

ABSTRACTS

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1. LUMBAR SPINE

2. LBP

Patients and importance of imaging

Eur J Pain. 2015 Aug 18. doi: 10.1002/ejp.764.

Understanding patient beliefs regarding the use of imaging in the management of low back pain.

Jenkins HJ¹, Hancock MJ¹, Maher CG², French SD³, Magnussen JS⁴.

Author information

Abstract

BACKGROUND:

Imaging for low back pain (LBP) remains common despite guidelines recommending against routine imaging. Patient beliefs about imaging may contribute to the problem. This study aimed to quantitatively investigate patient beliefs regarding the need for imaging in managing LBP and to investigate whether personal characteristics, pain characteristics or back pain beliefs are associated with imaging beliefs.

METHODS:

A survey was performed of consecutive patients presenting to general medical practitioners in Sydney, Australia. Nine medical clinics were selected across varied socioeconomic regions. Survey questions assessed beliefs about the importance of imaging for LBP, collected demographic information, LBP history and general beliefs about back pain. Descriptive statistics and multivariate logistic regression were used to analyse findings.

RESULTS:

Three hundred completed surveys were collected with a 79.6% response rate. The mean age was 44 years and 60.7% of respondents were women. Exactly, 54.3% (95%CI: 48.7-58.9%) believed that imaging was necessary for the best medical care for LBP. Exactly, 48.0% (95%CI: 42.4-53.6%) believed that everyone with LBP should obtain imaging. Increased age, lower education level, non-European or non-Anglo-saxon cultural background, history of previous imaging and Back Beliefs Questionnaire scores were associated with beliefs that imaging was necessary.

CONCLUSION:

Approximately, half of all patients presenting to a medical doctor consider low back imaging to be necessary. This may have important implications for overutilization of low back imaging investigations. Knowledge of the factors associated with the patient's belief that imaging is necessary may be helpful in designing appropriate interventions to reduce unnecessary imaging for LBP.

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PMID: 26282178

Central sensitization and LBP

Exp Brain Res. 2015 Aug;233(8):2391-9. doi: 10.1007/s00221-015-4309-6. Epub 2015 May 12.

Central sensitization and changes in conditioned pain modulation in people with chronic nonspecific low back pain: a case-control study.

Corrêa JB¹, Costa LO, de Oliveira NT, Sluka KA, Liebano RE.

Author information

Abstract

Quantitative sensory testing is widely used in human research to investigate the state of the peripheral and central nervous system contributions in pain processing. It is a valuable tool to help identify central sensitization and may be important in the treatment of low back pain. The aim of this study was to evaluate changes in local and segmental hypersensitivity and endogenous pain inhibition in people with chronic nonspecific low back pain. Thirty patients with chronic low back pain and thirty healthy subjects were studied. Pressure pain thresholds (PPTs) were measured from the lumbar region and over the tibialis anterior muscle (TA). A cold pressor test was used to assess the activation of conditioned pain modulation (CPM), and PPTs in the lumbar region were recorded 30 s after immersion of participant's foot in a bucket with cold water. People with chronic low back pain have significantly lower PPT than controls at both the lumbar region [89.5 kPa (mean difference) 95 % CI 40.9-131.1 kPa] and TA [59.45 kPa (mean difference) 95 % CI 13.49-105.42 kPa]. During CPM, people with chronic low back pain have significantly lower PPT than controls in lumbar region [118.6 kPa (mean difference) 95 % CI 77.9-159.2 kPa]. Women had significantly lower PPTs than men in both lumbar region [101.7 kPa (mean difference) 95 % CI 37.9-165.7 kPa] and over the TA [189.7 kPa (mean difference) 95 % CI 14.2-145.2 kPa].

There was no significant difference in PPTs in men between healthy controls and those with low back pain, suggesting the significant differences are mediated primarily by difference between women.

PMID: 25963754

Spondylotic changes in LBP

Rheumatology (Oxford). 2015 Aug 14. pii: kev283. [Epub ahead of print]

Prevalence of degenerative changes of the spine on magnetic resonance images and radiographs in patients aged 16-45 years with chronic back pain of short duration in the Spondyloarthritis Caught Early (SPACE) cohort.

de Bruin F¹, Ter Horst S², Bloem HL², van den Berg R³, de Hooge M³, van Gaalen F³, Fagerli KM⁴, Landewé R⁵, van Oosterhout M⁶, van der Heijde D³, Reijnen M².

Author information

Abstract

OBJECTIVES:

To determine the prevalence of degenerative changes (DCs) in the spine of young patients with back pain without axial spondyloarthritis (no-axSpA), with possible axSpA (poss-axSpA) and with definite axSpA (axSpA), as shown on MRI and radiographs.

METHODS:

Whole-spine MRI and cervical and lumbar radiography were performed in patients ≥ 16 years of age with chronic back pain (≥ 3 months, ≤ 2 years, onset < 45 years) and potential axSpA (Spondyloarthritis Caught Early cohort). Patients were classified as no-axSpA, poss-axSpA [not fulfilling the Assessment of Spondyloarthritis International Society (ASAS) axSpA criteria] or axSpA (fulfilling ASAS axSpA criteria). Images (MRI and X-rays) were evaluated on the presence of DCs by two independent readers, blinded to clinical and laboratory information as well as to the results of the other imaging modality. In cases of disagreement, a third reader served as adjudicator. A Chi-square test was used to analyse differences between patient groups according to various selected cut-off points (1-3) of individual DCs.

RESULTS:

Of 274 patients (38% male, mean age: 29 years), 25 (9%) were classified as no-axSpA, 134 (48.9%) as poss-axSpA and 115 (42.0%) as axSpA. Two hundred and forty-five (89%) patients had DCs on MRI [21/25 (84%) no-axSpA, 121/134 (90%) poss-axSpA, 103/115 (90%) axSpA, $P = 0.792$], range 1-29 (median 5.5), and 121 (44%) patients had DCs on radiographs [13/25 (52%) no-axSpA, 62/134 (46%) poss-axSpA, 48/115 (42%) axSpA, $P = 0.261$], range 1-11 (median 2). Prevalence of DCs was similar between patient groups. DCs were predominantly found in the lumbar spine.

CONCLUSION:

Prevalence of DCs was high in this cohort of young patients with short-term chronic back pain, in accordance with the literature. Prevalence of DCs in no-axSpA patients, poss-axSpA patients and axSpA patients was found to be similar.

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KEYWORDS:

MRI; axial spondyloarthritis; degenerative changes; radiograph; short-term chronic back pain; whole spine; young population

PMID: 26275972

Subgroups in LBP

Patterns of low back pain care

Journal of Pain Research, 08/18/2015

Stewart WF, et al.

The purpose of this study was to determine if primary care patients with low back pain (LBP) cluster into definable care utilization subgroups that can be explained by patient and provider characteristics. LBP care utilization is highly variable and concentrated in small subgroups using disproportionate amounts of potentially avoidable care that reflect both patient and provider characteristics.

