

ABSTRACTS

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2. LBP

Neurotrophic factor plasma

Brain-derived neurotrophic factor plasma levels are increased in older women after an acute episode of low back pain

Archives of Gerontology and Geriatrics, 03/30/2017Diz JBM, et al.

This research aimed to compare brain-derived neurotrophic factor (BDNF) plasma levels, a key neurotrophin in pain modulation, between older women after an acute episode of low back pain (LBP) and age-matched pain-free controls, and investigated potential differences in BDNF levels between controls and LBP subgroups based on pain severity, presence of depressive symptoms and use of analgesic and antidepressant drugs. The authors give evidence that in comparison with pain-free controls, older women with acute low back pain exhibit higher BDNF plasma levels and subgroup comparisons suggest that the use of pain-relief drugs may influence BDNF levels. For research on mechanisms of low back pain, the study results offer a novel target.

Transitional vert

Skeletal Radiol. 2017 May;46(5):633-639. doi: 10.1007/s00256-017-2581-1. Epub 2017 Feb 24.

Prevalence and clinical significance of lumbosacral transitional vertebra (LSTV) in a young back pain population with suspected axial spondyloarthritis: results of the SPondyloArthritis Caught Early (SPACE) cohort.

de Bruin F¹, Ter Horst S², Bloem JL², van den Berg R³, de Hooge M³, van Gaalen F³, Dagfinrud H⁴, van Oosterhout M⁵, Landewé R⁶, van der Heijde D³, Reijnen M².

Author information

Abstract

OBJECTIVE:

To determine in a cohort of young patients with suspected axial spondyloarthritis (axSpA), the prevalence of lumbosacral transitional vertebra (LSTV), its association with local bone marrow edema (BME) and lumbar spine degeneration, and the potential relationship with MRI findings and clinical signs of axSpA.

MATERIALS AND METHODS:

Baseline imaging studies and clinical information of patients from the SPondyloArthritis Caught Early-cohort (back pain ≥ 3 months, ≤ 2 years, onset < 45 years) were used. Two independent readers assessed all patients for LSTV on radiography, and BME-like and degenerative changes on MRI. Patients with and without LSTV were compared with regard to the prevalence of MRI findings and the results of clinical assessment using Chi-squared test or t test.

RESULTS:

Of 273 patients (35.1% male, mean age 30.0), 68 (25%) patients showed an LSTV, without statistical significant difference between patients with and without axSpA ($p = 0.327$). Local sacral BME was present in 9 out of 68 (13%) patients with LSTV and absent in patients without LSTV ($p < 0.001$). Visual analogue scale (VAS) pain score and spinal mobility assessments were comparable.

CONCLUSIONS:

LSTV is of low clinical relevance in the early diagnosis of axSpA. There is no difference between patients with and without LSTV regarding the prevalence of axSpA, pain and spinal mobility, and a BME-like pattern at the pseudoarticulation does not reach the SI joints.

Radicular vs local pain temporal summation**Facilitated Pro-Nociceptive Pain Mechanisms in Radiating Back Pain Compared with Localized Back Pain**

Henrik Bjarke Vaegter Thorvaldur Skuli Palsson Thomas Graven-Nielsen

DOI: <http://dx.doi.org/10.1016/j.jpain.2017.03.002>

Highlights

- Sensory and clinical pain profiles are different in subtypes of back pain
- Patients with radiating pain demonstrated facilitated temporal pain summation
- Different back pain conditions may require different treatment strategies

Abstract

Facilitated pain mechanisms and impaired pain inhibition are often found in chronic pain patients. This study compared clinical pain profiles, pain sensitivity, as well as pro-nociceptive and anti-nociceptive mechanisms in patients with localized low back pain (n=18), localized neck pain (n=17), low back and radiating leg pain (n=18), or neck and radiating arm pain (n=17). It was hypothesized that patients with radiating pain had facilitated pain mechanisms and impaired pain inhibition compared with localized pain patients. Cuff algometry was performed on the non-painful lower leg to assess pressure pain threshold (cPPT), tolerance (cPTT), temporal summation of pain (TSP: increase in pain scores to ten repeated stimulations at cPTT intensity), and conditioning pain modulation (CPM: increase in cPPT during cuff pain conditioning on the contralateral leg). Heat detection (HDT) and heat pain threshold (HPT) at the non-painful hand were also assessed. Clinical pain intensity, psychological distress, and disability were assessed with questionnaires. TSP was increased in patients with radiating back pain compared with localized back pain ($P<0.03$). Patients with radiating arm pain or localized low back pain demonstrated hyperalgesia to heat and pressure in non-painful body areas ($P<0.05$), as well as a facilitated clinical pain profile compared with patients with localized neck pain ($P=0.03$). Patients with radiating pain patterns demonstrated facilitated temporal summation suggesting differences in the underlying pain mechanisms between patients with localized back pain and radiating pain.

Perspective

These findings have clinical implications as the underlying mechanisms in different back pain conditions may require different treatment strategies.

