index to 17 older adults with a normal foot type, from an available sample of 41 younger (18 to 50 years of age) and 44 older (60 or more years of age) adults. Among the matched groups ($n = 34$), muscle thickness and cross-sectional area for 5 intrinsic and 2 extrinsic toe flexor muscles were obtained using ultrasound. Toe strength was assessed using a pressure platform. Differences in toe flexor strength and muscle size between the young and older matched groups were determined using analysis of covariance (controlling for height). Correlations between strength and size of the toe flexor muscles of the pooled group ($n = 34$) were also calculated.

Results

Toe strength and the thickness and cross-sectional area of most foot muscles were significantly reduced in the older adults ($P < .05$). Hallux and toe flexor strength values were strongly correlated with the size of the intrinsic toe flexor muscles.

Conclusion

The smaller foot muscles appear to be affected by sarcopenia in older adults. This could contribute to reduced toe flexion force production and may affect the ability of older people to walk safely. Interventions aimed at reversing foot muscle atrophy in older people require further investigation.

41 A. ACHILLES TENDON AND CALF**Patients With Insertional Achilles Tendinopathy Exhibit Differences in Ankle Biomechanics as Opposed to Strength and Range of Motion**

Authors: Ruth L. Chimenti, DPT, PhD¹, A. Samuel Flemister, MD², Joshua Tome, MS³, James M. McMahon, PhD⁴, Jeff R. Houck, PT, PhD⁵

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2016 **Volume:**46 **Issue:**12 **Pages:**1051–1060 **DOI:** 10.2519/jospt.2016.6462

Study Design

Controlled laboratory study; cross-sectional.

Background

Little is known about ankle range of motion (ROM) and strength among patients with insertional Achilles tendinopathy (IAT) and whether limited ankle ROM and plantar flexor weakness impact IAT symptom severity.

Objectives

The purposes of the study were (1) to examine whether participants with IAT exhibit limited non-weight-bearing dorsiflexion ROM, reduced plantar flexor strength, and/or altered ankle biomechanics during stair ascent; and (2) to determine which impairments are associated with symptom severity.

Methods

Participants included 20 patients with unilateral IAT (mean \pm SD age, 59 ± 8 years; 55% female) and 20 individuals without tendinopathy (age, 58.2 ± 8.5 years; 55% female). A dynamometer was used to measure non-weight-bearing ROM and isometric plantar flexor strength. Three-dimensional motion analysis was used to quantify ankle biomechanics during stair ascent. End-range dorsiflexion was quantified as the percentage of non-weight-bearing dorsiflexion used during stair ascent. Group differences were compared using 2-way and 1-way analyses of variance. Pearson correlations were used to test for associations among dependent variables and symptom severity.

Results

Groups differed in ankle biomechanics, but not non-weight-bearing ROM or strength. During stair ascent, the IAT group used greater end-range dorsiflexion ($P = .03$), less plantar flexion ($P = .02$), and lower peak ankle plantar flexor power ($P = .01$) than the control group. Higher end-range dorsiflexion and lower ankle power during stair ascent were associated with greater symptom severity ($P < .05$).

Conclusion

Patients with IAT do not experience restrictions in non-weight-bearing dorsiflexion ROM or isometric plantar flexor strength. However, altered ankle biomechanics during stair ascent were linked with greater symptom severity and likely contribute to decreased function. *J Orthop Sports Phys Ther* 2016;46(12):1051–1060. Epub 29 Oct 2016. doi:10.2519/jospt.2016.6462

44. RHUMATOID ARTHRITIS

Smoking and spondylitis

Arthritis Care Res (Hoboken). 2016 Nov 29. doi: 10.1002/acr.23157. [Epub ahead of print]

In axial spondyloarthritis, never smokers, ex-smokers and current smokers show a gradient of increasing disease severity - results from the Scotland Registry for Ankylosing Spondylitis (SIRAS).

Jones GT^{1,2}, Ratz T^{1,3}, Dean LE^{1,2}, Macfarlane GJ^{1,2}, Atzeni F^{1,4}.

Author information

Abstract

Objectives To examine the relationship between smoking, smoking cessation, and disease characteristics/quality of life (QoL) in spondyloarthritis.