Methods

- Adult primary care patients with an incident LBP encounter were identified from Geisinger Clinic electronic health records over 5 years.
- Two-thirds of the cohort had only one to two encounters.
- Principal component analysis was applied to the data from the remaining one-third on use of ambulatory, inpatient, emergency department, and surgery care and use of magnetic resonance imaging, injections, and opioids in 12 months following the incident encounter.
- Groups were compared on demographics, health behaviors, chronic and symptomatic disease burden, and a measure of physician efficiency.

Results

- Six factors with eigenvalues >1.5 explained 71% of the utilization variance.
- Patient subgroups were defined as: 1–2 LBP encounters; 2+ surgeries; one surgery; specialty care without primary care; 3+ opioid prescriptions; laboratory dominant care; and others.
- The surgery and 3+ opioid subgroups, while accounting for only 10.4% of the cohort, had used disproportionately more magnetic resonance imaging, emergency department, inpatient, and injectable resources.
- The specialty care subgroup was characterized by heavy use of inpatient care and the lowest use of injectables.
- Anxiety disorder and depression were not more prevalent among the surgery patients than in the others.
- Surgery patients had features in common with specialty care patients, but were older, had higher prevalence of Fibromyalgia, and were associated primary care physicians with worse efficiency scores.

Rotation and LBP

Arch Phys Med Rehabil. 2015 Aug;96(8):1506-17. doi: 10.1016/j.apmr.2015.04.011. Epub 2015 Apr 28.

Association Between Rotation-Related Impairments and Activity Type in People With and Without Low Back Pain.

Weyrauch SA¹, Bohall SC¹, Sorensen CJ¹, Van Dillen LR².

OBJECTIVE: To determine whether people with low back pain (LBP) who regularly participated in a rotation-related activity displayed more rotation-related impairments than people without LBP who did and did not participate in the activity.

DESIGN:

Secondary analysis of data from a case-control study.

SETTING:

Musculoskeletal analysis laboratory at an academic medical center.

PARTICIPANTS:

A convenience sample of participants with LBP (n=55) who participated in a rotation-related sport, back-healthy controls (n=26) who participated in a rotation-related sport, and back-healthy controls (n=42) who did not participate in a rotation-related sport. Participants were matched based on age, sex, and activity level.

INTERVENTIONS:

Not applicable.

MAIN OUTCOME MEASURES:

The total number of rotation-related impairments and asymmetrical rotation-related impairments identified during a standardized clinical examination.

RESULTS:

Compared with the back-healthy controls who do not play a rotation-related sport group, both the LBP and back-healthy controls who play a rotation-related sport groups displayed significantly more (1) rotation-related impairments (LBP, $P<.001$; back-healthy controls who play a rotation-related sport, $P=.015$), (2) asymmetrical rotation-related impairments (LBP, $P=.006$; back-healthy controls who play a rotation-related sport, $P=.020$), and (3) rotation-related impairments with trunk movement tests (LBP, $P=.002$; back-healthy controls who play a rotation-related sport, $P<.001$). The LBP group had significantly more rotation-related impairments with extremity movement tests than both of the back-healthy groups (back-healthy controls who play a rotation-related sport, $P=.011$; back-healthy controls who do not play a rotation-related sport, $P<.001$).

CONCLUSIONS:

The LBP and back-healthy controls who play a rotation-related sport groups demonstrated a similar number of total rotation-related impairments and asymmetrical rotation-related impairments, and these numbers were greater than those of the back-healthy controls who do not play a rotation-related sport group. Compared with people without LBP, people with LBP displayed more rotation-related impairments when moving an extremity. These findings suggest that impairments associated with extremity movements may be associated with having an LBP condition.

Copyright © 2015 American Congress of Rehabilitation Medicine. Published by Elsevier Inc. All rights reserved. KEYWORDS: Low back pain; Rehabilitation; Rotation; Spine; Sports
PMID:25933914

Climbing helps LBP

Clin J Sport Med. 2015 Aug 4.

Climbing Has a Positive Impact on Low Back Pain: A Prospective Randomized Controlled Trial.

Schinhan M¹, Neubauer B, Pieber K, Gruber M, Kainberger F, Castellucci C, Olischar B, Maruna A, Windhager R, Sabeti-Aschraf M.

Author information

Abstract

OBJECTIVE:

Comparison of climbing versus no treatment to treat chronic low back pain.

DESIGN:

Prospective randomized controlled trial.

SETTING:

Tertiary.

PARTICIPANTS:

A total of 30 patients with chronic low back pain were recruited and randomly assigned to 2 different groups: climbing and control. The inclusion criteria were defined as chronic low back pain, age between 18 and 45 years, body mass index lower than 25, and no climbing experience.

INTERVENTIONS:

Patients in the climbing group were instructed to climb 5 different climbing routes. A climbing activity of 10 sessions in 8 weeks, at least once a week with a minimum duration of 1 hour, was mandatory.

MAIN OUTCOME MEASURES:

The participants were examined before (T0) and after therapy (8 weeks, T8) and after another 6 weeks (T14). The outcome was evaluated using Oswestry Disability Index, Visual Analog Scale (VAS), Likert scale, and magnetic resonance imaging (MRI). Radiologists evaluating MRI were blinded. The study was performed as a single-center study.

RESULTS:

Evaluating the Oswestry Disability Index, a significant difference in the time course between the 2 groups was detected ($P = 0.022$). Significant improvements comparing climbing and control group were also found when assessing VAS in a minimal finger-floor-distance position ($P = 0.048$). Patients in the climbing group showed a reduction in size of disc protrusion.

CONCLUSIONS:

Climbing may be an effective and low-cost therapy option for people with chronic low back pain.

CLINICAL RELEVANCE:

Low back pain is a very common disease but still a challenge to treat. Therapy strategies vary from conservative ones, pharmacological treatment with non-steroidal anti-inflammatory drugs (NSAIDs) and weak opioids, to invasive treatment with acupuncture, injections, and operative reconstruction. Some can be costly and not without risks. For instance, many people who use NSAIDs are at risk of common side effects such as gastrointestinal complications (irritation, ulcers, and bleeding) that may lead to hospitalization. Climbing could offer reduction of pain and better performance in daily life, because it offers a closed chain muscle training that has the potential to improve posture, perception of the trunk midline, and muscle control. Climbing may also lead to a better adherence to continuing treatment than traditional physical therapy and exercise due to a more exciting aspect of the sports activity. PMID:26247548

PT and graded activity helpful

Man Ther. 2015 Aug;20(4):603-9. doi: 10.1016/j.math.2015.02.004. Epub 2015 Feb 23.

The short-term effects of graded activity versus physiotherapy in patients with chronic low back pain: A randomized controlled trial.

Magalhães MO¹, Muzi LH², Comachio J², Burke TN³, Renovato França FJ², Vidal Ramos LA⁴, Leão Almeida GP⁵, de Moura Campos Carvalho-e-Silva AP², Marques AP².