7. PELVIC ORGANS/WOMAN'S HEALTH

Vulvar atrophy

Relationship between changes in vulvar-vaginal atrophy and changes in sexual functioning

JoAnn V. Pinkerton Andrew G. Bushmakin Lucy Abraham

DOI: <http://dx.doi.org/10.1016/j.maturitas.2017.03.315>

Highlights

- Reducing pain with intercourse can improve sexual function in menopausal women.
- Reducing vaginal itching and dryness also improves sexual function, albeit less so.
- Large improvements in vaginal maturation index/pH minimally affect sexual function.
- Clinicians should focus on improving symptoms rather than clinical parameters.

Abstract

Objective Conjugated estrogens/bazedoxifene (CE/BZA) has demonstrated benefit in vulvar-vaginal atrophy (VVA, part of genitourinary syndrome of menopause) and the sexual function domain of the Menopause-Specific Quality of Life (MENQOL) questionnaire. The study's objective was to determine the relationship of VVA symptoms and clinical parameters with MENQOL sexual functioning in postmenopausal women receiving VVA treatment.

Study design Post hoc analysis data were derived from the 12-week SMART-3 trial, which evaluated CE/BZA's effect on VVA in nonhysterectomized postmenopausal women (aged 40–65 years) experiencing one or more moderate-severe VVA symptoms (dryness, itching/irritation, pain with intercourse) and vaginal pH >5.0 (N = 664).

Main outcome measures Repeated measures models were used to determine relationships of VVA symptoms and clinical parameters (vaginal pH, parabasal/superficial cells) with sexual functioning; sensitivity analyses were performed to check assumptions of linearity.

Results VVA symptoms showed an approximately linear relationship with sexual functioning. A one-point improvement in pain on intercourse (which has a large effect size [ES] = 0.85) corresponded to medium improvement (ES = 0.57) in MENQOL sexual functioning. Equivalent improvements (in terms of ES) in dryness and itching/irritation corresponded to small to medium (ES = 0.35) and small (ES = 0.27) improvements in sexual functioning, respectively. The same ES improvement in clinical parameters corresponded to small-trivial improvements in sexual functioning.

Conclusions VVA symptoms have an approximately linear relationship with sexual functioning. Sexual functioning was most improved when pain on intercourse was reduced. Similar magnitudes of improvements in other VVA symptoms were linked with smaller, though potentially beneficial, improvements in sexual functioning. Changes in clinical parameters had only small or trivial associations with sexual functioning.

8. VISCERA

Adherence in celiacs disease

Appetite. 2017 Feb 20;113:293-300. doi: 10.1016/j.appet.2017.02.023.

Self-compassion directly and indirectly predicts dietary adherence and quality of life among adults with celiac disease.

Dowd AJ¹, Jung ME².

Author information

Abstract

Strict adherence to a gluten-free diet (GFD) is the only treatment for preventing both short- and long-term consequences of celiac disease. Given that following a strict GFD can be difficult, evidence-based strategies are needed to improve the psychological experience of living with celiac disease and following the GFD. Self-compassion appears to be an important component of effectively self-regulating one's behavior to cope with a chronic disease. The main goal of this study was to examine the relationships between self-compassion and management of celiac disease as assessed by (a) adherence to a strict GFD and (b) celiac-specific quality of life (CQoL). The secondary goal of this study was to explore self-regulatory efficacy (i.e., confidence in one's ability to self-manage behavior to follow a strict GFD) and concurrent self-regulatory efficacy (i.e., one's confidence to self-manage other valued life goals while following a strict GFD) as mediators of the relationship between self-compassion and the primary outcomes (adherence and CQoL). In this prospective study, 200 North American adults diagnosed with celiac disease completed online questionnaires at two time points (baseline and 1 month later). Self-compassion at baseline directly predicted stricter adherence (at Time 2; $b = -0.63$, $p = 0.006$) and enhanced CQoL (at Time 2; $b = -0.50$, $p = 0.001$). Further, self-compassion (at Time 1) also indirectly predicted stricter Time 2 adherence through self-regulatory efficacy (at Time 1; $b = -0.26$, 95% CI [-0.58, -0.04], $R^2 = 0.29$) and enhanced Time 2 CQoL through concurrent self-regulatory efficacy (at Time 1; $b = -0.07$, 95% CI [-0.14, -0.03], $R^2 = 0.33$). This was the first study to assess the effects of self-compassion in relation to the psychological experience of coping with celiac disease and following a GFD. The findings indicate that self-compassion, self-regulatory efficacy and concurrent self-regulatory efficacy are important cognitions in understanding adherence to a GFD and CQoL among adults with celiac disease.

Bowel obstructions

Pain. 2017 Apr;158(4):583-592. doi: 10.1097/j.pain.0000000000000797.

Pathogenesis of abdominal pain in bowel obstruction: role of mechanical stress-induced upregulation of nerve growth factor in gut smooth muscle cells.

