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Physical Therapy or Advanced Imaging as First Management Strategy Following a New Consultation for Low Back Pain in Primary Care: Associations with Future Health Care Utilization and Charges.

Fritz JM, Brennan GP, Hunter SJ.

Abstract

OBJECTIVE:
Compare health care utilization and charges for low-back-pain (LBP) patients receiving advanced imaging or physical therapy as a first management strategy following a new primary care consultation.

DATA SOURCE:
Electronic medical record (EMR) and insurance claims data.

STUDY DESIGN:
Retrospective analysis of propensity-matched groups.

DATA COLLECTION/EXTRACTION:
Claims and EMR data were used. Utilization and LBP-related charges over a 1-year period were extracted from claims data.

PRINCIPAL FINDINGS:
In the propensity-matched sample (n = 406), advanced imaging recipients had higher odds of all utilization outcomes. Charges were higher with advanced imaging by an average $4,793 (95 percent CI: $3,676, $5,910).

CONCLUSIONS:
For patients with LBP whom newly consulted primary care referred for additional management, advanced imaging as a first management was associated with higher health care utilization and charges than physical therapy.

© Health Research and Educational Trust.

KEYWORDS: Physical therapy; imaging; low back pain; primary care
PMID: 25772625
PELVIC ORGANS

Massage and dysmenorrhea

Comparison of the effect of massage therapy and isometric exercises on primary dysmenorrhea: A randomized controlled clinical trial


In this study, authors want to compare the effect of massage and isometric exercises on primary dysmenorrhea. Based on the present findings, it seems that massage therapy and isometric exercises were effective in reducing some symptoms of dysmenorrhea.

Methods

- A randomized controlled trial.
- Dormitories of Shiraz University.
- 102 students suffering from primary dysmenorrhea.
- The samples were randomly divided into massage, isometric exercises, and control groups.
- The first group received two consecutive cycles of effleurage massage with lavender oil.
- The second group had 8 weeks of isometric exercises.
- No intervention was performed for the control group.

Results

- Pain intensity had significantly reduced in massage and exercises groups and the reduction was more significant in the massage group (P<0.001).
- Moreover, the results revealed a significant difference among the three groups regarding the mean duration of pain after the third cycle (P=0.006).
- However, no significant difference was found among the three groups concerning the mean level of anxiety.
- The results of intra–group comparisons only showed a significant reduction of anxiety level in the massage group after the third cycle (P=0.017).
Vestibulodynia

Pelvic floor muscle function in women with provoked vestibulodynia and asymptomatic controls


The purpose of the present study was to assess vaginal resting pressure (VRP), pelvic floor muscle (PFM) strength and endurance, and surface EMG activity in women with and without provoked vestibulodynia (PVD). Young, nulliparous women with PVD had significantly higher VRP, but this finding was not confirmed by vaginal surface EMG.

Methods

- This was an assessor–masked comparison study including 70 women.
- Exclusion criteria were any previous pregnancy and presence of candida.
- Sensitivity of the vulvar vestibule was rated at three sites with Q–tip pressure measurement and a numerical rating scale for pain.
- VRP and PFM strength and endurance were measured with a high precision pressure transducer connected to a vaginal balloon.
- Pelvic floor muscle activity was measured with surface EMG.
- The independent samples t test was used to analyze differences between groups.
- The p value was set to <0.05.

Results

- The mean age of the participants was 24.3 years (SD 4.7) and mean body mass index (BMI) was 22.0 kg/m$^2$ (SD 2.6).
- Q–tip pressure measurement was significantly lower and pain more severe in the PVD group at all sites of the vulvar vestibule.
- The PVD group had significantly higher VRP: 20.6 cmH$_2$O (SD 7.1) versus controls: 17.3 cmH$_2$O (SD 4.4), p = 0.02.
- The PVD group had significantly lower muscle activity during a 10–s holding period; PVD: 465.2 µV (SD 218.4), controls: 591.1 µV (SD 277.7), p = 0.04.
The Spectrum of Constipation-Predominant Irritable Bowel Syndrome and Chronic Idiopathic Constipation: US Survey Assessing Symptoms, Care Seeking, and Disease Burden.

Heidelbaugh JJ1, Stelwagon M2, Miller SA3, Shea EP2, Chey WD4.

Abstract

INTRODUCTION:
The irritable bowel syndrome with constipation (IBS-C) and chronic idiopathic constipation (CIC) are associated with substantial symptom and disease burden. Although typically classified as distinct diseases, symptoms frequently overlap.

AIM:
The objective of this study was to characterize symptom and disease burden in IBS-C and CIC sufferers and examine a subset of CIC sufferers with abdominal symptoms.

METHODS:
In a US population-based survey, respondents meeting the Rome III criteria for IBS-C or CIC rated symptom frequency and bothersomeness, missed work and disrupted productivity, and degree of obtaining and satisfaction with physician care. CIC respondents were analyzed in two subgroups: those with abdominal symptoms ≥ once weekly (CIC-A) and those without (CIC-NA).

RESULTS:
Of the 10,030 respondents, 328 met the criteria for IBS-C and 552 for CIC (363 CIC-A; 189 CIC-NA). All symptoms were significantly more frequent in IBS-C vs. CIC respondents (P<0.0001). Constipation was extremely/very bothersome in 72% of IBS-C respondents, 62% of CIC-A, and 40% of CIC-NA (P<0.01 all pairs). All 11 other measured symptoms were significantly more bothersome in IBS-C and CIC-A vs. CIC-NA respondents. In IBS-C vs. CIC-A, abdominal discomfort, bloating, straining, and pellet-like stools were also significantly more bothersome, with other remaining symptoms similar. Gastrointestinal symptoms disrupted productivity a mean of 4.9 days per month in IBS-C respondents, 3.2 in CIC-A, and 1.2 in CIC-NA (P<0.001 all pairs); missed days were similar in IBS-C and CIC-A respondents.