Author information

Abstract

BACKGROUND:

Chronic low back pain is one of the most common problematic health conditions worldwide and is highly associated with disability, quality of life, emotional changes, and work absenteeism. Graded activity programs, based on cognitive behavioral therapy, and exercises are common treatments for patients with low back pain. However, recent evidence has shown that there is no evidence to support graded activity for patients with chronic nonspecific low back pain.

AIM:

to compare the effectiveness of graded activity and physiotherapy in patients with chronic nonspecific low back pain.

METHODS:

A total of 66 patients with chronic nonspecific low back pain were randomized to perform either graded activity (moderate intensity treadmill walking, brief education and strength exercises) or physiotherapy (strengthening, stretching and motor control). These patients received individual sessions twice a week for six weeks. The primary measures were intensity of pain (Pain Numerical Rating Scale) and disability (Rolland Morris Disability Questionnaire).

RESULTS:

After six weeks, significant improvements have been observed in all outcome measures of both groups, with a non-significant difference between the groups. For intensity of pain (mean difference = 0.1 points, 95% confidence interval [CI] = -1.1-1.3) and disability (mean difference = 0.8 points, 95% confidence interval [CI] = -2.6-4.2). No differences were found in the remaining outcomes.

CONCLUSION:

The results of this study suggest that graded activity and physiotherapy showed to be effective and have similar effects for patients with chronic nonspecific low back pain.

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KEYWORDS:

Exercise; Low back pain; Physiotherapy; Rehabilitation

PMID: 25749499

Diagnosis of Spodylo's

Phys Ther Sport. 2015 Aug;16(3):268-75. doi: 10.1016/j.pts.2014.12.005. Epub 2015 Jan 8.

Clinical tests to diagnose lumbar spondylolysis and spondylolisthesis: A systematic review.

Alqarni AM¹, Schneiders AG², Cook CE³, Hendrick PA⁴.

Author information

Abstract

The aim of this paper was to systematically review the diagnostic ability of clinical tests to detect lumbar spondylolysis and spondylolisthesis. A systematic literature search of six databases, with no language restrictions, from 1950 to 2014 was concluded on February 1, 2014. Clinical tests were required to be compared against imaging reference standards and report, or allow computation, of common diagnostic values. The systematic search yielded a total of 5164 articles with 57 retained for full-text examination, from which 4 met the full inclusion criteria for the review. Study heterogeneity precluded a meta-analysis of included studies. Fifteen different clinical tests were evaluated for their ability to diagnose lumbar spondylolisthesis and one test for its ability to diagnose lumbar spondylolysis. The one-legged hyperextension test demonstrated low to moderate sensitivity (50%-73%) and low specificity (17%-32%) to diagnose lumbar spondylolysis, while the lumbar spinous process palpation test was the optimal diagnostic test for lumbar spondylolisthesis; returning high specificity (87%-100%) and moderate to high sensitivity (60-88) values. Lumbar spondylolysis and spondylolisthesis are identifiable causes of LBP in athletes. There appears to be utility to lumbar spinous process palpation for the diagnosis of lumbar spondylolisthesis, however the one-legged hyperextension test has virtually no value in diagnosing patients with spondylolysis.

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KEYWORDS:

Diagnosis; Lumbar spine; Systematic review; Validity

PMID: 25797410

3. DISC

4. INJECTIONS

Steroid vs non in LBP

Epidural injections with or without steroids in managing chronic low back pain secondary to lumbar spinal stenosis: a meta-analysis of 13 randomized controlled trials

Authors Meng H, Fei Q, Wang B, Yang Y, Li D, Li J, Su N

Published Date August 2015 Volume 2015:9 Pages 4657—4667

DOI <http://dx.doi.org/10.2147/DDDT.S85524>

Background: Epidural injections of anesthetic with or without steroids are widely used for treating lumbar spinal stenosis, a common cause of chronic low back pain, but there is a lack of rigorous data comparing the effectiveness of epidural injections of anesthetic with and without steroids. This meta-analysis presents a current, comprehensive picture of how epidural injections of anesthetic with steroids compare with those using local anesthetic alone.

Methods: PubMed, Embase, Web of Science, and Cochrane Library databases were searched from their inception through February 5, 2015. Weight mean difference, risk ratio, and 95% confidence intervals were calculated. A random effects model or fixed effects model was used to pool the estimates, according to the heterogeneity between the included studies.

Results: We included 13 randomized controlled trials, involving 1,465 patients. Significant pain relief ($\geq 50\%$) was demonstrated in 53.7% of patients administered with epidural injections of anesthetic with steroids (group 1) and in 56.4% of those administered with local anesthetic alone (group 2). Patients showed a reduction in numeric rating scale pain score of 3.7 and 3.6 in the two groups, respectively. Significant functional improvement was achieved in 65.2% of patients in group 1 and 63.1% of patients in group 2, with Oswestry Disability Index reductions of 13.8 and 14.5 points, respectively. The overall number of injections per year was 3.2 ± 1.3 and 3.4 ± 1.2 with average total relief per year of 29.3 ± 19.7 and 33.8 ± 19.3 weeks, respectively. The opioid intakes decreased from baseline by 12.4 and 7.8 mg, respectively. Among the outcomes listed, only total relief time differed significantly between the two groups.

Conclusion: Both epidural injections with steroids or with local anesthetic alone provide significant pain relief and functional improvement in managing chronic low back pain secondary to lumbar spinal stenosis, and the inclusion of steroids confers no advantage compared to local anesthetic alone.

Keywords: chronic low back pain, spinal stenosis, epidural injections, steroids, local anesthetics

5. SURGERY

6. PELVIC GIRDLE

7. PELVIC ORGANS/WOMAN'S HEALTH

C section not preceptor of IBD

Cesarean section delivery is not a risk factor for development of IBD: A population-based analysis

Clinical Gastroenterology and Hepatology , 08/18/2015 Bernstein CN, et al.

Researchers conducted this population-based analysis to determine if mode of delivery (Cesarean section vs vaginal delivery) affects risk of irritable bowel disease (IBD), and concluded that individuals with IBD were not more likely to have been born via Cesarean section than controls or siblings without IBD. The events of the immediate post-partum period that shape the developing intestinal microbiome, therefore, do not affect risk for IBD, they concluded.

Methods

- Researchers collected data from the University of Manitoba IBD Epidemiology Database, which contains records on all Manitobans diagnosed with IBD from 1984 through 2010.
- Starting in 1970, researchers used 6-digit family health registration numbers in Manitoba to link mothers with their offspring.
- They identified maternal health records, including dates and modes of delivery and siblings of individuals with IBD.