Lin YM¹, Fu Y, Winston J, Radhakrishnan R, Sarna SK, Huang LM, Shi XZ.
Author information

Abstract

Abdominal pain is one of the major symptoms in bowel obstruction (BO); its cellular mechanisms remain incompletely understood. We tested the hypothesis that mechanical stress in obstruction upregulates expression of nociception mediator nerve growth factor (NGF) in gut smooth muscle cells (SMCs), and NGF sensitizes primary sensory nerve to contribute to pain in BO. Partial colon obstruction was induced with a silicon band implanted in the distal bowel of Sprague-Dawley rats. Colon-projecting sensory neurons in the dorsal root ganglia (T13 to L2) were identified for patch-clamp and gene expression studies. Referred visceral sensitivity was assessed by measuring withdrawal response to stimulation by von Frey filaments in the lower abdomen. Membrane excitability of colon-projecting dorsal root ganglia neurons was significantly enhanced, and the withdrawal response to von Frey filament stimulation markedly increased in BO rats. The expression of NGF mRNA and protein was increased in a time-dependent manner (day 1-day 7) in colonic SMC but not in mucosa/submucosa of the obstructed colon. Mechanical stretch in vitro caused robust NGF mRNA and protein expression in colonic SMC. Treatment with anti-NGF antibody attenuated colon neuron hyperexcitability and referred hypersensitivity in BO rats. Obstruction led to significant increases of tetrodotoxin-resistant Na currents and mRNA expression of Nav1.8 but not Nav1.6 and Nav1.7 in colon neurons; these changes were abolished by anti-NGF treatment. In conclusion, mechanical stress-induced upregulation of NGF in colon SMC underlies the visceral hypersensitivity in BO through increased gene expression and activity of tetrodotoxin-resistant Na channels in sensory neurons.

14. HEADACHES

Migraine and lordosis

Analysis of the cranio-cervical curvatures in subjects with migraine with and without neck pain

Physiotherapy, 03/27/2017 Ferracini GN, et al.

This exploration was intended to examine the differences in head and cervical spine alignment between subjects with migraine and healthy people. In this cross-sectional, observational, study, subjects with migraine showed straightening of cervical lordosis curvature. In subjects with and without migraine, the presence of neck pain did not influence head posture.

Methods

- The physicians enrolled 50 subjects with migraine and 50 matched healthy controls.
- They assessed the presence of neck pain and neck-pain-related disability.
- They calculated 4 angles (high cervical angle; low cervical angle; atlas plane angle, and cervical lordosis Cobb angle) as well as 4 distances (anterior translation distance; C0-C1 distance; C2-C7 posterior translation, and hyoid triangle) using digitalized radiographs and examined using the K-Pacs software.

Results

- Compared to controls, subjects with migraine reported a longer history of neck pain symptoms, and higher pain intensity and neck-pain-related disability ($P < 0.01$).
- Compared to healthy controls, patients exhibited a smaller anterior translation distance (mean difference: 4.9 mm, 95% CI 1.8-8.8; $P < 0.001$) and hyoid triangle (difference: 3.0 mm, 95% CI 1.0-5.0; $P = 0.02$).
- The differences did not change when the presence or the absence of neck pain was included in the analysis.
- For subjects with migraine suffering from neck pain, differences in anterior translation and hyoid triangle distances were considered clinically relevant.

28. REPLACEMENTS**Worse results with spinal fusion****Effect of Spinal Fusion Surgery on Total Hip Arthroplasty Outcomes - A Matched Comparison Study**

Jing Loong Moses Loh Lei Jiang Hwei Chi Chong Seng Jin Yeo Ngai Nung Lo

DOI: <http://dx.doi.org/10.1016/j.arth.2017.03.031>

Abstract**Background**

Studies regarding postoperative outcomes following primary THA in patients who have comorbid factors tend to focus on medical diseases. However, there is a paucity of literature examining the effect of a patient's orthopaedic surgical history on outcomes following THA. Significantly, there are currently no studies on the effect of spinal fusion surgery on THA outcomes.

Methods

A review of 82 consecutive patients who had prior spinal fusion surgery who underwent elective THA from 1st January 2006 to 31st December 2015 was conducted. A matching cohort of 82 patients was selected from the remaining THA patients to maintain a 1 to 1 ratio control group. This cohort of 82 patients was matched for age, gender, Body Mass Index (BMI) +/- 5, pre-operative Oxford score +/-10, total SF-36 score +/- 10 and total Western Ontario and McMaster Universities Arthritis Index (WOMAC) score +/-50. Data on the same functional outcomes was prospectively collected at 6 months and 2 years follow up for comparison.

Results

Patients without spinal fusion had better outcome scores than patients with prior spinal fusion, specifically in their 6 months WOMAC scores (253.33 to 225.07 $p = 0.046$), their 2 years SF-36 total scores (79.71 to 69.21 $p = 0.041$) and their 2 years WOMAC scores (213.5 to 267.41 $p = 0.054$).

Conclusion

This study demonstrates that patients with prior spinal fusion had worse outcomes after THA than patients without prior spinal fusion. This has clinical significance in counselling patients with previous spinal fusion undergoing total hip arthroplasty.