CONCLUSION:
CIC respondents with abdominal symptoms experience greater disease burden compared with CIC respondents without frequent abdominal symptoms and have a disease burden profile that is similar to IBS-C respondents. Am J Gastroenterol advance online publication, 17 March 2015; doi:10.1038/ajg.2015.67.

PMID: 25781368
Crohn’s disease (CD) and ulcerative colitis (UC) are chronic immunologically mediated diseases that often have a relapsing-remitting course in young persons. Genetic-risk polymorphisms explain less than one third of the heritability of disease.

Epidemiologic and laboratory data suggest that environmental factors play a significant role in influencing the risk and natural history of disease. Smoking is the most widely and consistently described risk factor. It, however, increases the risk of CD while conferring protection against UC. The gut microbiome is a key component in the development of inflammatory bowel disease (IBD). Several external factors potentially exert an effect by influencing the composition of the gut microbiome or disrupting the intestinal barrier. These external influences include the use of antibiotics or nonsteroidal anti-inflammatory drugs and the presence of enteric infections. Data on diet have been inconsistent, but high fiber intake, particularly of soluble fiber, appears to protect against CD, whereas protein intake may increase disease risk. Vitamin D may also play an important protective role, particularly in patients with CD. Neurobehavioral factors, such as stress and depression, also influence the risk of IBD.

Systematic and rigorous studies of environmental exposures in the management of IBD are needed. In particular, studies of whether environmental factors can be modified to reduce the likelihood of relapse or improve patient outcomes would be valuable.

Keywords: Crohn’s disease, ulcerative colitis, environmental factors, cigarette smoking, diet, vitamin D
CERVICAL SPINE

Neck pain and postural sway

Changes of postural control and muscle activation pattern in response to external perturbations after neck flexor fatigue in young subjects with and without chronic neck pain

Gait and Posture, 03/18/2015Cheng CH, et al.

The purpose of this study was to investigate the effect of neck pain and neck flexor fatigue on standing balance following postural perturbations. Disturbed balance control was observed in CNP patients during the quiet standing. However, a rigid strategy was used to minimize the postural sway and to protect the head against backward perturbations in both CNP and asymptomatic young adults after neck flexor fatigue.

Methods

- Twenty patients with chronic neck pain (CNP) (24.7 ± 3.6 year-old) and 20 age-matched asymptomatic subjects (22.1 ± 2.2 year-old) were recruited.
- Subjects stood barefoot on a force plate and experienced backward perturbations before and after neck flexor fatigue.
- Center of pressure, electromyography of cervical and lumbar muscles, and head/trunk accelerations were recorded.
- Two-way ANOVA (pain × fatigue) was used for statistical analysis.

Results

- CNP group showed larger body sway during quiet standing but not during perturbed standing compared with asymptomatic adults.
- In both groups, neck flexor fatigue resulted in greater body sway during the quiet standing but smaller body sway during perturbed standing, increased neck muscle activations and decreased lumbar muscle activations, as well as increased time to maximal head acceleration.
Masticatory sensory-motor changes after an experimental chewing test influenced by pain catastrophizing and neck-pain-related disability in patients with headache attributed to temporomandibular disorders

The Journal of Headache and Pain, 03/19/2015 Touche RL, et al.

Abstract

Background
Recent research has shown a relationship of craniomandibular disability with neck-pain-related disability has been shown. However, there is still insufficient information demonstrating the influence of neck pain and disability in the sensory-motor activity in patients with headache attributed to temporomandibular disorders (TMD). The purpose of this study was to investigate the influence of neck-pain-related disability on masticatory sensory-motor variables.

Methods
An experimental case–control study investigated 83 patients with headache attributed to TMD and 39 healthy controls. Patients were grouped according to their scores on the neck disability index (NDI) (mild and moderate neck disability). Initial assessment included the pain catastrophizing scale and the Headache Impact Test-6. The protocol consisted of baseline measurements of pressure pain thresholds (PPT) and pain-free maximum mouth opening (MMO). Individuals were asked to perform the provocation chewing test, and measurements were taken immediately after and 24 hours later. During the test, patients were assessed for subjective feelings of fatigue (VAFS) and pain intensity.

Results
VAFS was higher at 6 minutes (mean 51.7; 95% CI: 50.15-53.26) and 24 hours after (21.08; 95% CI: 18.6-23.5) for the group showing moderate neck disability compared with the mild neck disability group (6 minutes, 44.16; 95% CI 42.65-45.67/ 24 hours after, 14.3; 95% CI: 11.9-16.7) and the control group. The analysis shows a decrease in the pain-free MMO only in the group of moderate disability 24 hours after the test. PPTs of the trigeminal region decreased immediately in all groups, whereas at 24 hours, a decrease was observed in only the groups of patients. PPTs of the cervical region decreased in only the group with moderate neck disability 24 hours after the test. The strongest negative correlation was found between pain-free MMO immediately after the test and NDI in both the mild (r = −0.49) and moderate (r = −0.54) neck disability groups. VAFS was predicted by catastrophizing, explaining 17% of the variance in the moderate neck disability group and 12% in the mild neck disability group.

Conclusion
Neck-pain-related disability and pain catastrophizing have an influence on the sensory-motor variables evaluated in patients with headache attributed to TMD.

CV disease and oral health
Periodontal disease and CV

Association of periodontal pathogenesis and cardiovascular diseases: a literature review

Oral Health & Preventive Dentistry, 03/13/2015

There is growing evidence of the association of periodontal diseases and CVD, as reviewed by the epidemiological studies. The in vitro studies also highlight a potential link between oral bacteria and atherosclerosis. Some recent interventional trials have shown that periodontal treatment can decrease markers of systemic inflammation. The relationship between periodontal diseases and CVD deserves further research because of its consequences for public health.
HEADACHES

Cluster HA


Blunted autonomic response in cluster headache patients.
Barloese M¹, Brinth L², Mehlsten J², Jennum P³, Lundberg HI⁴, Jensen R⁵.