Results

- Researchers obtained data on 1671 individuals with IBD and 10488 controls (individuals without IBD, matched by age, sex, and area of residence at IBD diagnosis) linked to mothers' obstetrical records.
- They found that higher proportions of urban than rural residents were delivered by Cesarean section delivery for IBD cases (12.8% vs 9.7%, $P=0.05$) and controls (13.3% vs 9.4%, $P<0.0001$).
- A higher percentage of men with Crohn's disease than women with Crohn's disease were born via Cesarean section (13.5% vs 8.4%, $P=0.01$).
- Overall, they found no difference in the percentage of IBD cases born by Cesarean section (11.6%) vs controls (11.7%, $P=0.93$).
- Upon multivariate analysis, birth by Cesarean section was not associated with an increased risk of subsequent IBD, controlling for age, sex, urban residence, and income (odds ratio [OR], 1.04; 95% confidence interval [CI], 0.89–1.23).
- Finally, they found that individuals with IBD were no more likely to have been born by Cesarean section than their siblings without IBD (1740 siblings from 1615 families) (11.6% vs 11.3%; OR, 1.14; 95% CI, 0.72–1.80; $P=0.79$).

Fertility and IBS

Aliment Pharmacol Ther. 2015 Aug 6. doi: 10.1111/apt.13354.

Decreased fertility rates in 9639 women diagnosed with inflammatory bowel disease: a United Kingdom population-based cohort study.

Ban L¹, Tata LJ¹, Humes DJ¹, Fiaschi L¹, Card T¹.

Author information

Abstract

BACKGROUND:

Clinical studies have reported reduced fertility in women with inflammatory bowel disease (IBD).

AIM:

To compare fertility rates in women with IBD to those in women without IBD and assess whether the relative fertility differed following IBD diagnosis, flares and surgery.

METHODS:

Women aged 15-44 years in 1990-2010 were identified from a UK primary care database. We estimated overall and age-specific fertility rates by 5-year age bands for women with and without IBD. We used Poisson regression to calculate adjusted fertility rate ratios (AFRR), adjusted for age, smoking and socioeconomic deprivation.

RESULTS:

There were 46.2 live births per 1000 person-years [95% confidence interval (95% CI); 44.6-47.9] in 9639 women with IBD and 49.3 (95% CI 49.2-49.5) in 2 131 864 without (AFRR: 0.93; 95% CI: 0.89-0.96). Excluding periods of contraception use, the AFRR was 0.99 (95% CI: 0.95-1.03). Before diagnosis, the AFRR for women with ulcerative colitis (UC) was 1.07 (95% CI: 0.99-1.16) and was 0.88 (95% CI: 0.81-0.97) for women with CD. After diagnosis, AFRRs were 0.87 (95% CI: 0.82-0.94) for CD and 0.92 (95% CI: 0.86-1.00) for UC. The fertility rate was lower following flares (AFRR: 0.70; 95% CI: 0.59-0.82) or surgery (AFRR: 0.84; 95% CI: 0.77-0.92). Women with pouch and non-pouch surgery had similar overall fertility though the reduction after surgery was greater for pouches (AFRR: 0.48; 95% CI: 0.23-0.99).

CONCLUSIONS:

Women with Crohn's disease have marginally lower fertility rates. These rates decreased following flares and surgical interventions. Fertility rates returned almost to normal when women were not prescribed contraception but the reduction following surgical intervention remained. As the lifetime effect of pouch vs. nonpouch surgery on fertility is small, the reduction post-pouch surgery should be interpreted with caution.

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PMID: 26250873

Painful sex ID tissue

Mucosal versus muscle pain sensitivity in provoked vestibulodynia

Authors Witzeman K, Nguyen RHN, Eanes A, As-Sanie S, Zolnoun D

DOI <http://dx.doi.org/10.2147/JPR.S85705>

Background: An estimated 8.3%–16% of women experience vulvovaginal discomfort during their lifetime. Frequently these patients report provoked pain on contact or with attempted intercourse, commonly referred to as provoked vestibulodynia (PVD). Despite the burden of this condition, little is known about its potential etiologies including pelvic floor muscular dysfunction and mucosal components. This knowledge would be beneficial in developing targeted therapies including physical therapy.

Objective: To explore the relative contribution of mucosal versus muscle pain sensitivity on pain report from intercourse among women with PVD.

Design: In this proof of concept study, 54 women with PVD underwent a structured examination assessing mucosal and pelvic muscle sensitivity.

Methods: We examined three mucosal sites in the upper and lower vestibule. Patients were asked to rate their pain on cotton swab palpation of the mucosa using a 10-point visual analog scale. Muscle pain was assessed using transvaginal application of pressure on right and left puborectalis, and the perineal muscle complex. The Gracely pain scale (0–100) was used to assess the severity of pain with intercourse, with women rating the lowest, average, and highest pain levels; a 100 rating the highest level of pain.

Results: The lower vestibule's mucosa 5.81 (standard deviation =2.83) was significantly more sensitive than the upper vestibule 2.52 (standard deviation =2.6) ($P<0.01$) on exam. However, mucosal sensitivity was not associated with intercourse pain, while muscle sensitivity was moderately associated with both average and highest intensity of intercourse pain ($r=-0.46$, $P=0.01$ and $r=-0.42$, $P=0.02$), respectively.

Conclusion: This preliminary study suggests that mucosal measures alone may not sufficiently capture the spectrum of clinical pain report in women with PVD, which is consistent with the empirical success of physical therapy in this population.

Keywords: vulvodynia, provoked vestibulodynia, pain sensitivity, pelvic floor muscle pain, vulvar pain, pressure pain threshold, dyspareunia

Vit D and menopause

JAMA Intern Med. 2015 Aug 3. doi: 10.1001/jamainternmed.2015.3874.

Treatment of Vitamin D Insufficiency in Postmenopausal Women: A Randomized Clinical Trial.

Hansen KE¹, Johnson RE², Chambers KR¹, Johnson MG¹, Lemon CC¹, Vo TN³, Marvdashti S¹.

Author information

Abstract

IMPORTANCE:

Experts debate optimal 25-hydroxyvitamin D (25[OH]D) levels for musculoskeletal health.

OBJECTIVE:

To compare the effects of placebo, low-dose cholecalciferol, and high-dose cholecalciferol on 1-year changes in total fractional calcium absorption, bone mineral density, Timed Up and Go and five sit-to-stand tests, and muscle mass in postmenopausal women with vitamin D insufficiency.

DESIGN, SETTING, AND PARTICIPANTS:

This randomized, double-blind, placebo-controlled clinical trial was conducted at a single center in Madison, Wisconsin, from May 1, 2010, through July 31, 2013, and the final visit was completed on August 8, 2014. A total of 230 postmenopausal women 75 years or younger with baseline 25(OH)D levels of 14 through 27 ng/mL and no osteoporosis were studied.

INTERVENTIONS:

Three arms included daily white and twice monthly yellow placebo (n=76), daily 800 IU vitamin D3 and twice monthly yellow placebo (n=75), and daily white placebo and twice monthly 50,000 IU vitamin D3 (n=79). The high-dose vitamin D regimen achieved and maintained 25(OH)D levels ≥ 30 ng/mL.