Methods The Scotland Registry for Ankylosing Spondylitis collects data from clinically diagnosed patients with spondyloarthritis. Clinical data, including Bath Ankylosing Spondylitis indices of disease activity (BASDAI) and function (BASFI), was obtained from medical records. Postal questionnaires provided information on smoking status and QoL (Ankylosing Spondylitis QoL questionnaire; ASQoL). Linear and logistic regression quantified the effect of smoking, and smoking cessation, on various disease-specific and QoL outcomes, adjusting for age, sex, deprivation, education and alcohol status. Results are presented as regression coefficients (β) or odds ratios (OR) with 95% confidence intervals.

Results 946 participants provided data (male 73.5%, mean age 52yrs). Current smoking was reported by 22%, and 38% were ex-smokers. Ever smokers experienced poorer BASDAI ($\beta = 0.5$; 0.2 to 0.9) and BASFI ($\beta = 0.8$; 0.4 to 1.2), and reported worse QoL (ASQoL, $\beta = 1.5$; 0.7 to 2.3). Compared to current smokers, ex-smokers reported lower disease activity (BASDAI, $\beta = -0.5$; -1.0 to -0.04) and significantly better QoL (ASQoL, $\beta = -1.2$; -2.3 to -0.2). They also were more likely to have a uveitis history (OR = 2.4; 1.5 to 3.8).

Conclusions Smokers with spondyloarthritis experience worse disease than never smokers. However, we provide new evidence that, among smokers, smoking cessation is associated with lower disease activity and better physical function and QoL. Clinicians should specifically promote smoking cessation as an adjunct to usual therapy in patients with spondyloarthritis. This article is protected by copyright. All rights reserved

45 B. MANUAL THERAPY CERVICAL

Manipulation and massage for Head Aches

The effect of manipulation plus massage therapy versus massage therapy alone in people with tension-type headache. A randomized controlled clinical trial

European Journal of Physical and Rehabilitation Medicine, 11/30/2016

Espi-Lopez GV, et al. – A randomized, single-blinded, controlled clinical trial was conducted to compare the impact of spinal manipulation combined with massage versus massage alone on range of motion of the cervical spine, headache frequency, intensity and disability in patients with tension-type headache (TTH). The results obtained from the study support the advantage of treating TTH with either massage or massage combined with a manipulative technique. However, the addition of manipulative technique was more effective for increasing range of motion of the upper cervical spine and for decreasing the effect of headache.

Methods

- In the present study, 105 subjects with TTH were enrolled.
- Participants were divided into 2 groups:
 - Manipulation and massage;
 - Massage only (control).
- 4 treatment sessions were applied over 4 weeks.
- The Headache Disability Inventory (HDI) and range of upper cervical and cervical motion were assessed at baseline, immediately after the intervention and at a follow-up, 8 weeks after completing the intervention.

Results

- The results of this study showed that both groups exhibited a large ($f=1.22$) improvement on their HDI scores.
- In addition, those that received manipulation reported a medium-sized reduction ($f=0.33$) in headache frequency across all data points ($P<0.05$) compared to the control group.
- Researchers observed that both groups demonstrated a large within-subject effect for upper cervical extension ($f=0.62$), a medium-sized effect for cervical extension ($f=0.39$), and large effects for upper cervical ($f=1.00$) and cervical ($f=0.27$) flexion.
- According to the findings obtained, the addition of manipulation resulted in larger gains of upper cervical flexion range of motion, and this difference remained stable at the follow-up.

45 D. MANUAL THERAPY EXTREMITIES**Shoulder posterior mobilization****In vivo measurements of humeral movement during posterior glenohumeral mobilizations****Nancy R. Talbott and** & Dexter W. Witt**Abstract**

Objectives: The purpose of this study was to quantify *in vivo* posterior translational movements occurring in the glenohumeral joint during posterior mobilizations and to determine the intratester reliability of those posterior translational movements.

Methods: Twenty-eight individuals (17 females, 11 males) participated in this study. One physical therapist utilized a Kaltenborn approach to apply three grades of posterior humeral mobilization. A hand held dynamometer was used to quantify the force used during each grade of mobilization. Ultrasound imaging was used to visualize and measure posterior humeral movement. Statistical analysis included descriptive statistics for force and posterior movement, intraclass correlation coefficient (ICC) for intratester reliability of force and posterior movement during each grade of mobilization and paired *t*-tests to compare movement and force between grades of mobilization.