Abstract

BACKGROUND:
Cluster headache (CH) is a disabling headache disorder with chronobiological features. The posterior hypothalamus is involved in CH pathophysiology and is a hub for autonomic control. We studied autonomic response to the head-up tilt table test (HUT) including heart rate variability (HRV) in CH patients and compared results to healthy controls.

METHODS AND MATERIALS:
Twenty-seven episodic and chronic CH patients and an equal number of age-, sex- and BMI-matched controls were included. We analyzed responses to HUT in the time and frequency domain and by non-linear analysis.

RESULTS:
CH patients have normal cardiovascular responses compared to controls but increased blood pressure. In the frequency analysis CH patients had a smaller change in the normalized low- (LF) (2.89 vs. 13.38, p < 0.05) and high-frequency (HF) (-2.86 vs. -13.38, p < 0.05) components as well as the LF/HF ratio (0.81 vs. 2.62, p < 0.05) in response to tilt. In the Poincaré plot, the change in ratio between long- and short-term variation was lower in patients (SD1/SD2, -0.05 vs. -0.17, p < 0.05).

CONCLUSIONS:
CH patients show decreased autonomic response to HUT compared to healthy controls. This can be interpreted as dysregulation in the posterior hypothalamus and supports a theory of central autonomic mechanisms involvement in CH.

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KEYWORDS: Cluster headache; autonomic dysfunction; autonomic nervous system; hypothalamus; pain PMID: 25769490
SHOULDER

ROTATOR CUFF

Infraspinatus and results


Multivariate analyses of rotator cuff pathologies in shoulder disability.
Henseler JF1, Raz Y2, Nagels J1, van Zwet EW3, Raz V4, Nelissen RG1.

Abstract

BACKGROUND:
Disability of the shoulder joint is often caused by a tear in the rotator cuff (RC) muscles. Four RC muscles coordinate shoulder movement and stability, among them the supraspinatus and infraspinatus muscle which are predominantly torn. The contribution of each RC muscle to tear pathology is not fully understood. We hypothesized that muscle atrophy and fatty infiltration, features of RC muscle degeneration, are predictive of superior humeral head translation and shoulder functional disability.

METHODS:
Shoulder features, including RC muscle surface area and fatty infiltration, superior humeral translation and RC tear size were obtained from a consecutive series of Magnetic Resonance Imaging with arthrography (MRA). We investigated patients with superior (supraspinatus, n = 39) and posterosuperior (supraspinatus and infraspinatus, n = 30) RC tears, and patients with an intact RC (n = 52) as controls. The individual or combinatorial contribution of RC measures to superior humeral translation, as a sign of RC dysfunction, was investigated with univariate or multivariate models, respectively.

RESULTS:
Using the univariate model the infraspinatus surface area and fatty infiltration in both the supraspinatus and infraspinatus had a significant contribution to RC dysfunction. With the multivariate model, however, the infraspinatus surface area only affected superior humeral translation (p<0.001) and discriminated between superior and posterosuperior tears. In contrast neither tear size nor fatty infiltration of the supraspinatus or infraspinatus contributed to superior humeral translation.

CONCLUSION:
Our study reveals that infraspinatus atrophy has the strongest contribution to RC tear pathologies. This suggests a pivotal role for the infraspinatus in preventing shoulder disability.

PMID: 25710703
WRIST AND HAND

CARPAL TUNNEL SYNDROME

Workplace impact


Associations between workplace factors and carpal tunnel syndrome: A multi-site cross sectional study.


Author information

Abstract

BACKGROUND:
Few large epidemiologic studies have used rigorous case criteria, individual-level exposure measurements, and appropriate control for confounders to examine associations between workplace psychosocial and biomechanical factors and carpal tunnel syndrome (CTS).

METHODS:
Pooling data from five independent research studies, we assessed associations between prevalent CTS and personal, work psychosocial, and biomechanical factors while adjusting for confounders using multivariable logistic regression.

RESULTS:
Prevalent CTS was associated with personal factors of older age, obesity, female sex, medical conditions, previous distal upper extremity disorders, workplace measures of peak forceful hand activity, a composite measure of force and repetition (ACGIH Threshold Limit Value for Hand Activity Level), and hand vibration.

CONCLUSIONS:
In this cross-sectional analysis of production and service workers, CTS prevalence was associated with workplace and biomechanical factors. The findings were similar to those from a prospective analysis of the same cohort with differences that may be due to recall bias and other factors. Am. J. Ind. Med. © 2015 Wiley Periodicals, Inc.

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KEYWORDS:
confounders; individual-level assessment; musculoskeletal disorders; physical work-load; workers
PMID: 25778111
In fibromyalgia

Characteristics of fibromyalgia independently predict poorer long-term analgesic outcomes following total knee and hip arthroplasty

Arthritis & Rheumatism, 03/16/2015 Brummett CM, et al.

Abstract

Objective: While psychosocial factors have been associated with poorer outcomes after knee and hip arthroplasty, we hypothesized that augmented pain perception, as occurs in conditions such as fibromyalgia, may account for decreased responsiveness to primary knee and hip arthroplasty.

Methods: Prospective, observational cohort study. Preoperative phenotyping was conducted using validated questionnaires to assess pain, function, depression, anxiety, and catastrophizing. Participants also completed the 2011 fibromyalgia survey criteria, which address the widespread body pain and comorbid symptoms associated with characteristics of fibromyalgia.