MAIN OUTCOMES AND MEASURES:

Outcome measures were 1-year change in total fractional calcium absorption using 2 stable isotopes, bone mineral density and muscle mass using dual energy x-ray absorptiometry, Timed Up and Go and five sit-to-stand tests, functional status (Health Assessment Questionnaire), and physical activity (Physical Activity Scale for the Elderly), with Benjamini-Hochberg correction of P values to control for the false discovery rate.

RESULTS:

After baseline absorption was controlled for, calcium absorption increased 1% (10 mg/d) in the high-dose arm but decreased 2% in the low-dose arm (P = .005 vs high-dose arm) and 1.3% in the placebo arm (P = .03 vs high-dose arm). We found no between-arm changes in spine, mean total-hip, mean femoral neck, or total-body bone mineral density, trabecular bone score, muscle mass, and Timed Up and Go or five sit-to-stand test scores. Likewise, we found no between-arm differences for numbers of falls, number of fallers, physical activity, or functional status.

CONCLUSIONS AND RELEVANCE:

High-dose cholecalciferol therapy increased calcium absorption, but the effect was small and did not translate into beneficial effects on bone mineral density, muscle function, muscle mass, or falls. We found no data to support experts' recommendations to maintain serum 25(OH)D levels of 30 ng/mL or higher in postmenopausal women. Instead, we found that low- and high-dose cholecalciferol were equivalent to placebo in their effects on bone and muscle outcomes in this cohort of postmenopausal women with 25(OH)D levels less than 30 ng/mL.

TRIAL REGISTRATION:

clinicaltrials.gov Identifier: NCT00933244. MID: 26237520

8. VISCERA**Quality of life with IBD**

Gastroenterol Nurs. 2015 Jul-Aug;38(4):268-78. doi: 10.1097/SGA.0000000000000124.

A Comparative Study of Quality of Life in Persons With Irritable Bowel Syndrome and Inflammatory Bowel Disease.

Blagden S¹, Kingstone T, Soundy A, Lee R, Singh S, Roberts L.

Author information

Abstract

Irritable bowel syndrome (IBS) is the most common functional gastrointestinal disorder; however, it remains poorly understood. Inflammatory bowel disease (IBD) is a chronic, organic bowel disease characterized by young age of onset, debilitating symptoms, and invasive and toxic treatment options. This study aimed to determine the impact of IBS and IBD on health-related quality of life (HRQoL) and the ways by which these conditions affect HRQoL, with the purpose of informing nurse specialists in gastroenterology who are best placed to support HRQoL improvements.

Quality of life, symptom, and demographic data were collected from patients with IBS and IBD and tabulated and examined. Analysis of data demonstrated that HRQoL is significantly lower in IBS than in IBD. However, the ways by which these two conditions affect HRQoL differs, with greater impairments in social and emotional aspects of life in individuals with IBS. Bowel symptoms were the same or worse in IBD.

PMID: 26226021

Left sidelying for reducing reflux

J Clin Gastroenterol. 2015 Sep;49(8):655-9. doi: 10.1097/MCG.0000000000000359.

A Novel Sleep Positioning Device Reduces Gastroesophageal Reflux: A Randomized Controlled Trial.

Person E¹, Rife C, Freeman J, Clark A, Castell DO.

Author information

Abstract

GOAL:

We hypothesized that sleeping left-side down with the head/torso elevated reduces recumbent gastroesophageal reflux (GER).

BACKGROUND:

Previous studies show that sleeping with head of bed elevated or on wedge reduces GER and lying left-side down reduces GER versus right-side down and supine. No prior studies have evaluated the potential compounding effects of lying in an inclined position combined with lateral positioning on GER.

STUDY:

We evaluated a sleep-positioning device (SPD) consisting of an inclined base and body pillow that maintains lateral position while elevating the head/torso. This was a single institution, randomized controlled trial involving 20 healthy volunteers receiving 4 six-hour impedance-pH tests. After placement of reflux probe, subjects returned home, ate standardized meal, and lay down in randomly assigned positions: SPD right-side down (SPD-R), SPD left-side down (SPD-L), standard wedge any position (W), or flat any position (F). A wireless accelerometer documented position during each study. Number of reflux episodes (RE) and esophageal acid exposure (EAE) were calculated over 6 hours.

RESULTS:

Significantly less EAE occurred during sleeping SPD-L versus sleeping W, SPD-R, and F. The most EAE occurred during sleeping SPD-R despite use of the positioning device. RE were significantly less SPD-L than SPD-R. Patients sleeping SPD-L and SPD-R spent the majority of first 2 hours and greater than half of 6 hours in assigned position. Patients sleeping W and F averaged more time supine than right or left.

CONCLUSIONS:

The sleep positioning device maintains recumbent position effectively. Lying left-side down, it reduces recumbent esophageal acid exposure.

PMID: 26053170

Fiber and reduced risk of CR cancer

Cancer Metastasis Rev. 2015 Jul 30. [Epub ahead of print]

Revisit dietary fiber on colorectal cancer: butyrate and its role on prevention and treatment.

Encarnação JC¹, Abrantes AM, Pires AS, Botelho MF.

Author information

Abstract

Colorectal cancer is still a major health problem worldwide. Based on the most recent released data by the World Health Organization GLOBOCAN in 2012, colorectal cancer is the third most prevalent type of cancer in males and the second in females. In 1999, it was published the first report showing evidence of a strong correlation between diet and cancer incidence, being its positive or negative impact intimately linked to dietary patterns. A diet rich in fiber is associated with a low risk of developing colorectal cancer. The fermentation of the dietary fiber by intestinal microflora results in production of butyrate, which plays a plurifunctional role on the colonocytes, and it has also been reported as a chemopreventive agent. However, there are limited studies focusing its anti-cancer potential.

Here, we review the recent new insights that focus butyrate and its role in colorectal cancer prevention and treatment, from its synthesis, metabolism, and transport, through its involvement on several cancer-related signaling pathways, to the novel existing approaches for its clinical use.

PMID: 26224132

Does Visceral manipulation improve LBP? This study is not impressive

Eur J Pain. 2015 Aug;19(7):899-907. doi: 10.1002/ejp.614. Epub 2014 Nov 7.

Does the addition of visceral manipulation alter outcomes for patients with low back pain? A randomized placebo controlled trial.

Panagopoulos J¹, Hancock MJ¹, Ferreira P², Hush J¹, Petocz P³.

Author information

Abstract

BACKGROUND:

This study aimed to investigate whether the addition of visceral manipulation, to a standard physiotherapy algorithm, improved outcomes in patients with low back pain.

METHODS:

Sixty-four patients with low back pain who presented for treatment at a private physiotherapy clinic were randomized to one of two groups: standard physiotherapy plus visceral manipulation (n = 32) or standard physiotherapy plus placebo visceral manipulation (n = 32). The primary outcome was pain (measured with the 0-10 Numerical Pain Rating Scale) at 6 weeks. Secondary outcomes were pain at 2 and 52 weeks, disability (measured with the Roland-Morris Disability Questionnaire) at 2, 6 and 52 weeks and function (measured with the Patient-Specific Functional Scale) at 2, 6 and 52 weeks. This trial was registered with the Australia and New Zealand Clinical Trials Registry (ACTRN12611000757910).