32 A. KNEE/ACL

ACL and meniscus

Early anterior cruciate ligament reconstruction can save meniscus without any complications Year : 2017 | Volume : 51 | Issue : 2 | Page : 168-173

Background: Early ACL reconstruction, before retuning to activity eliminates recurrent episodes of instability and thereby decreases chances of meniscal and cartilage injury. However, there are no clear and uniform guidelines regarding the timing of ACL reconstruction or clarity in the definition of early and delayed reconstruction to reduce the complications after reconstruction in the ACL injured knee. The purpose of this study was to compare the clinical outcome, stability, muscle power, and postural control after early and delayed anterior cruciate ligament (ACL) reconstruction.

Materials and Methods: Patients who had ACL reconstruction with a quadruple hamstring tendon with a minimum 2-year followup were evaluated. Early (within 3 weeks) reconstruction group was 48 knees and delayed (more than 3 months) group was 43 knees. We compared the two groups with regard to Lysholm knee score, range of motion (ROM), Lachman test, Tegner activity scale, associated meniscal or chondral injuries, and anterior laxity. We also compared muscle strength with an isokinetic dynamometer and postural control with computed dynamic posturography at the final followup.

Results: While 50% of early and 70% of delayed group had meniscal injuries ($P = 0.06$), of which were reparable in 42% of early group and 17% of delayed group ($P = 0.04$). However, there was no significant difference in cartilage injury ($P = 0.14$). At the final followup, no significant differences were found between two groups for Lysholm score ($P = 0.28$), Tegner activity scale ($P = 0.27$), and ROM. The stabilities regarding Lachman and pivot-shift tests, and anterior laxity also showed no significant differences between two groups. The mean extension and flexion muscles power, and postural control showed no significant inter-group differences ($P > 0.05$).

Conclusions: Early ACL reconstruction had excellent clinical results and stability as good as delayed reconstruction without the problem of knee motion, muscle power, and postural control. Moreover, early reconstruction showed the high possibility of meniscal repair. Therefore, early ACL reconstruction should be recommended.

33. MENISCUS

Meniscal extrusion

Baseline meniscal extrusion associated with incident knee osteoarthritis after 30 months in overweight and obese women

Osteoarthritis and Cartilage , 03/28/2017van der Voet JA, et al.

The aim of this study was to explore the correlation between baseline meniscal extrusion and the incidence of knee osteoarthritis (KOA) after 30 months in a high-risk population of overweight and obese women, free of clinical and radiological knee OA at baseline. They observed that meniscal extrusion was correlated with a significantly higher incidence of knee osteoarthritis, providing an interesting target for early detection of individuals at risk for developing knee osteoarthritis.

35. KNEE/TOTAL**Opioid use****Opioid Use Following TKA – Trends and Risk Factors for Prolonged Use**

Nicholas A. Bedard, M.D Andrew J. Pugely, M.D. Robert W. Westermann, M.D. Kyle R. Duchman, M.D. Natalie A. Glass, PhD John J. Callaghan, M.D.

DOI: <http://dx.doi.org/10.1016/j.arth.2017.03.014>

Abstract**Background**

The United States is in the midst of an opioid epidemic. Little is known about perioperative opioid use for total knee arthroplasty (TKA). The purpose of this study was to identify rates of preoperative opioid use, evaluate postoperative trends and identify risk factors for prolonged use following TKA.

Methods

Patients who underwent primary TKA from 2007-2014 were identified within the Humana database. Postoperative opioid use was measured by monthly prescription refill rates. A preoperative opioid user (OU) was defined by history of opioid prescription within 3 months prior to TKA and a non-opioid user (NOU) was defined by no history of prior opioid use. Rates of opioid use were trended monthly for one year postoperatively for all cohorts.

Results

73,959 TKA patients were analyzed and 23,532 patients (31.2%) were OU. OU increased from 30.1% in 2007 to 39.3% in 2014 ($p < 0.001$). Preoperative opioid use was the strongest predictor for prolonged opioid use following TKA, with OU filling significantly more opioid prescriptions than NOU at every time point analyzed. Younger age, female sex and other intrinsic factors were found to significantly increase the rate of opioid refilling following TKA throughout the postoperative year.

Conclusions

Approximately one-third of TKA patients use opioids within 3 months prior to surgery and this percentage has increased over 9% during the years included in this study. Preoperative opioid use was most predictive of increased refills of opioids following TKA. However, other intrinsic patient characteristics were also predictive of prolonged opioid use.

37. OSTEOARTHRITIS/KNEE

Interarticular fat

Ann Rheum Dis. 2017 Mar 15. pii: annrheumdis-2016-210478. doi: 10.1136/annrheumdis-2016-210478.

Knee and hip intra-articular adipose tissues (IAATs) compared with autologous subcutaneous adipose tissue: a specific phenotype for a central player in osteoarthritis.