Results: Of the 665 participants, 464 were retained 6-months postoperatively (82.0%). Since individuals who screened positive for fibromyalgia were expected to respond less favorably, all primary analyses excluded these individuals (6% of the cohort). In the multivariate linear regression model predicting change in knee/hip pain (primary outcome), higher fibromyalgia survey score was independently predictive of less improvement in pain (Est. -0.25, SE 0.044, p<0.00001). Lower baseline joint pain and knee (vs. hip) arthroplasty were also predictive of less improvement (R-squared=0.58). The same covariates were predictive in the multivariate logistic regression model for change in knee/hip pain, with a 17.8% increase in the odds of failure to meet the threshold of 50% improvement for every 1-point increase in fibromyalgia survey score (p=0.00032). The fibromyalgia survey score was also independently predictive of change in overall pain and patient global impression of change.

Conclusion: The fibromyalgia survey score was a robust predictor of poorer arthroplasty outcomes, even among individuals who fell well below the threshold for the categorical diagnosis of fibromyalgia. This article is protected by copyright. All rights reserved.
IMPINGEMENT

Labral pathology and hip stability


Biomechanical evaluation contribution of the acetabular labrum to hip stability.
Lertwanich P¹, Plakseychuk A, Kramer S, Linde-Rosen M, Maeyama A, Fu FH, Smolinski P.

Abstract

PURPOSE:
Knowledge of the effect of hip pathologies on hip biomechanics is important to the understanding of the development of osteoarthritis, and the contribution of the labrum to hip joint stability has had limited study. The purpose of this study was to evaluate the effect of labral injury to stability of the femoral head in the acetabular socket.

METHODS:
Ten cadaver hip specimens were tested using a robotic system under four different loading conditions: axial loading (80 N) along the femoral axis and axial loading (80 N) combined with either anterior, posterior or lateral loading (60 N). The hip states were examined were intact, with a 1.5 cm capsulotomy and with a 1 cm resection of the anterosuperior labrum.

RESULTS:
At 30° of flexion, under axial load, the displacement of the hip with capsulotomy and labral resection (9.6 ± 2.5 mm) was significantly larger then the hip with capsulotomy alone (5.6 ± 4.1 mm, p = 0.005) and the intact hip (5.2 ± 3.8 mm, p = 0.005). Also, at 30° of flexion, the displacement under combined axial and anterior/posterior load was increased with capsulotomy and labral resection.

CONCLUSION:
The acetabular labrum provides stability to the hip joint in response to a distraction force and combined distraction and translation forces. One centimetre of labral resection caused significant displacement ("wobbling" effect) of the femoral head within the acetabulum with normal range of motion. Successful labral repair could be crucial for restoration of the hip biomechanics and prevention of coxarthrosis.

PMID: 25749654
KNEE/ACL

ACL rotational stability


Anterior cruciate ligament function in providing rotational stability assessed by medial and lateral tibiofemoral compartment translations and subluxations.


BACKGROUND: Rotational knee stability provided by the anterior cruciate ligament (ACL) in the pivot-shift phenomena involves analysis of more complex robotic testing profiles and resulting tibiofemoral compartment kinematics and subluxations.

HYPOTHESES: Using anterior-posterior tibial forces along with internal and valgus tibial moments will produce a major anterior subluxation of both tibiofemoral compartments not obtained with internal and valgus moments alone. Increasing the internal torque in pivot-shift testing will constrain the anterior subluxations of the medial and central tibial compartments.

STUDY DESIGN: Controlled laboratory study.

METHODS: A 6 degrees of freedom robotic knee testing system applied anterior translation and rotational loading profiles in 10 cadaveric knees before and after ACL sectioning. Changes in knee motion limits were measured, and medial and lateral tibiofemoral compartment translations were determined by digitization of tibial plateau anatomic landmarks. Loading profiles simulated Lachman and tibial rotation tests as well as typical pivot-shift loading profiles from prior in vitro and in vivo studies.

RESULTS: After ACL sectioning, anterior tibial translation increased by 10.3 ± 3.7 mm at 25° of flexion (P < .001). Internal tibial rotation increased by 1.6° ± 1.1° (5 N·m; P > .05). In pivot-shift tests (anterior translation, 100 N; internal rotation, 1 N·m; valgus, 7 N·m), the tibial rotation center shifted outside the medial tibial margin, with abnormal anterior translation of both compartments (medial, 12.9 ± 3.9 mm; lateral, 7.5 ± 3.7 mm; P < .001), with internal rotation decreasing by 4.1° ± 3.5° (P < .05). A greater internal rotation torque (5 vs 1 N·m) in the pivot-shift test constrained and limited anterior tibial translation and prevented anterior subluxation of the medial compartment (P < .001).

CONCLUSION: Sectioning of the ACL produces major increases in tibiofemoral compartment translations and only small increases in internal tibial rotation. The simulation of the pivot shift requires a combined loading profile of anterior translation, internal rotation, and valgus, which produces the greatest anterior subluxation of the medial and lateral tibiofemoral compartments. This testing profile is recommended to be included along with other loading profiles for future ACL studies. The application of a high internal rotation torque in cadaveric pivot-shift tests constrains anterior tibial subluxation of the medial and center compartments and appears less ideal for analysis of ACL function and graft reconstructions.

CLINICAL RELEVANCE: Surgeons should be cautious in interpreting conclusions on ACL function and graft reconstructions without knowing the resulting tibiofemoral subluxations or loading conditions that may limit maximum anterior tibial femoral subluxations.

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KEYWORDS: rotational knee stability; simulation pivot-shift tests; tibiofemoral subluxations

PMID: 25540296
Serial Changes in Knee Muscle Strength After Anterior Cruciate Ligament Reconstruction Using Hamstring Tendon Autografts.

Lee DH†, Lee JH‡, Jeong HJ‡, Lee SJ‡.

Abstract

**PURPOSE:**
The purpose of this study was to evaluate serial changes in quadriceps and hamstring muscle strength over the first postoperative year in patients who underwent anterior cruciate ligament (ACL) reconstruction with an autologous hamstring tendon graft and to reveal which of these 2 muscles lost more strength and recovered more slowly after autologous hamstring ACL reconstruction.