RESULTS:

The addition of visceral manipulation did not affect the primary outcome of pain at 6 weeks (-0.12, 95% CI = -1.45 to 1.21). There were no significant between-group differences for the secondary outcomes of pain at 2 weeks or disability and function at 2, 6 or 52 weeks. The group receiving addition of visceral manipulation had less pain than the placebo group at 52 weeks (mean 1.57, 95% CI = 0.32 to 2.82). Participants were adequately blinded to group status and there were no adverse effects reported in either group.

CONCLUSIONS:

Our study suggests that visceral manipulation in addition to standard care is not effective in changing short-term outcomes but may produce clinically worthwhile improvements in pain at 1 year.

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PMID: 25378096

IBS and exercise

Dig Dis Sci. 2015 Aug 9.

Exercise and Self-Reported Limitations in Patients with Inflammatory Bowel Disease.

DeFilippis EM¹, Tabani S, Warren RU, Christos PJ, Bosworth BP, Scherl EJ.

Author information

Abstract

BACKGROUND:

Limited evidence suggests that exercise may have beneficial, anti-inflammatory effects in patients with inflammatory bowel disease (IBD).

AIMS:

The purpose of this study was to evaluate the prevalence of exercise in patients with IBD and the limitations they experience secondary to their disease.

METHODS:

Two hundred and fifty IBD patients were prospectively enrolled in this study at an academic medical center at the time of their outpatient visits between March and October 2013. Subjects were asked to complete a one-time survey that asks questions about medical and surgical history, exercise frequency and intensity, and the limitations and barriers they experience.

RESULTS:

Two hundred and twenty-seven patients (148 female patients) completed the survey. Crohn's disease was present in 140 patients (61.5 %), while 87 had ulcerative colitis. Forty-one patients (16.4 %) never exercised, 82 patients (32.8 %) exercised 1-2 times per week, 59 (23.6 %) exercised 3-4 times per week, and 45 (18.0 %) exercised more than four times per week. Of the 186 who regularly exercise, 95 (51 %) reported moderate exercise intensity, 61 (33 %) reported light intensity, and 30 (16 %) reported vigorous intensity. Ninety-nine patients (44 %) reported that their IBD limited their exercise for reasons including fatigue (n = 81), joint pain (n = 37), embarrassment (n = 23), weakness (n = 21), and others.

CONCLUSIONS:

Although they may benefit from exercise, IBD patients experience considerable barriers to regular exercise secondary to the relapsing and remitting nature of IBD. Larger studies are needed to determine the effects of exercise on disease symptomatology and activity.

PMID: 26254773

9. THORACIC SPINE

10 A. CERVICAL SPINE

Neuropathic pain increases disability

Pain Med. 2015 Jul 16. doi: 10.1111/pme.12856.

Differences in Neural Mechanosensitivity Between Patients with Chronic Nonspecific Neck Pain With and Without Neuropathic Features. A Descriptive Cross-Sectional Study.

López-de-Uralde-Villanueva I^{1,2,3,4}, Beltran-Alacreu H^{1,2,3}, Fernández-Carnero J^{2,4,5}, Gil-Martínez A^{1,2,3,4}, La Touche R^{1,2,3,4}.

Author information

Abstract

OBJECTIVE:

To assess differences in neural mechanosensitivity between patients with chronic nonspecific neck pain with and without neuropathic features (NF and No-NF, respectively).

DESIGN:

Descriptive, cross-sectional study.

SETTING:

A primary care center, a hospital physiotherapy outpatient department, and a university campus.

SUBJECTS:

Chronic nonspecific neck pain patients classified by the self-completed Leeds assessment of neuropathic symptoms and signs pain scale (S-LANSS; 49 patients with NF [S-LANSS \geq 12] and 50 patients with No-NF [S-LANSS < 12]) and a healthy control group (n = 48).

METHODS:

The primary measurements were the mechanosensitivity of the median nerve and cervical region, specifically the assessment of the onset of symptoms and submaximal pain intensity according to the upper limb neural test 1 (ULNT1) for the median nerve and the modified passive neck flexion test (MPNFT) for the cervical region; secondary measurements included pain intensity, neck disability, kinesiophobia, and pain catastrophizing.

RESULTS:

Statistically significant differences between the NF and No-NF groups were found with respect to the onset of symptoms of ULNT1 (-15.11 [-23.19 to -7.03]) and MPNFT (-6.58 [-11.54 to -1.62]), as well as the outcomes of the visual analogue scale (Mean difference [95% Confidence Interval]; 7.12 [1.81-12.42]) and neck disability index (3.72 [1.72-5.71]). Both chronic nonspecific neck pain groups showed statistically significant differences compared with the control group for all outcomes assessed ($P < 0.01$) except for the onset of symptoms of ULNT1 in the No-NF group.

CONCLUSIONS:

The findings of this study suggest that chronic nonspecific neck pain patients with NF have greater neural mechanosensitivity, pain intensity, and neck disability than those with No-NF.

Wiley Periodicals, Inc.

KEYWORDS:

Chronic Pain; Mechanosensory; Neck Pain; Pain Catastrophizing; Psychosocial Factors

PMID: 26179341

[Sleep and neck pain](#)

Clin J Pain. 2015 Aug;31(8):713-21. doi: 10.1097/AJP.000000000000147.

Patients With Neck Pain are Less Likely to Improve if They Experience Poor Sleep Quality: A Prospective Study in Routine Practice.

Kovacs FM¹, Seco J, Royuela A, Melis S, Sánchez C, Díaz-Arribas MJ, Meli M, Núñez M, Martínez-Rodríguez ME, Fernández C, Gestoso M, Mufraggi N, Moyá J, Rodríguez-Pérez V, Torres-Unda J, Burgos-Alonso N, Gago-Fernández I, Abraira V.

Author information

Abstract

OBJECTIVE:

To assess whether sleep quality (SQ) at baseline is associated with improvement in pain and disability at 3 months.

MATERIALS AND METHODS:

Four hundred twenty-two subacute and chronic patients with neck pain (NP) were recruited in 32 physiotherapy, primary care, and specialized centers. NP, referred pain, disability, catastrophizing, depression, and SQ were assessed through validated questionnaires, upon recruitment and 3 months later. Correlations between baseline scores were calculated through the Spearman coefficient. Improvements in NP, disability, and SQ were defined as a reduction of $\geq 30\%$ of baseline score. Six estimative logistic regression models were developed to assess the association between baseline SQ and improvement of NP, baseline SQ and improvement of disability, baseline NP and improvement of SQ, baseline disability and improvement of SQ, the evolutions of NP and SQ, and the evolutions of disability and SQ.