Eymard F^{1,2}, Pigenet A¹, Citadelle D¹, Tordjman J^{3,4}, Foucher L¹, Rose C¹, Flouzat Lachaniette CH⁵, Rouault C^{3,4}, Clément K^{3,4}, Berenbaum F^{1,2,6}, Chevalier X², Houard X¹.

Author information

Abstract

OBJECTIVES:

Compared with subcutaneous adipose tissue (SCAT), infrapatellar fat pad (IFP), the main knee intra-articular adipose tissue (IAAT), has an inflammatory phenotype in patients with osteoarthritis (OA). We phenotyped suprapatellar fat pad (SPFP) and hip acetabular fat pad (AFP), two other IAATs, to determinate the unique signature of IAATs compared with SCAT.

METHODS:

IFP, SPFP, AFP and autologous SCAT were obtained from patients with OA during total knee (n=38) or hip replacement (n=5). Fibrosis and adipocyte area were analysed by histology and vascularisation, leucocyte and mast cell infiltration were analysed by immunohistochemistry for von Willebrand factor, leucocytes and tryptase, respectively. Secretion of interleukin (IL)-6, IL-8 and prostaglandin E₂ (PGE₂) was assessed by ELISA. The mRNA expression of adipocyte-associated genes (ATGL, LPL, PPAR- γ , FABP4 and CD36) and developmental genes (SFRP2, HoxC9 and EN1) was determined. The inflammatory response of isolated fibroblast-like synoviocytes (FLS) to autologous IFP and SPFP conditioned media was examined.

RESULTS:

Fibrosis, vascularisation and leucocyte and mast cell infiltration were greater in IAATs than SCAT, and levels of IL-6, IL-8 and PGE₂ were greater in all IAATs than SCAT. IFP and SPFP induced a similar inflammatory response to FLS. Adipocyte area was smaller in IAATs than SCAT. Adipocyte-associated and developmental genes showed a similar gene expression pattern in all IAATs, different from SCAT.

CONCLUSIONS:

IFP but also SPFP and AFP (gathered under the term 'IAAT') may play a deleterious role in OA by affecting joint homeostasis because of their inflammatory phenotype and their close interaction with synovium in the same functional unit.

39 B. SHOES**Running shoes**

Med Sci Sports Exerc. 2017 Mar 8. doi: 10.1249/MSS.0000000000001260.

The Preferred Movement Path Paradigm: Influence of Running Shoes on Joint Movement.

Nigg BM¹, Vienneau J, Smith AC, Trudeau MB, Mohr M, Nigg SR.
Author information

Abstract

PURPOSE:

(a) to quantify differences in lower extremity joint kinematics for groups of runners subjected to different running footwear conditions, and (b) to quantify differences in lower extremity joint kinematics on an individual basis for runners subjected to different running footwear conditions.

METHODS:

Three-dimensional ankle and knee joint kinematics were collected for 35 heel-toe runners when wearing three different running shoes and when running barefoot. Absolute mean differences in ankle and knee joint kinematics were computed between running shoe conditions. The percentage of individual runners who displayed differences below a 2°, 3° and 5° threshold were also calculated.

RESULTS:

The results indicate that the mean kinematics of the ankle and knee joints were similar between running shoe conditions. Aside from ankle dorsi-flexion and knee flexion, the percentage of runners maintaining their movement path between running shoes (i.e. less than 3°) was in the order of magnitude of about 80 to 100%. Many runners showed ankle and knee joint kinematics that differed between a conventional running shoe and barefoot by more than 3°, especially for ankle dorsiflexion and knee flexion

CONCLUSION: Many runners stay in the same movement path (the preferred movement path) when running in various different footwear conditions. The percentage of runners maintaining their preferred movement path depends on the magnitude of the change introduced by the footwear condition.

41 A. ACHILLES TENDON AND CALF**Blood flow**

Scand J Med Sci Sports. 2017 Mar 13. doi: 10.1111/sms.12874.

Acute Effect of Running Exercise on Physiological Achilles Tendon Blood Flow.

Risch L1, Cassel M1, Mayer F1.

Author information

Abstract

Sonographically detectable intratendinous blood flow (IBF) is found in 50-88% of Achilles tendinopathy patients as well as in up to 35% of asymptomatic Achilles tendons (AT). Although IBF is frequently associated with tendon pathology, it may also represent a physiological regulation e.g. due to increased blood flow in response to exercise. Therefore, this study aimed to investigate the acute effects of a standardized running exercise protocol on IBF assessed with Doppler ultrasound (DU) "Advanced dynamic flow" in healthy ATs. 10 recreationally active adults (5 f, 5 m; 29±3 yrs, 1.72±0.12 m, 68±16 kg, physical activity 206±145 min/wk) with no history of AT pain and inconspicuous tendon structure performed 3 treadmill running tasks on separate days (M1-3) with DU examinations directly before and 5, 30, 60, and 120 min after exercise. At M1 an incremental exercise test was used to determine the individual anaerobic threshold (IAT). At M2 and M3 participants performed 30 min submaximal constant load tests (CL1 /CL2) with an intensity 5% below IAT. IBF in each tendon was quantified by counting the number of vessels. IBF increased in 5 ATs from no vessels at baseline to 1-4 vessels solely detectable 5 min after CL1 or CL2 . One AT had persisting IBF (3 vessels) throughout all examinations. 14 ATs revealed no IBF at all. Prolonged running led to a physiological, temporary appearance of IBF in 25% of asymptomatic ATs. To avoid exercise-induced IBF in clinical practice, DU examinations should be performed after 30 min of rest.