**METHODS:**
Isokinetic muscle strength was measured preoperatively and at 6 months and 1 year postoperatively in 20 patients who underwent ACL reconstruction. The maximal torque (60°/s) and total work (180°/s) of the quadriceps and hamstring were evaluated using an isokinetic testing device. The isokinetic muscle strength and endurance of the injured legs were expressed as percentages of those of the uninjured legs at the same time point.

**RESULTS:**
Both quadriceps and hamstring muscle strength at 60°/s and endurance at 180°/s of the injured relative to the uninjured leg was 50% preoperatively. Quadriceps muscle strength and endurance of the injured leg increased to 70% at 6 months and 80% at 1 year postoperatively, whereas hamstring muscle strength and endurance increased to 80% at 6 months and 80% at 1 year.

**CONCLUSIONS:**
Knee muscle strength recovered progressively after ACL reconstruction using autologous hamstring tendons but did not fully recover, being about 80% that of the uninjured leg even 1 year after surgery.

**LEVEL OF EVIDENCE:** *Level IV, therapeutic case series.*

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Perturbation training


Effects of perturbation training on knee flexion angle and quadriceps to hamstring cocontraction of female athletes with quadriceps dominance deficit: Pre-post intervention study.

Letafatkar A¹, Rajabi R², Tekamejani EE³, Minoonejad H².

Abstract

BACKGROUND:
Knee joint stability through co-contraction (CC) of hamstrings and quadriceps may be necessary for females with Quadriceps Dominance (Q.D) neuromuscular deficit. Unbalanced CC of medial and lateral portion of the knee can predispose women to extended knee position that exaggerate ACL injury. The purpose of this study was to determine the effects of perturbation training on knee flexion angle and neuromuscular characteristics in female athletes with quadriceps dominance deficit.

METHODS:
EMG data of quadriceps and hamstrings (during single limb drop-landing), and knee flexion angles (during tuck-jump test) of 29 (14 control and 15 experimental) female athletes with quadriceps dominance deficit were completed at baseline and after sixweeks. Sixweeks of perturbation training in the experimental group was applied over 18 sessions under the supervision of a physiotherapist.

RESULTS:
The VL-LH and VM-MH cocontraction in feed-forward and feedback phases significantly increased after perturbation training. Also peak knee flexion angle significantly increased and reaches from 26.24°±3.54° in pretest to 48.92°±6.18° in posttest due to perturbation training effects on Q.D deficit women (p<0.01).

CONCLUSIONS:
Finally because the Q.D neuromuscular deficit is one of the important mechanisms of noncontact ACL injuries in female athletes and the effect of perturbation training in solving this problem indicated in this study, so the use of perturbation trainings is recommended to women athlete coaches to eliminate this defect and improve athletic performance (functional tuck jump test).

CLINICAL RELEVANCE:
The balanced cocontraction ratios produced after the perturbation training may benefit in anterior cruciate ligament injury-prevention.

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KEYWORDS: Anterior cruciate ligament; Female athletes; Muscle co-contraction; Perturbation training; Quadriceps dominance
PMID: 25709088
Infracpatellar fat pad and PF pain

Rheumatol Int. 2015 Mar 18.

Infracpatellar fat pad volume is greater in individuals with patellofemoral joint osteoarthritis and associated with pain.

Cowan SM1, Hart HF, Warden SJ, Crossley KM.

Author information

Abstract

There is relatively little research specifically investigating patellofemoral joint osteoarthritis (PFJ OA). In particular, the source of pain in PFJ OA has not been established. One structure that may be an important contributor is the infrapatellar fat pad (IPFP).

This cross-sectional study aimed to: (1) compare IPFP volume in individuals with and without PFJ OA and (2) assess the relationship between IPFP volume and pain in individuals with PFJ OA. Thirty-five participants with symptomatic and radiographic PFJ OA and 11 asymptomatic controls with no radiographic signs of OA were recruited. IPFP volume was measured in both groups from magnetic resonance images, and pain in the PFJ OA group was determined using the pain subscale of the Knee Injury and Osteoarthritis Outcome Score (KOOS-pain). The PFJ OA group had 23.6 % greater IPFP volume than the control group (p = 0.04). After the inclusion of covariates, IPFP volume remained 19.6 % greater in the PFJ OA group (p = 0.03). IPFP volume explained 20.1 % of the variance in KOOS-pain in the PFJ OA group, with a larger IPFP being associated with worse pain (p < 0.01).

Individuals with PFJ OA had a larger IPFP than controls, and IPFP volume was directly related to PFJ OA pain. These data suggest a role for the IPFP in PFJ OA and highlight a need for further investigation into the casual relationship between IPFP and PFJ changes.

PMID: 25782586
Best practice guidelines for management


The 'Best Practice Guide to Conservative Management of Patellofemoral Pain': incorporating level 1 evidence with expert clinical reasoning.

Barton CJ1, Lack S2, Hemmings S2, Tufail S2, Morrissey D3.

Author information

Abstract

IMPORTANCE: Patellofemoral pain (PFP) is both chronic and prevalent; it has complex aetiology and many conservative treatment options.

OBJECTIVE: Develop a comprehensive contemporary guide to conservative management of PFP outlining key considerations for clinicians to follow.

DESIGN: Mixed methods.

METHODS: We synthesised the findings from six high-quality systematic reviews to September 2013 with the opinions of 17 experts obtained via semistructured interviews. Experts had at least 5 years clinical experience with PFP as a specialist focus, were actively involved in PFP research and contributed to specialist international meetings. The interviews covered clinical reasoning, perception of current evidence and research priorities.