Results: Mean posterior movement (mm) measurements were 3.0, 8.2 and 10.7 for grade I, grade II and grade III mobilizations, respectively. Mean force (Newtons) measurements used during mobilization were 41.7, 121.5 and 209.4 for grade I, grade II and grade III mobilizations, respectively. The ICCs ranged from 0.849 to 0.905 for movement and from 0.717 to 0.889 for force. Force and measurement values were significantly different between grades of mobilization and between dominant and non-dominant arms. Gender was found to be significantly associated with force.

Discussion: Mean movements and mean forces occurring during posterior mobilization increased with increasing grades. Intratester reliability was high for all grades of manual mobilization supporting the use of subjective feedback to determine appropriate force application. Quantification of forces and movements helps to clarify parameters that can serve as a reference for clinical practice.

52. EXERCISE**Tai Chi**

J Am Geriatr Soc. 2016 Nov 22. doi: 10.1111/jgs.14594.

Effects of Tai Chi on Cognition and Fall Risk in Older Adults with Mild Cognitive Impairment: A Randomized Controlled Trial.

Sungkarat S¹, Boripuntakul S¹, Chattipakorn N², Watcharasaksilp K³, Lord SR⁴.
Author information

Abstract

OBJECTIVES:

To examine whether combined center- and home-based Tai Chi training can improve cognitive ability and reduce physiological fall risk in older adults with amnesic mild cognitive impairment (a-MCI).

DESIGN:

Randomized controlled trial.

SETTING:

Chiang Mai, Thailand.

PARTICIPANTS:

Adults aged 60 and older who met Petersen's criteria for multiple-domain a-MCI (N = 66).

INTERVENTION:

Three weeks center-based and 12 weeks home-based Tai Chi (50 minutes per session, 3 times per week).

MEASUREMENTS:

Cognitive tests, including Logical Memory (LM) delayed recall, Block Design, Digit Span forward and backward, and Trail-Making Test Part B-A (TMT B-A), and fall risk index using the Physiological Profile Assessment (PPA).

RESULTS:

At the end of the trial, performance on LM, Block Design, and TMT B-A were significantly better for the Tai Chi group than the control group after adjusting for baseline test performance. The Tai Chi group also had significantly better composite PPA score and PPA parameter scores: knee extension strength, reaction time, postural sway, and lower limb proprioception.

CONCLUSION:

Combined center- and home-based Tai Chi training three times per week for 15 weeks significantly improved cognitive function and moderately reduced physiological fall risk in older adults with multiple-domain a-MCI. Tai Chi may be particularly beneficial to older adults with this condition.

55. SCOLIOSIS**Radiology and pain**

Spine (Phila Pa 1976). 2016 Nov 15;41(22):1701-1708.

Baseline Patient-Reported Outcomes Correlate Weakly With Radiographic Parameters: A Multicenter, Prospective NIH Adult Symptomatic Lumbar Scoliosis Study of 286 Patients.

Chapman TM Jr¹, Baldus CR, Lurie JD, Glassman SD, Schwab FJ, Shaffrey CI, Lafage V, Boachie-Adjei O, Kim HJ, Smith JS, Crawford CH 3rd, Lenke LG, Buchowski JM, Edwards C 2nd, Koski T, Parent S, Lewis S, Kang DG, McClendon J Jr, Metz L, Zebala LP, Kelly MP, Spratt KF, Bridwell KH.

Author information

Abstract

STUDY DESIGN: Prospective, cross-sectional study.

OBJECTIVE: The aim of the study was to determine which radiographic parameters drive patient-reported outcomes (PROs) in primary presentation adult symptomatic lumbar scoliosis (ASLS).

SUMMARY OF BACKGROUND DATA: Previous literature suggests correlations between PROs and sagittal plane deformity (sagittal vertical axis [SVA], pelvic incidence-lumbar lordosis [PI-LL] mismatch, pelvic tilt [PT]). Prior work included revision and primary adult spinal deformity patients. The present study addresses only primary presentation ASLS.

METHODS: Prospective baseline data were analyzed on 286 patients enrolled in an NIH ROI clinical trial by nine centers from 2010 to 2014.