42. PLANTAR SURFACE**Catastrophising****The association between pain catastrophising and kinesiophobia with pain and function in people with plantar heel pain**

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DOI: <http://dx.doi.org/10.1016/j.foot.2017.03.003>

Highlights

- Plantar heel pain (or plantar fasciitis) is the most common cause of pain beneath the heel
- Catastrophising and kinesiophobia are common in people with chronic musculoskeletal pain
- Increased levels of kinesiophobia have been reported in people with foot and ankle pain

Abstract**Background**

Psychological variables, including catastrophic thoughts and kinesiophobia, are common in people with chronic musculoskeletal pain and are associated with pain and function. However, the role of each factor has not been evaluated in people with plantar heel pain (plantar fasciitis).

Methods

Thirty-six participants diagnosed with plantar heel pain were recruited. Main outcome measures included the Pain Catastrophising Scale, Tampa Scale of Kinesiophobia, the Foot Health Status Questionnaire and a Visual Analogue Scale. Hierarchical regression models were developed to evaluate the association between each psychological variable with variations in foot pain, 'first step' pain and foot function.

Results

In a full model with age, sex and BMI, kinesiophobia contributed to 21% of the variability in foot function and was a significant predictor in this model (Beta = -0.49, $P = 0.006$). In a separate model, catastrophising explained 39% of the variability in foot function and was a significant predictor in this model (Beta = -0.65, $P < 0.001$). Finally, pain catastrophising accounted for 18% of the variability in 'first step' pain and was a significant predictor in a model that also included age, sex and BMI (Beta = 0.44, $P = 0.008$).

Conclusions

After controlling for age, sex and BMI, kinesiophobia and catastrophising were significantly associated with foot function, while catastrophising was associated with 'first step' pain in people with plantar heel pain. In addition to addressing biological factors in the management of plantar heel pain, clinicians should consider the potential role of pain catastrophising and kinesiophobia in this population.

45 B. MANUAL THERAPY CERVICAL

MT for HA's

BMC Neurol. 2017 Mar 24;17(1):61. doi: 10.1186/s12883-017-0835-0.

A critical review of manual therapy use for headache disorders: prevalence, profiles, motivations, communication and self-reported effectiveness.Moore CS¹, Sibbritt DW², Adams J².**Author information****Abstract****BACKGROUND:**

Despite the expansion of conventional medical treatments for headache, many sufferers of common recurrent headache disorders seek help outside of medical settings. The aim of this paper is to evaluate research studies on the prevalence of patient use of manual therapies for the treatment of headache and the key factors associated with this patient population.

METHODS:

This critical review of the peer-reviewed literature identified 35 papers reporting findings from new empirical research regarding the prevalence, profiles, motivations, communication and self-reported effectiveness of manual therapy use amongst those with headache disorders.

RESULTS:

While available data was limited and studies had considerable methodological limitations, the use of manual therapy appears to be the most common non-medical treatment utilized for the management of common recurrent headaches. The most common reason for choosing this type of treatment was seeking pain relief. While a high percentage of these patients likely continue with concurrent medical care, around half may not be disclosing the use of this treatment to their medical doctor.

CONCLUSIONS:

There is a need for more rigorous public health and health services research in order to assess the role, safety, utilization and financial costs associated with manual therapy treatment for headache. Primary healthcare providers should be mindful of the use of this highly popular approach to headache management in order to help facilitate safe, effective and coordinated care.

52. EXERCISE

Quad damage in response to ex

Scand J Med Sci Sports. 2017 Mar 17. doi: 10.1111/sms.12880.

Localization of muscle damage within the quadriceps femoris induced by different types of eccentric exercises.

Maeo S^{1,2}, Saito A¹, Otsuka S¹, Shan X¹, Kanehisa H³, Kawakami Y¹.