RESULTS:

Most patients were subacute and mildly impaired. Regression models showed that better SQ at baseline was associated with improvement of NP (odds ratio=0.91 [95% confidence interval, 0.83-0.99]), but not disability (1.04 [0.95-1.13]); the improvement of SQ was associated with more severe NP at baseline (1.26 [1.07-1.49]), but not with baseline disability (0.99 [0.97-1.02]); and that improvement in SQ was associated with improvements in NP (3.48 [1.68-7.20]), and disability (5.02 [2.39-10.11]).

DISCUSSION:

NP is less likely to improve in patients with poorer SQ, irrespective of age, sex, catastrophizing, depression, or treatments prescribed for NP. Future studies should confirm these results with more severely impaired patients.

PMID: 26153781

Prognosis of neck pain

Man Ther. 2015 Aug;20(4):592-7. doi: 10.1016/j.math.2015.02.001. Epub 2015 Feb 11.

Identifying prognostic factors predicting outcome in patients with chronic neck pain after multimodal treatment: A retrospective study.

De Pauw R¹, Kregel J², De Blaiser C³, Van Akeleyen J⁴, Logghe T⁵, Danneels L⁶, Cagnie B⁷.

Author information

Abstract

OBJECTIVES:

This study was conducted to identify possible prognostic factors to predict drop-out and favorable outcome in patients following a multimodal treatment program at an outpatient rehabilitation clinic.

METHODS:

A retrospective cohort study was conducted on 437 patients with chronic neck pain involved in an exercise-based rehabilitation program of an outpatient rehabilitation center between January 2008 and November 2011. Prognostic factors were analyzed through a univariate and a multivariate logistic regression analysis.

RESULTS:

Multivariate logistic regression revealed that a higher age (OR=0.960), presence of headache (OR=0.436) or low back pain (OR=0.525), and having low levels of depression (OR=1.044) increase the odds to complete the multimodal treatment program. A high NDI-score (OR=0.945), a high NRS-score for pain in the upper extremities (OR=0.862), a low NRS score for pain in the neck (OR=1.372), and a trauma in the patient's history (OR=0.411) decrease the odds of having a favorable outcome after the given treatment program.

CONCLUSION:

It is important to assess these prognostic factors as they may help therapists to identify patients with a good prognosis or patients at risk. For those at risk, this would allow the treatment approach to be redirected to address their specific needs.

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KEYWORDS:

Logistic regression; Neck pain; Prognosis; Treatment

PMID: 25725590

Spine (Phila Pa 1976). 2015 Jul 17.

Factors affecting the outcome of surgical versus nonsurgical treatment of cervical radiculopathy - a randomized, controlled study.

Engquist M¹, Löfgren H, Öberg B, Holtz A, Peolsson A, Söderlund A, Vavruch L, Lind B.

Author information

Abstract

STUDY DESIGN:

Prospective randomized controlled trial.

OBJECTIVE:

To analyze factors that may influence the outcome of anterior cervical decompression and fusion (ACDF) followed by physiotherapy versus physiotherapy alone for treatment of patients with cervical radiculopathy.

SUMMARY OF BACKGROUND DATA:

An understanding of patient-related factors affecting the outcome of ACDF is important for preoperative patient selection. No previous prospective, randomized study of treatment effect modifiers relating to outcome of ACDF compared with physiotherapy has been carried out.

METHODS:

Sixty patients with cervical radiculopathy were randomized to ACDF followed by physiotherapy or physiotherapy alone. Data for possible modifiers of treatment outcome at one year, such as sex, age, duration of pain, pain intensity, disability (Neck Disability Index, NDI), patient expectations of treatment, anxiety due to neck/arm pain, distress (Distress And Risk Assessment Method, DRAM), self efficacy (Self Efficacy Scale, SES) health status (EQ-5D) and MRI findings were collected. A multivariate analysis was performed to find treatment effect modifiers affecting the outcome regarding arm/ neck pain intensity and NDI.

RESULTS:

Factors that significantly altered the treatment effect between treatment groups in favor of surgery were: duration of neck pain < 12 months ($p = 0.007$), duration of arm pain < 12 months ($p = 0.01$) and female sex ($p = 0.007$) (outcome: arm pain), low EQ-5D index (outcome: neck pain, $p = 0.02$), high levels of anxiety due to neck/arm pain (outcome: neck pain, $p = 0.02$ and NDI, $p = 0.02$), low SES score ($p = 0.05$) and high DRAM score ($p = 0.04$). (outcome: NDI). No factors were found to be associated with better outcome with physiotherapy alone.

CONCLUSIONS:

In this prospective, randomized study of patients with cervical radiculopathy, short duration of pain, female sex, low health quality, high levels of anxiety due to neck/arm pain, low self efficacy and a high level of distress before treatment were associated with better outcome from surgery. No factors were found to be associated with better outcome from physiotherapy alone.

PMID: 26192721

10 B. CERVICAL EXERCISES

11. UPPER C SPINE

Arterial dissections

Cervical arterial dissection: An overview and implications for manipulative therapy practice

DOI: <http://dx.doi.org/10.1016/j.math.2015.07.008>

Abstract

Introduction

Cervical arterial dissection (CAD) is a common cause of stroke in young people under 55 years. It can occur spontaneously or subsequent to minor trauma or infection. The incidence is difficult to determine accurately as not all CAD progress to stroke. CAD is the most catastrophic adverse event associated with cervical manipulative therapy but it is rare. Early features of CAD can mimic a painful musculoskeletal presentation and a patient may present for treatment of neck pain and headache with a dissection in progress. Whether the manipulative technique is responsible for dissection or whether the diagnosis of CAD has been missed is unclear. Identification of individuals at risk, or early recognition of CAD could help expedite medical intervention and avoid inappropriate treatment.

Purpose

The aims of this masterclass are to outline current research into the pathophysiology, aetiology and clinical presentation of CAD, to place the risk in context in a manipulative therapy setting and to discuss its possible clinical recognition.

Implications

For those patients presenting with recent onset, moderate to severe unusual headache or neck pain, clinicians should perform a careful history, in particular questioning about recent exposure to head/neck trauma or neck strain. Cardiovascular factors may not be particularly useful indicators of risk of dissection. Clinicians should also be alert to reports of transient neurological dysfunction such as visual disturbance and balance deficits, arm paraesthesia and speech deficits, as these may be subtle. If clinicians suspect arterial dissection is in progress patients should be urgently referred for medical evaluation.

Side gliding

3D motion reliability of occipital condylar glide testing: From concept to kinematics evidence

Benoît Beyer Stéphane Sobczak Walid Salem Véronique Feipel Pierre-Michel Dugailly

DOI: <http://dx.doi.org/10.1016/j.math.2015.07.005>

Highlights

- We analyzed the 3D motion components during unilateral anterior condylar glide test.
- The task induced angular motions involving extension and lateral bending mainly.
- Kinematics reliability showed good to excellent agreements for the same operator.
- Consistency was limited to lateral bending and condyle position between operators.
- Condylar glide test seems to display a nonspecific bilateral motion appraisal.

Abstract

Background

To date, segmental data analyzing kinematics of occipital condylar testing or mobilization is lacking.