INCLUSION CRITERIA: 40 to 80 years old, lumbar Cobb (LC) 30° or higher and Scoliosis Research Society-23 score 4.0 or less in Pain, Function or Self-Image domains, or Oswestry Disability Index (ODI) 20 or higher. Patients were primary presentation (no prior spinal deformity surgery) and had complete baseline data: standing coronal/sagittal 36" radiographs and PROs (ODI, Scoliosis Research Society-23, Short Form-12). Correlation coefficients were calculated to evaluate relations between radiographic parameters and PROs for the study population and a subset of patients with ODI 40 or higher. Analysis of variance was used to identify differences in PROs for radiographic modifier groups.

RESULTS: Mean age was 60.3 years. Mean spinopelvic parameters were: LL=-39.2°; SVA=3.1 cm; sacral slope=32.5°; PT=23.9°; PI-LL mismatch=16.8°. Only weak correlations (0.2-0.4) were identified between population sacral slope, SVA and SVA modifiers, and SRS function. SVA and SVA modifiers were weakly associated with ODI. Although there were more correlations in subset analysis of high-symptom patients, all were weak. Analysis of variance identified significant differences in ODI reported by SVA modifier groups.

CONCLUSION: In primary presentation patients with ASLS and a subset of "high-symptom" patients (ODI≥40), only weak associations between baseline PROs and radiographic parameters were identified. For this patient population, these results suggest regional radiographic parameters (LC, LL, PT, PI-LL mismatch) are not drivers of PROs and cannot be used to extrapolate effect on patient-perceived pathology.

56. ATHLETICS

Fear of failure

Scand J Med Sci Sports. 2016 Nov 23. doi: 10.1111/sms.12797.

Fear of failure, psychological stress, and burnout among adolescent athletes competing in high level sport.

Gustafsson H¹, Sagar SS², Stenling A³.

Author information

Abstract

The purpose of this study was to investigate fear of failure in highly competitive junior athletes and the association with psychological stress and burnout. In total 258 athletes (152 males and 108 females) ranged in age from 15 to 19 years (M = 17.4 years, SD = 1.08) participated. Athletes competed in variety of sports including both team and individual sports. Results showed in a variable-oriented approach using regression analyses that one dimension, fear of experiencing shame and embarrassment had a statistically significant effect on perceived psychological stress and one dimension of burnout, reduced sense of accomplishment. However, adopting a person-oriented approach using latent class analysis, we found that athletes with high levels of fear failure on all dimensions scored high on burnout. We also found another class with high scores on burnout. These athletes had high scores on the individual-oriented dimensions of fear of failure and low scores on the other oriented fear of failure dimensions.

The findings indicate that fear of failure is related to burnout and psychological stress in athletes and that this association is mainly associated with the individual-oriented dimensions of fear of failure

Pitchers longevity

Arthroscopy. 2016 Nov 1. pii: S0749-8063(16)30701-0. doi: 10.1016/j.arthro.2016.08.031.

Determinants of Major League Baseball Pitchers' Career Length.

Hardy R¹, Ajibewa T², Bowman R², Brand JC³.

Author information

Abstract

PURPOSE:

To investigate variables (injury, position, performance, and pitching volume) that affect the career longevity of Major League Baseball pitchers.

METHODS:

To be eligible, pitchers must have entered Major League Baseball between 1989 and 1992 without missing information for the variables on the website <http://www.baseball-reference.com>. The variables assessed were average innings pitched per year before and after age 25 years, earned run average, walks and hits divided by innings pitched, strikeout to walk ratio, pitching position, time on the disabled list, length of career, and starting and retirement age. We used analysis of variance to compare the differences between groups and a regression model to assess the relationship between variables before age 25 years and career length.

RESULTS:

Mean retirement age for the group was 31.74 (95% confidence interval 30.83-32.65) and mean career length was 10.97 (95% confidence interval, 10.02-11.92) years. Innings pitched after age 25 years increased slightly, but not significantly, from the number of innings pitched before age 25 years, 85.35 versus 74.25, $P = .5063$. Career earned run average was not significantly different after age 25 years compared with before age 25 years, 4.83 versus 5.58, respectively, $P = .8834$. Both strikeout to walk ratio, 1.55 to 1.77, $P = .0022$, and walks and hits divided by innings pitched, 1.63 to 1.50, $P = .0339$, improved significantly after age 25 years compared with before age 25 years. The position the player started and ended his career (starter or reliever) did not influence career length. Multiple regression analysis comparing the variables from before age 25 revealed only the number of innings pitched before age 25 were positively related to career length, $R^2 = 0.1408$, $P < .0001$. All other variables analyzed before age 25 years were not significantly related to career length.