RESULTS: Multimodal intervention including exercise to strengthen the gluteal and quadriceps musculature, manual therapy and taping possessed the strongest evidence. Evidence also supports use of foot orthoses and acupuncture. Interview transcript analysis identified 23 themes and 58 subthemes. Four key over-arching principles to ensure effective management included-(1) PFP is a multifactorial condition requiring an individually tailored multimodal approach. (2) Immediate pain relief should be a priority to gain patient trust. (3) Patient empowerment by emphasising active over passive interventions is important. (4) Good patient education and activity modification is essential. Future research priorities include identifying risk factors, testing effective prevention, developing education strategies, evaluating the influence of psychosocial factors on treatment outcomes and how to address them, evaluating the efficacy of movement pattern retraining and improving clinicians' assessment skills to facilitate optimal individual prescription.

CONCLUSIONS AND RELEVANCE: Effective management of PFP requires consideration of a number of proven conservative interventions. An individually tailored multimodal intervention programme including gluteal and quadriceps strengthening, patellar taping and an emphasis on education and activity modification should be prescribed for patients with PFP. We provide a 'Best Practice Guide to Conservative Management of Patellofemoral Pain' outlining key considerations.

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KEYWORDS: Knee; Lower extremity; Sports physiotherapy PMID: 25716151
OSTEOARTHRITIS/KNEE

Glucosamine and chondroitin for OA


First-line analysis of the effects of treatment on progression of structural changes in knee osteoarthritis over 24 months: data from the osteoarthritis initiative progression cohort.

Martel-Pelletier J1, Roubille C1, Abram F2, Hochberg MC3, Dorais M4, Delorme P1, Raynauld JP1, Pelletier JP1.

Author information

Abstract

OBJECTIVE:
To determine, using data from participants enrolled in the progression cohort of the OAI, the effects of conventional osteoarthritis (OA) pharmacological treatment and those of the combination of glucosamine and chondroitin sulfate (Glu/CS) on knee structural changes.

METHODS:
Six hundred patients with knee OA were stratified based on whether or not they received for 24 consecutive months the OA conventional pharmacological treatment and/or Glu/CS. The main outcomes were knee structural changes, including the loss of joint space width (JSW) and of cartilage volume measured by quantitative MRI.

RESULTS:
Participants reported taking (+) (n=300) or not taking (-) (n=300) OA treatment (analgesic/NSAIDs). The +analgesic/NSAIDs participants had higher Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scores (p<0.001) and smaller JSW (p=0.01), reflecting more severe disease at baseline. In the -analgesic/NSAIDs group, participants taking Glu/CS had significantly reduced loss of cartilage volume at 24 months in the medial central plateau (p=0.007). Further subdivision revealed that this effect of Glu/CS occurred in participants with a higher severity of the disease (JSW≤median). In the +analgesic/NSAIDs group, those taking Glu/CS had significantly reduced loss of cartilage volume in the global plateau at 12 months (p=0.05), and in the central plateau at 24 months (p=0.05). These effects occurred in participants with less disease severity (JSW>median). By contrast, no significant reduction in JSW was found between all groups.

CONCLUSIONS:
In +analgesic/NSAIDs groups and -analgesic/NSAIDs groups, participants who took Glu/CS had reduced loss of cartilage volume over 24 months in subregions when assessed with qMRI, arguing for a disease-modifying effect of Glu/CS which could not be identified by X-rays.

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KEYWORDS:
Knee Osteoarthritis; Magnetic Resonance Imaging; Treatment

PMID: 24336337
Beer and wine and OA


Beer and wine consumption and risk of knee or hip osteoarthritis: a case control study.

Muthuri SG, Zhang W, Maciewicz RA, Muir K, Doherty M.

Abstract
Introduction The aim of this study was to investigate the association between alcoholic and non-alcoholic beverages and knee or hip osteoarthritis (OA).

Methods We conducted a case control study of Caucasian men and women aged 45 to 86 years of age from Nottingham, UK. Cases had clinically severe symptoms and radiographic knee or hip OA; controls had no symptoms and no radiographic knee or hip OA. Exposure information was sought using interview-based questionnaires and a semi-quantitative food frequency questionnaire to assess beverage consumption at ages 21 to 50 years. Odds ratios (ORs), adjusted ORs (aORs), 95% confidence intervals (CI) and P values were estimated using logistic regression models.

Results A total of 1,001 knee OA, 993 hip OA and 933 control participants were included in the study. Increasing beer consumption was associated with an increasing risk of OA (P for trend <0.001). Compared to those who did not consume beer, aORs for people who consumed 20 or more servings of beer were 1.93 (95% CI 1.26 to 2.94) and 2.15 (95% CI 1.45 to 3.19) for knee OA and hip OA, respectively. In contrast, increasing levels of wine consumption were associated with decreased likelihood of knee OA (P for trend <0.001). Compared to those who did not consume wine, aOR for knee OA among those who consumed 4 to 6 glasses of wine per week and ≥7 glasses of wine per week was 0.55 (95% CI 0.34 to 0.87) and 0.48 (95% CI 0.29 to 0.80), respectively. No association was identified between non-alcoholic beverages and knee or hip OA.

Conclusion Beer consumption appears to be a risk factor for knee and hip OA whereas consumption of wine has a negative association with knee OA. The mechanism behind these findings is speculative but warrants further study.

PMID: 25652201
Hyaluronic Acid and Betamethasone injections

Clinical efficacy of intra-articular injections in knee osteoarthritis: A prospective randomized study comparing hyaluronic acid and betamethasone

Davalillo CAT, et al. –

The authors evaluate hyaluronic acid (HA) and corticosteroids (CS) in patients with knee Osteoarthritis (OA) in terms of clinical efficacy over 12 months. Furthermore, BM showed higher short–term effectiveness, while HA showed better long–term effectiveness, maintaining clinical efficacy in a large number of patients 1 year after administration.

Methods

- They used a prospective, randomized study with parallel groups.
- Randomized patients received IA injections of HA or betamethasone (BM).
- The primary outcomes were improvement in pain using Visual Analog Scale and function in the Western Ontario and McMaster University Osteoarthritis Index (Likert scale).
- Follow–up visits were scheduled at 3 months, 6 months, 9 months, and 12 months.