Author information

Abstract

This study examined localization of muscle damage within the quadriceps femoris induced by different types of eccentric exercises by using transverse relaxation time (T_2)-weighted magnetic resonance imaging (MRI). Thirty-three young males performed either of the following three exercises: single-joint eccentric contraction of the knee extensors (KE), eccentric squat (S), or downhill walking (DW) (n=11/exercise). KE and S consisted of 5-set \times 10-lowering of 90% one-repetition maximum load. DW was performed for 60 min with -10% slope, 6 km/h velocity, and 20% body mass load carried. At pre- and 24, 48, and 72 h post-exercise, T_2 -MRI was scanned and T_2 values for the rectus femoris (RF), vastus intermedius (VI), vastus lateralis (VL), and vastus medialis (VM) at proximal, middle, and distal sites were calculated. Additionally, soreness felt when static pressure was applied to these sites and maximal isometric knee extension torque were measured. Maximal torque significantly ($P<0.05$) decreased (7-15%) at 24-48 h after all exercises. T_2 significantly increased (3-9%) at 24-72 h after all exercises, with heterogeneities within the muscles found in each exercise. Effect size and peak change of T_2 , as well as soreness, overall indicated that the proximal RF after KE and middle VM after S and DW were most affected by these exercises. The VL did not show any significant T_2 increase after all exercises. These results suggest that muscle damage specifically localizes at the proximal RF by KE and at the middle VM by S and DW, while the VL is least damaged regardless of the exercises.

56. ATHLETICS**Risk of injury**

Br J Sports Med. 2017 Apr;51(7):580-585. doi: 10.1136/bjsports-2016-096760. Epub 2016 Dec 1.

Predicting sport and occupational lower extremity injury risk through movement quality screening: a systematic review.

Whittaker JL^{1,2,3}, Booyesen N^{4,5}, de la Motte S⁶, Dennett L⁷, Lewis CL⁸, Wilson D^{4,5}, McKay C^{5,9}, Warner M^{4,5}, Padua D¹⁰, Emery CA^{3,11,12}, Stokes M^{3,4}.

Author information

Abstract**BACKGROUND:**

Identification of risk factors for lower extremity (LE) injury in sport and military/first-responder occupations is required to inform injury prevention strategies.

OBJECTIVE:

To determine if poor movement quality is associated with LE injury in sport and military/first-responder occupations.

MATERIALS AND METHODS:

5 electronic databases were systematically searched. Studies selected included original data; analytic design; movement quality outcome (qualitative rating of functional compensation, asymmetry, impairment or efficiency of movement control); LE injury sustained with sport or military/first-responder occupation. The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines were followed. 2 independent authors assessed the quality (Downs and Black (DB) criteria) and level of evidence (Oxford Centre of Evidence-Based Medicine model).

RESULTS:

Of 4361 potential studies, 17 were included. The majority were low-quality cohort studies (level 4 evidence). Median DB score was 11/33 (range 3-15). Heterogeneity in methodology and injury definition precluded meta-analyses. The Functional Movement Screen was the most common outcome investigated (15/17 studies). 4 studies considered inter-relationships between risk factors, 7 reported diagnostic accuracy and none tested an intervention programme targeting individuals identified as high risk. There is inconsistent evidence that poor movement quality is associated with increased risk of LE injury in sport and military/first-responder occupations.

CONCLUSIONS:

Future research should focus on high-quality cohort studies to identify the most relevant movement quality outcomes for predicting injury risk followed by developing and evaluating preparticipation screening and LE injury prevention programmes through high-quality randomised controlled trials targeting individuals at greater risk of injury based on screening tests with validated test properties.

Pain tolerance

A longitudinal exploration of pain tolerance and participation in contact sports

Scandinavian Journal of Pain, 03/28/2017 Thornton C, et al.

Physicians designed this study to compare pain responses over an athletic season in athletes who participated in a contact sport and those who disengaged from it. They found that those who stop participation in contact sports become less pain tolerant of experimental pain, possibly a result of catastrophizing. Athletes who commit to contact sports find pain less bothersome over time, possibly as a result of experience and learning to cope with pain. Compared to those who drop out, athletes who continue to participate in contact sports have a higher pain tolerance, report less bothersomeness and have higher direct coping also, tolerance to ischaemic pain increased over the season for participating athletes.

59. PAIN**New findings in neuropathic pain**

Pain. 2017 Apr;158(4):717-739. doi: 10.1097/j.pain.0000000000000827.

Chronic stress exacerbates neuropathic pain via the integration of stress-affect-related information with nociceptive information in the central nucleus of the amygdala.

Li MJ¹, Liu LY, Chen L, Cai J, Wan Y, Xing GG.

Author information

Abstract

Exacerbation of pain by chronic stress and comorbidity of pain with stress-related psychiatric disorders, including anxiety and depression, represent significant clinical challenges. However, the underlying mechanisms still remain unclear. Here, we investigated whether chronic forced swim stress (CFSS)-induced exacerbation of neuropathic pain is mediated by the integration of stress-affect-related information with nociceptive information in the central nucleus of the amygdala (CeA). We first demonstrated that CFSS indeed produces both depressive-like behaviors and exacerbation of spared nerve injury (SNI)-induced mechanical allodynia in rats. Moreover, we revealed that CFSS induces both sensitization of basolateral amygdala (BLA) neurons and augmentation of long-term potentiation (LTP) at the BLA-CeA synapse and meanwhile, exaggerates both SNI-induced sensitization of CeA neurons and LTP at the parabrachial (PB)-CeA synapse. In addition, we discovered that CFSS elevates SNI-induced functional up-regulation of GluN2B-containing NMDA (GluN2B-NMDA) receptors in the CeA, which is proved to be necessary for CFSS-induced augmentation of LTP at the PB-CeA synapse and exacerbation of pain hypersensitivity in SNI rats. Suppression of CFSS-elicited depressive-like behaviors by antidepressants imipramine or ifenprodil inhibits the CFSS-induced exacerbation of neuropathic pain. Collectively, our findings suggest that CFSS potentiates synaptic efficiency of the BLA-CeA pathway, leading to the activation of GluN2B-NMDA receptors and sensitization of CeA neurons, which subsequently facilitate pain-related synaptic plasticity of the PB-CeA pathway, thereby exacerbating SNI-induced neuropathic pain.