CONCLUSIONS:

The only studied variable that had significant relationship, which was weak to low, with career length was innings pitched per year before age 25 years. All other variables analyzed before age 25 years were not significantly related to career length.

59. PAIN

DNA and chronic pain

Link between DNA and chronic widespread joint pain

King's College London News, 11/29/2016

Scientists at King's College London, funded by the charity Arthritis Research UK, have found a link between changes in marks on the outside of DNA (epigenetics) and chronic widespread joint pain, one of the main symptoms of fibromyalgia.

Despite its prevalence, the causes of fibromyalgia are poorly understood and there are limited treatments available. There are no diagnostic tests and it cannot be detected using conventional tests such as scans or x-rays. The study, published in the journal PLOS ONE, will help scientists towards the development of a blood test to diagnose fibromyalgia, which affects as many as one in every 25 people.

Dr Frances Williams, one of the authors of the study from the Department of Twin Research and Genetic Epidemiology said: 'Fibromyalgia is influenced by genetic factors but there are many complicated steps between gene and disease. Identifying measurable epigenetic links is a major step forward. In addition, the results will inform future research in fibromyalgia as well as other chronic pain syndromes, such as irritable bowel syndrome.'

Stephen Simpson, director of research and programmes at Arthritis Research UK also commented on the research: 'There are millions of people in the UK who are living with the pain of fibromyalgia. This really exciting research is an important step forward in our understanding how epigenetic differences between individuals can influence our likelihood of developing fibromyalgia and chronic widespread musculoskeletal pain.'

'For too long people with fibromyalgia have struggled to get a diagnosis for their painful symptoms. This research will help pave the way for better understanding, management and treatment of joint pain.' The researchers used twins to investigate whether the patterns of marks on DNA (DNA methylation) can affect how active the gene is in producing particular proteins and if there is a difference in people with and without chronic widespread musculoskeletal pain. The scientists identified three genes that had different amounts of DNA methylation in people with and without chronic widespread pain.

Early indications suggest that people may have different patterns of methylation on their DNA, and that this might be altering the activity of some genes and causing their condition in the first place.

Vit D deficiency

Int J Rheum Dis. 2016 Nov 11. doi: 10.1111/1756-185X.12960.

Efficacy of vitamin D replacement therapy on patients with chronic nonspecific widespread musculoskeletal pain with vitamin D deficiency.

Yilmaz R¹, Salli A², Cingoz HT³, Kucuksen S², Ugurlu H².

Author information

Abstract

AIM:

The objective of this study is the evaluation of the effect of vitamin D replacement treatment on musculoskeletal symptoms and quality of life in patients with chronic widespread musculoskeletal pain (CWP) including fibromyalgia (FM) and vitamin D deficiency.

METHOD:

Patients with nonspecific CWP and vitamin D deficiency (25-OH D3 < 25 ng/mL) were included into the study. Replacement treatments of 50 000 IU/week oral vitamin D3 for 3 months were given to the patients. Patients were assessed pre- and post-treatment in terms of serum levels of Ca, P, alkaline phosphatase, 25-OH D3, severity of pain (visual analogue scale [VAS]-pain), severity of asthenia (VAS-asthenia), Beck Depression Inventory (BDI), quality of life scale (Short Form [SF]-36), tender point count (TPC), severity of waking unrefreshed, headache, tenderness on tibia, meeting the criteria of FM, and level of patient satisfaction.

RESULTS:

Fifty-eight patients with a mean age of 36.9 ± 9.2 years were included into the study. 25-OH D3 levels of patients elevated from 10.6 ± 5.1 ng/mL to 46.5 ± 24.0 ng/mL after replacement treatment ($P < 0.001$). Marked decrease in VAS-pain, VAS-asthenia, severity of waking unrefreshed, TPC, and BDI and an evident increase in subgroups of SF-36 were established in patients after treatment ($P < 0.001$). The number of FM+ patients was 30 (52%) before treatment and regressed to 20 (34%) after treatment ($P = 0.013$); 85% of patients stated satisfaction with the treatment.

CONCLUSIONS:

Vitamin D replacement treatment in patients with nonspecific CWP has provided improvements in musculoskeletal symptoms, level of depression and quality of life of patients. Patients with CWP should be investigated for vitamin D deficiency.