Results

- A total of 200 patients were included.
- Pain was significantly reduced in both groups at the first follow–ups.
- At 12 months, the mean pain reduction in the HA group was 33.6% (95% CI: 31.1–36.1) compared to 8.2% (95% CI: 5.2–11.1) in BM (P<0.0001).
- Function improvement was higher in HA through every visit, and mean improvement at 12 months was 47.5% (95% CI: 45.6–49.3) in HA patients vs 13.2% (95% CI: 11.4–14.9) in the BM group (P<0.0001).
- All patients from both groups achieved the Minimal Clinically Important Improvement (MCII) for both pain and function up to 6 months.
- At 9 months and 12 months, the MCII figures were higher in HA group with ≥80% compared to ≤10% in BM group (P<0.0001).
- Adverse reactions were rare and related to the administration procedure.
FOOT AND ANKLE

HALUX VALGUS

Tapping post surgery in HV


Radiographic outcomes following primary arthrodesis of the first metatarsophalangeal joint in hallux abductovalgus deformity.

Sung W1, Kluesner AJ, Irrgang J, Burns P, Wukich DK.

Author information

Abstract

The purpose of this study was to evaluate the radiographic outcomes of primary metatarsophalangeal joint arthrodesis for hallux abductovalgus deformities.

Between January 2004 and March 2009, 56 consecutive patients (58 feet) underwent primary arthrodesis of the metatarsophalangeal joint (MTPJ) for severe hallux abductovalgus deformity and or hallux rigidus. Results were assessed by primary radiographic outcome measurements (hallux valgus and first-second intermetatarsal angle). Overall, the mean hallux valgus (HA) angle improved significantly from 31.9 degrees to 13.4 degrees (P < .01). The mean first-second intermetatarsal (IM) angle correction was also significantly reduced from 14.0 degrees to 9.7 degrees (P < .01). When separated by deformity group (mild, moderate, and severe), the mean hallux valgus and first-second intermetatarsal angles demonstrated statistically significant correction in all groups when comparing preoperative and postoperative values (P < .01). Primary arthrodesis provides predictable radiographic outcomes and effective correction for patients with differing severity of hallux abductovalgus deformity and arthritis of the first metatarsophalangeal joint. A separate proximal osteotomy for severe metatarsus primus varus correction may not be necessary because of the correction achieved at the metatarsophalangeal joint arthrodesis level.

The results of this study demonstrate that as the severity of the preoperative deformity increases, the amount of postoperative radiographic (HA and IM angle measurement) correction after MTPJ arthrodesis will improve correspondingly.

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CFS/BET

Stomach sleeping and epilepsy

Sleeping on stomach may increase risk of sudden death in epilepsy

American Academy of Neurology News, 01/23/2015

New research shows that stomach sleepers with epilepsy may be at higher risk of sudden unexpected death, drawing parallels to sudden infant death syndrome in babies.

The study is published in the January 21, 2015, online issue of Neurology. The study found that 73 percent of the cases died in the stomach sleep position, whereas 27 percent died in other sleep positions. Looking at a subgroup of 88 people, researchers found that people younger than 40 were four times more likely to be found on their stomachs at the time of sudden death than people over 40.

A total of 86 percent of those under 40 were sleeping on their stomachs, compared to 60 percent for those over the age of 40. “We’re not sure why this was more common in younger people,” Tao said. “It may be that they are more likely to be single and not have anyone with them during a seizure while sleeping.” He noted that a person sleeping with someone who has a generalized tonic clonic seizure while on their stomach should help them turn over or on the side during or after the seizure.

ATHLETICS
Return to play after knee surgery


Return to play after chondroplasty of the knee in national football league athletes.
Scillia AJ1, Aune KT2, Andrachuk JS1, Cain EL1, Dugas JR1, Fleisig GS1, Andrews JR1.

BACKGROUND:
Knee injuries, including articular cartilage damage, are common in football players and are potentially career threatening. The rate of return to play (RTP) as well as the factors affecting return after arthroscopic chondroplasty of the knee is performed in National Football League (NFL) athletes are not known.

PURPOSE:
To determine the rate of return to regular season NFL competition after arthroscopic knee surgery including chondroplasty of articular cartilage lesions. In addition, identification of factors that influence successful return was investigated.

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

METHODS:
Athletes in the NFL who underwent arthroscopic chondroplasty at a single institution were identified. Retrospective chart review and review of the NFL online database were utilized to determine the rate of RTP and factors affecting an athlete's ability to return. Chi-square and Student t tests were used to assess differences among players who were and were not able to RTP, and logistic regression was employed to determine a player's odds of return.

RESULTS:
There were 52 patients (54 procedures) identified from the surgical database who met the inclusion criteria for the study operated on between August 1, 2001, and March 31, 2011. Of these players, 36 (67%) were able to return to regular season NFL game play at an average of 8.2 months, including 13 (24%) who were still active in the NFL. The average time to follow-up was 5.9 years, and all players were allowed at least 2 years of follow-up. There was no significant correlation of RTP to athlete age, lesion size, lesion location, position played, or round selected in the NFL draft. Players who underwent concomitant microfracture were 4.4 times less likely to return to the NFL than were those who did not undergo this procedure (95% CI, 1.3-15.5). Athletes who played more than 11.6 games per season were 4.7 times more likely to RTP than were those who played fewer games per season (95% CI, 1.4-16.6). Athletes who returned to play competed in 56 fewer games, 3.3 fewer seasons, and played in 3.2 fewer games per season compared with their level of competition before surgery.

CONCLUSION:
A majority (67%) of NFL players are able to RTP after arthroscopic knee surgery including chondroplasty of articular cartilage lesions. Athletes who play more games per season are more likely to RTP after chondroplasty of articular cartilage lesions of the knee, but those undergoing concomitant microfracture are less likely to return. No statistical significance was determined when comparing the athletes who returned to play with respect to age at surgery, lesion location, lesion size, lesion grade, position that the athlete played, or draft round.