We conclude that chronic stress exacerbates neuropathic pain via the integration of stress-affect-related information with nociceptive information in the CeA.

60. COMPLEX REGIONAL PAIN

New understanding related to blood flow

Eur J Pain. 2017 Mar 24. doi: 10.1002/ejp.1033.

Remote ischaemic conditioning decreases blood flow and improves oxygen extraction in patients with early complex regional pain syndrome.

Hegelmaier T¹, Kumowski N¹, Mainka T^{1,2}, Vollert J^{1,3}, Goertz O^{4,5}, Lehnhardt M⁴, Zahn PK⁶, Maier C¹, Kolbenschlag J^{4,5}.

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

Remote ischaemic conditioning (RIC) is the cyclic application of non-damaging ischaemia leading to an increased tissue perfusion, among others triggered by NO (monoxide). Complex regional pain syndrome (CRPS) is known to have vascular alterations such as increased blood shunting and decreased NO blood-levels, which in turn lead to decreased tissue perfusion. We therefore hypothesized that RIC could improve tissue perfusion in CRPS.

METHOD:

In this proof-of-concept study, RIC was applied in the following groups: in 21 patients with early CRPS with a clinical history less than a year, in 20 age/sex-matched controls and in 12 patients with unilateral nerve lesions via a tourniquet on the unaffected/non-dominant upper limb. Blood flow and tissue oxygen saturation (StO₂) were assessed before, during and after RIC via laser Doppler and tissue spectroscopy on the affected extremity. The oxygen extraction fraction was calculated.

RESULTS:

After RIC, blood flow declined in CRPS ($p < 0.01$). StO₂ decreased in CRPS and healthy controls ($p < 0.01$). Only in CRPS, the oxygen extraction fraction correlated negatively with the decreasing blood flow ($p < 0.05$).

CONCLUSION:

Contrary to our expectations, RIC induced a decrease of blood flow in CRPS, which led to a revised hypothesis: the decrease of blood flow might be due to an anti-inflammatory effect that attenuates vascular disturbances and reduces blood shunting, thus improving oxygen extraction. Further studies could determine whether a repeated application of RIC leads to a reduced hypoxia in chronic CRPS.

SIGNIFICANCE:

Remote ischaemic conditioning leads to a decrease of blood flow. This decrease inversely correlates with the oxygen extraction in patients with CRPS.

62 A. NUTRITION/VITAMINS**Cashews help cholesterol****Cashew consumption reduces total and LDL cholesterol: A randomized, crossover, controlled-feeding trial**

American Journal of Clinical Nutrition, 03/30/2017

Mah E, et al. – This randomized, crossover, controlled-feeding trial aimed to examine the impact of reasonable intakes of cashews on serum lipids in adults with or at risk of high LDL cholesterol. Researchers observed that the daily consumption of cashews, when substituted for a high-carbohydrate snack, might be a simple dietary strategy to help manage total cholesterol and LDL cholesterol.

Methods

- For the purpose of this study, 51 men and women (aged 21–73 y) with a median LDL-cholesterol concentration of 159 mg/dL (95% CI: 146, 165 mg/dL) at screening consumed typical American diets with cashews (28–64 g/d; 50% of kilocalories from carbohydrate, 18% of kilocalories from protein, and 32% of kilocalories from total fat) or potato chips (control; 54% of kilocalories from carbohydrate, 18% of kilocalories from protein, and 29% of kilocalories from total fat) for 28 d with a ≥ 2 -wk washout period.

Results

- According to the findings obtained, consumption of the cashew diet brought about a significantly greater median change from baseline (compared with the control, all $P < 0.05$) in total cholesterol [-3.9% (95% CI: -9.3%, 1.7%) compared with 0.8% (95% CI: -1.5%, 4.5%), respectively], LDL cholesterol [-4.8% (95% CI: -12.6%, 3.1%) compared with 1.2% (95% CI: -2.3%, 7.8%), respectively], non-HDL cholesterol [-5.3% (95% CI: -8.6%, 2.1%) compared with 1.7% (95% CI: -0.9%, 5.6%), respectively], and the total-cholesterol:HDL-cholesterol ratio [-0.0% (95% CI: -4.3%, 4.8%) compared with 3.4% (95% CI: 0.6%, 5.2%), respectively].
- The results of this study showed that there were no significant differences between diets for HDL cholesterol and triglyceride.