60. COMPLEX REGIONAL PAIN**Prevalence of another site****The risk of pain syndrome affecting a previously non-painful limb following trauma or surgery in patients with a history of complex regional pain syndrome**

Ellen S. Satteson Patrick W. Harbour L. Andrew Koman Beth P. Smith Zhongyu Li¹

Highlights

- Chronic regional pain syndrome (CRPS) is a challenging complication after surgery or trauma.
- Among patients with a history of CRPS, rates of recurrent CRPS in a second extremity were evaluated.
- This rate was compared to general population incidence as reported in the literature.
- It was also compared to reported rates of CRPS after distal radius fracture.
- Patients with a history of CRPS may be at increased risk for CRPS in a second extremity.

Abstract**Background and purpose**

Complex regional pain syndrome (CRPS) is a challenging complication after surgery or trauma. This study sought to determine the incidence of CRPS after a second inciting event in a previously unaffected extremity in patients with a history of an ongoing CRPS diagnosis in another extremity.

Methods

A retrospective review identified patients with CRPS seen in clinic over a 20-month period. The incidence of CRPS after subsequent surgery or injury in a previous unaffected extremity was determined and compared to an average incidence reported in the literature.

Results

Ninety-three patients had a diagnosis of primary CRPS. Nineteen (20.4%) developed CRPS in one or more additional extremity compared to the incidence of 23.4 per 100,000 (0.0234%) in the literature (odds ratio 1069.6, $p < 0.0001$, 95% CI 562.0–2035.7). Twenty patients had a documented secondary injury or surgery in a second extremity. Fifteen (75%) developed secondary CRPS compared to a CRPS incidence rate of 6.4% following distal radius fracture, as determined by literature review (odds ratio 11.7, $p < 0.001$, 95% CI 5.9–23.2).

Conclusions

These result suggest that patients with a history of CRPS are more likely to develop secondary CRPS compared to the rates reported in the literature among the general population.

Implications

Patients with a history of CRPS should be counselled that they may be at risk for developing secondary CRPS if they undergo surgery or sustain trauma to another extremity.

Brain changes

J Pain. 2016 Nov 12. pii: S1526-5900(16)30309-1. doi: 10.1016/j.jpain.2016.10.017.

Abnormal brain responses to action observation in complex regional pain syndrome.

Hotta J¹, Saari J², Koskinen M², Hlushchuk Y², Forss N³, Hari R².

Author information

Abstract

Patients with complex regional pain syndrome (CRPS) display various abnormalities in central motor function, and their pain is intensified when they perform or just observe motor actions. Here, we examined the abnormalities of brain responses to action observation in CRPS. We analyzed 3-T functional magnetic resonance images from 13 upper-limb CRPS patients (all females, ages 31-58 years) and 13 healthy, age- and sex-matched control subjects. The functional magnetic resonance imaging data were acquired while the subjects viewed brief videos of hand actions shown in the first-person perspective. A pattern-classification analysis was applied to characterize brain areas where the activation pattern differed between CRPS patients and healthy subjects. Brain areas with statistically significant group differences ($q < 0.05$, false discovery rate corrected) included the hand representation area in the sensorimotor cortex, inferior frontal gyrus, secondary somatosensory cortex, inferior parietal lobule, orbitofrontal cortex, and thalamus. Our findings indicate that CRPS impairs action observation by affecting brain areas related to pain processing and motor control.

PERSPECTIVE:

This article shows that in CRPS, the observation of others' motor actions induces abnormal neural activity in brain areas essential for sensorimotor functions and pain. These results build the cerebral basis for action observation impairments in CRPS.

61. FIBROMYALGIA**Guided imagery and FM**

Eur J Pain. 2016 Nov 29. doi: 10.1002/ejp.933.

Efficacy, acceptability and safety of guided imagery/hypnosis in fibromyalgia - A systematic review and meta-analysis of randomized controlled trials.

Zech N¹, Hansen E¹, Bernardy K², Häuser W^{3,4}.