© 2015 The Author(s). KEYWORDS: NFL; chondroplasty; injury; knee; osteochondral defect; return to play PMID: 25573391
Reward responsiveness and chronic pain


Reward responsiveness in patients with chronic pain.
Elvemo NA1, Landrø NI, Borchgrevink PC, Håberg AK.

Abstract

BACKGROUND:
It is proposed that changes in reward processing in the brain are involved in the pathophysiology of pain based on experimental studies. The first aim of the present study was to investigate if reward drive and/or reward responsiveness was altered in patients with chronic pain (PCP) compared to controls matched for education, age and sex. The second aim was to investigate the relationship between reward processing and nucleus accumbens volume in PCP and controls. Nucleus accumbens is central in reward processing and its structure has been shown to be affected by chronic pain conditions in previous studies.

METHODS:
Reward drive and responsiveness were assessed with the Behavioral Inhibition Scale/Behavioral Activation Scale, and nucleus accumbens volumes obtained from T1-weighted brain MRIs obtained at 3T in 19 PCP of heterogeneous aetiologies and 20 age-, sex- and education-matched healthy controls. Anhedonia was assessed with Beck's Depression Inventory II.

RESULTS:
The PCP group had significantly reduced scores on the reward responsiveness, but not reward drive. There was a trend towards smaller nucleus accumbens volume in the PCP compared to control group. There was a significant positive partial correlation between reward responsiveness and nucleus accumbens volume in the PCP group adjusted for anhedonia, which was significantly different from the same relationship in the control group.

CONCLUSIONS:
Reward responsiveness is reduced in chronic pain patients of heterogeneous aetiology, and this reduction was associated with nucleus accumbens volume. Reduced reward responsiveness could be a marker of chronic pain vulnerability, and may indicate reduced opioid function.


PMID: 25766961
Positive outlook and pain

Happy despite pain: Pilot study of a positive psychology intervention for patients with chronic pain

Scandinavian Journal of Pain, 03/16/2015 Flink IK, et al.

Background and purpose Dealing with chronic pain is difficult and affects physiological as well as psychological well-being. Patients with chronic pain are often reporting concurrent emotional problems such as low mood and depressive symptoms. Considering this, treatments need to involve strategies for improving mood and promoting well-being in this group of patients. With the rise of the positive psychology movement, relatively simple intervention strategies to increase positive feelings, cognitions, and behaviours have become available. So far, the evidence for positive psychology techniques mainly comes from studies with healthy participants, and from studies with patients expressing emotional problems such as depression or anxiety as their main complaint. This study describes an initial attempt to explore the potential effects of a positive psychology intervention in a small sample of patients suffering from chronic pain.

Methods
A replicated single case design was employed with five participants. The participants started to fill out daily self-reports and weekly questionnaires two weeks before the intervention started, and continued throughout the intervention. In addition, they filled out a battery of questionnaires at pretest, posttest, and at a three months follow-up. The instruments for assessment were selected to cover areas and constructs which are important for pain problems in general (e.g. disability, life satisfaction, central psychological factors) as well as more specific constructs from positive psychology (e.g. compassion, savoring beliefs).

Results
The results on pre and post assessments showed an effect on some of the measures. However, according to a more objective measure of reliable change (Reliable Change Index, RCI), the effects were quite modest. On the weekly measures, there was a trend towards improvements for three of the participants, whereas the other two basically did not show any improvement. The daily ratings were rather difficult to interpret because of their large variability, both between and within individuals. For the group of participants as a whole, the largest improvements were on measures of disability and catastrophizing.

Conclusions
The results of this preliminary study indicate that a positive psychology intervention may have beneficial effects for some chronic pain patients. Although it is not to be expected that a limited positive psychology intervention on its own is sufficient to treat pain-related disability in chronic patients, our findings suggest that for some it may be an advantageous complement to enhance the effects of other interventions.

Implications
The results of this pilot study about the potential effects of a positive psychology intervention for chronic pain patients may be encouraging, warranting a larger randomized controlled study. Future studies may also concentrate on integrating positive psychology techniques into existing treatments, such as composite CBT-programs for chronic pain patients. Our advice is that positive psychology interventions are not to be regarded as stand-alone treatments for this group of patients, but may potentially enhance the effect of other interventions. However, when and for which patients these techniques may be recommended is to be explored in future research.
ABSTRACTS

NUTRITION/VITAMINS

Magnesium intake and depression

Magnesium intake and depression in adults

Journal of the American Board of Family Medicine, 03/12/2015

Tarleton EK, et al.

Background: Depression is a common and often disabling disorder. Magnesium supplementation has been linked to improvement in depressive symptoms, but consensus on the relationship between magnesium and depression has not been reached.

Methods: The purpose of this study was to test the existence of an association between dietary magnesium intake and depression in the adult US population. A cross-sectional, population-based data set (National Health and Nutrition Examination Survey) was used to explore the relationship of magnesium intake and depression in 8894 US adults (mean age, 46.1 years; 47.4% men) from 2007 to 2010. Using logistic regression to model the relationship between the presence of depression (Patient Health Questionnaire score ≥5) and low magnesium intake (<184 mg/day), we examined the risk ratio (RR) of magnesium intake and its 95% confidence interval.

Results: After adjusting for all potential confounders, the strength of the association of very low magnesium intake with depression was statistically significant (RR = 1.16; 95% CI, 1.06–1.30). Adjusting for all other covariates, low magnesium intake was associated with depression in subjects younger than age 65 (RR, 1.22; 95% CI, 1.06–1.40; \( P = .007 \)) but seemed to be protective in seniors (RR, 0.75; 95% CI, 0.56–0.98; \( P = .032 \)).

Conclusions: We found a significant association between very low magnesium intake and depression, especially in younger adults. The finding of the potential protective effect of low magnesium intake in older adults is surprising and warrants further investigation.