Author information

Abstract

This systematic review aimed at evaluating the efficacy, acceptability and safety of guided imagery/hypnosis (GI/H) in fibromyalgia. Cochrane Library, MEDLINE, PsycINFO and SCOPUS were screened through February 2016. Randomized controlled trials (RCTs) comparing GI/H with controls were analysed. Primary outcomes were $\geq 50\%$ pain relief, $\geq 20\%$ improvement of health-related quality of life, psychological distress, disability, acceptability and safety at end of therapy and 3-month follow-up. Effects were summarized by a random effects model using risk differences (RD) or standardized mean differences (SMD) with 95% confidence intervals (CI). Seven RCTs with 387 subjects were included into a comparison of GI/H versus controls. There was a clinically relevant benefit of GI/H compared to controls on $\geq 50\%$ pain relief [RD 0.18 (95% CI 0.02, 0.35)] and psychological distress [SMD -0.40 (95% CI -0.70, -0.11)] at the end of therapy. Acceptability at the end of treatment for GI/H was not significantly different to the control. Two RCTs with 95 subjects were included in the comparison of hypnosis combined with cognitive behavioural therapy (CBT) versus CBT alone. Combined therapy was superior to CBT alone in reducing psychological distress at the end of therapy [SMD -0.50 (95% CI -0.91, -0.09)]. There were no statistically significant differences between combined therapy and CBT alone in other primary outcomes at the end of treatment and follow-up. No study reported on safety. GI/H hold promise in a multicomponent management of fibromyalgia.

SIGNIFICANCE:

We provide a systematic review with meta-analysis on guided imagery and hypnosis for fibromyalgia. Current analyses endorse the efficacy and tolerability of guided imagery/hypnosis and of the combination of hypnosis with cognitive-behavioural therapy in reducing key symptoms of fibromyalgia.

And hearing loss

BMC Musculoskelet Disord. 2016 Nov 16;17(1):477.

Are persons with fibromyalgia or other musculoskeletal pain more likely to report hearing loss? A HUNT study.

Stranden M^{1,2}, Solvin H³, Fors EA³, Getz L³, Helvik AS^{3,4,5}.
Author information

Abstract

BACKGROUND:

Leading theories about the pathogenesis of fibromyalgia focus on central nervous dysregulation or sensitization, which can cause altered perception. There is growing evidence that fibromyalgia involves altered perception not only of pain, but also other sensory stimuli. On this basis, we investigated whether individuals with fibromyalgia are more likely to report subjective loss of hearing, adjusted for audiometrically measured loss of hearing, compared to persons without any musculoskeletal pain disorders. In addition, we studied persons with other musculoskeletal pain than fibromyalgia and persons who did not have any musculoskeletal pain.

METHODS:

The study includes 44 494 persons from the second health survey in Nord-Trøndelag (HUNT2) who had undergone audiometry and answered a comprehensive questionnaire that mapped fibromyalgia, musculoskeletal pain at various sites and subjective hearing loss. Respondents with other musculoskeletal pain problems than fibromyalgia were divided into two groups with respectively localized and widespread musculoskeletal pain. Data were analyzed with logistic regression models adjusting for age, education, anxiety, depression and hearing thresholds.

RESULTS:

In adjusted analysis, individuals with fibromyalgia had increased likelihood to report subjective hearing loss, compared to persons without fibromyalgia or other musculoskeletal pain (OR 4.578, 95% CI 3.622-5.787 and OR 4.523, 95% CI 3.077-6.647 in women and men). Furthermore, people with local and widespread musculoskeletal pain not diagnosed with fibromyalgia, also had increased likelihood to report subjective hearing loss, compared to people with no musculoskeletal pain. This relationship was greater for widespread pain than for localized pain (OR 1.915, 95% CI 1.627-2.255, and 1.796, 95% CI 1.590-2.029, in women and men with local musculoskeletal pain and OR 3.073, 95% CI 2.668-3.539, OR 3.618, 95% CI 3.225-4.058, in women and men with widespread pain, respectively).

CONCLUSIONS:

Our findings are consistent with the hypothesis that fibromyalgia is related to a general dysregulation of the central nervous system. The same might also be the case for other local and, in particular, other widespread, musculoskeletal pain.

62 A. NUTRITION/VITAMINS**Green tea and fat reduction**

Int J Obes (Lond). 2016 Nov 8. doi: 10.1038/ijo.2016.172.

Green tea reduces body fat via upregulation of neprilysin.

Muenzner M¹, Tappenbeck N^{2,3}, Gembardt F^{2,4}, Rülke R¹, Furkert J¹, Melzig MF⁵, Siems WE¹, Brockmann GA⁶, Walther T^{3,7,8}.

Author information

Abstract**BACKGROUND/OBJECTIVE:**

Consumption of green tea has become increasingly popular, particularly because of claimed reduction in body weight. We recently reported that animals with pharmacological inhibition (by candoxatril) or genetic absence of the endopeptidase neprilysin (NEP) develop an obese phenotype. We now investigated the effect of green tea extract (in drinking water) on body weight and body composition and the mediating role of NEP.

SUBJECTS/METHODS:

To elucidate the role of NEP in mediating the beneficial effects of green tea extract, 'Berlin fat mice' or NEP-deficient mice and their age- and gender-matched wild-type controls received the extract in two different doses (300 or 600 mg kg⁻¹ body weight per day) in the drinking water.

RESULTS:

In 'Berlin fat mice', 51 days of green tea treatment did not only prevent fat accumulation (control: day 0: 30.5% fat, day 51: 33.1%; NS) but also reduced significant body fat (green tea: day 0: 27.8%, day 51: 20.9%, P<0.01) and body weight below the initial levels. Green tea reduced food intake. This was paralleled by a selective increase in peripheral (in kidney 17%, in intestine 92%), but not central NEP expression and activity, leading to downregulation of orexigens (like galanin and neuropeptide Y (NPY)) known to be physiological substrates of NEP. Consequently, in NEP-knockout mice, green tea extract failed to reduce body fat/weight.

CONCLUSIONS:

Our data generate experimental proof for the assumed effects of green tea on body weight and the key role for NEP in such process, and thus open a new avenue for the treatment of obesity. International Journal of Obesity advance online publication, 8 November 2016; doi:10.1038/ijo.2016.172.

Coffee and depression

Tea, cocoa, coffee, and affective disorders: Vicious or virtuous cycle?

Journal of Affective Disorders, 11/30/2016

García-Blanco T, et al. – On the basis of the available data, the authors conclude that consumption of tea, cocoa, or coffee might have protective impacts against depression while ad-hoc human trials and mechanistic, basic science studies are needed before they can provide sound advice to the public.

Methods

- In this study, the authors systematically review human studies conducted on tea, cocoa, and coffee as related to affective disorders such as depression and anxiety.
- They carried out a systematic literature search in April 2016, utilizing MEDLINE, on data from the last 10 years.
- After screening 955 articles, they chose 17 articles that met the criteria of being human studies and that used whole foods or their components.

Results

- The results of the present study suggest that consumption of tea, cocoa, or coffee might have protective effects against depression.

Trace mineral

Int J Cancer. 2016 Nov 15. doi: 10.1002/ijc.30522.

Dietary trace element intake and liver cancer risk: results from two population-based cohorts in China.

Ma X^{1,2}, Yang Y², Li HL², Zheng W³, Gao J², Zhang W², Yang G³, Shu XO³, Xiang YB².

Author information

Abstract

Dietary factors have been hypothesized to affect the risk of liver cancer via various mechanisms, but the influence has been not well studied and the evidence is conflicting.

We investigated associations of dietary trace element intake, assessed through a validated food frequency questionnaire, with risk of liver cancer in 2 prospective cohort studies of 132,765 women (1997-2013) and men (2002-2013) in Shanghai, China. The associations were first evaluated in cohort studies and further assessed in a case-control study nested within these cohorts adjusting for hepatitis B virus infection. For cohort analyses, Cox proportional hazard models were used to estimate hazard ratios and 95% confidence intervals. For nested case-control analyses, conditional logistic regression was used to calculate odds ratios and 95% confidence intervals. After a median follow-up time of 15.2 years for the Shanghai Women's Health Study and 9.3 years for the Shanghai Men's Health Study, 192 women and 344 men developed liver cancer. Dietary intake of manganese was inversely associated with liver cancer risk (highest vs. lowest quintile, HR = 0.51, 95% CI: 0.35-0.73; $p_{\text{trend}} = 0.001$). Further adjustment for hepatitis B virus infection in the nested case-control study yielded a similar result (highest vs. lowest quintile, OR = 0.38, 95% CI: 0.21-0.69; $p_{\text{trend}} < 0.001$). No significant association was found between dietary intake of selenium, iron, zinc, copper and liver cancer risk.

The results suggest that higher intake of manganese may be associated with a lower risk of liver cancer in China. This article is protected by copyright. All rights reserved.