Objectives

The objective of this study was to assess occipitoatlantal 3D motion components and to analyze inter- and intra-rater reliability during in vitro condylar glide test.

Methods

To conduct this study, four fresh cadavers were included. Dissection was carried out to ensure technical clusters placement to skull, C1 and C2. During condylar glide test, bone motion data was computed using an optoelectronic system. The reliability of motion kinematics was assessed for three skilled practitioners performing two sessions of 3 trials on two days interval.

Findings

During testing, average absolute motion ROM (\pm SD) were up to $4.1 \pm 2.1^\circ$, $0.7 \pm 1.3^\circ$ and $10.3 \pm 2.5^\circ$ for occipitoatlantal lateral bending, axial rotation and flexion-extension, respectively. For position variation, magnitudes were 2.3 ± 1.8 mm, 1.1 ± 1.3 mm and 2.6 ± 0.8 mm for anteroposterior, cephalocaudal and mediolateral displacements. Concerning motion reliability, variation ranged from 0.6° to 3.4° and from 0.3 mm to 1.6 mm for angular displacement and condyle position variation, respectively. In general, good to excellent agreement was observed (ICC ranging from 0.728 to 0.978) for the same operator, while consistency was limited to lateral/side bending and lateral condyle displacement between operators, with respective ICCs of 0.800 and 0.955.

Conclusions

This study shows specific motion patterns involving extension and lateral bending of the occipitoatlantal level for anterior condylar glide test. In addition, condyle position variation demonstrated coupled components in forward and heterolateral directions. However, task seems not to be side specific. In general, reliability of 3D motion components showed good intra-operator agreement and limited inter-operator agreement.

12 A. WHIPLASH

Upper trap function

Mechanical properties of the trapezius during scapular elevation in people with chronic whiplash associated disorders – A case-control ultrasound speckle tracking analysis

Maria Landén Ludvigsson Gunnel Peterson Gwendolen Jull Johan Trygg Anneli Peolsson

DOI: <http://dx.doi.org/10.1016/j.math.2015.07.009>

Highlights

- Three different depths of the upper trapezius were tested during scapular elevation.
- Muscle deformation patterns were different in whiplash compared to controls.
- The superficial section was used less in whiplash than in controls.
- Trapezius deformation during movement was reduced after loading in whiplash.

Abstract

Background

Approximately 50% of people with Whiplash Associated Disorders (WAD) report longstanding symptoms. The upper trapezius is commonly painful yet its mechanical properties are not fully understood.

Objectives

This study examined the deformation of different depths of the upper trapezius muscle during a scapular elevation task (shoulder shrugging) before and following loaded arm abduction.

Design and Methods

A cross-sectional case-control study of 36 people (26 female and 10 male, mean age 38 (SD 11)) with chronic WAD and 36 controls, matched for age and gender. Real-time ultrasound recordings of upper trapezius were taken during both scapular elevation tasks. Post-process speckle tracking analysis was undertaken of three different sections of the upper trapezius muscle (superficial, middle, deep).

Results

The WAD group had lower deformation of the superficial section of the upper trapezius compared to the control group in both concentric and eccentric phases of scapular elevation ($p < 0.05$) especially before the loaded arm abduction. After arm abduction, the deformation of the trapezius was reduced in both groups but only significantly in the WAD-group ($p = 0.03$). Within-group analysis revealed that the control group least engaged the deep section of upper trapezius during the task ($p < 0.01$).

Conclusion

This study, measuring mechanical deformation of the upper trapezius during a scapular elevation task indicates that persons with WAD may display different patterns in engagement of the muscle sections than those in the control group. Further research is needed to replicate and understand the reasons for and implications of this possible change in motor strategy within upper trapezius.

12 B. CERVICAL SURGERIES

Kyphotic c spine surgeries proceed with caution

J Spinal Disord Tech. 2015 Aug;28(7):E385-93. doi: 10.1097/BSD.0b013e318299953f.

Complications and Outcomes for Surgical Approaches to Cervical Kyphosis.

Grosso MJ¹, Hwang R, Krishnaney AA, Mroz TE, Benzel EC, Steinmetz MP.

Author information

Abstract

STUDY DESIGN:

Retrospective cohort study.

OBJECTIVE:

The primary objective of this study is to report the safety and efficacy of the different surgical approaches to cervical deformity correction surgery.

SUMMARY OF BACKGROUND DATA:

Cervical subaxial deformity surgery has been shown to be an effective means to alleviate pain and improve neurological function in symptomatic patients. The reported outcomes and complications for the different surgical approaches (ventral, dorsal, and combined) are limited to small retrospective studies. The appropriate surgical approach is at times unclear, which is likely attributed to the overlap in indications for the ventral and combined approach.

MATERIALS AND METHODS:

A retrospective review of 76 patients who underwent cervical deformity surgery for cervical kyphosis at 1 institution was performed. The authors reviewed the complications, radiographic outcomes, and long-term functional outcomes for all patients.

RESULTS:

The majority of patients in all groups reported excellent (15%) or good (50%) outcomes, with a mean improvement in modified Japanese orthopedic association score of 1.3. There were 26 perioperative complications (34%) for 19 patients (25%). We found the ventral-alone and combined approaches to achieve similar degrees of correction (23.1 and 23.2 degrees, respectively). The combined approach had the highest complication rate of the 3 approaches (combined: 40%, ventral: 30%, dorsal: 27%). The dorsal, ventral, and combined approaches had a mean neurological improvement in modified Japanese orthopedic association scores of 1.95, 3.00, and 1.26, respectively, and mean pain improvement of 0.8, 2.0, and 1.4.

CONCLUSIONS:

Given the moderate improvements in long-term outcomes, and the risks for perioperative complications, we recommend a careful selection process for patients eligible for cervical deformity surgery. We found that the ventral approach has reduced complications, similar degree of correction capability, and potentially higher improved neurological outcomes compared to the combined approach.

PMID: 23732179

Cages vs. plates

J Spinal Disord Tech. 2015 Aug;28(7):E433-8. doi: 10.1097/BSD.0b013e3182a355ad.

Stand-alone Cervical Cages Versus Anterior Cervical Plates in 2-Level Cervical Anterior Interbody Fusion Patients: Analysis of Adjacent Segment Degeneration.

Ji GY¹, Oh CH, Shin DA, Ha Y, Kim KN, Yoon do H, Yudoyono F.

Author information

Abstract

STUDY DESIGN:

A retrospective study.

OBJECTIVE:

To analyze adjacent segment degeneration (ASD) in 2-level anterior cervical discectomy, comparing fusion with stand-alone cages [anterior cervical discectomy and fusion (ACDF)-CA] and fusion with cage and plate constructs (ACDF-CPC) with respect to clinical outcomes and radiologic changes.

SUMMARY OF BACKGROUND DATA:

ACDF using a stand-alone cage or a cage and plate construct is a popular procedure. However, there is lack of knowledge concerning ASD between the 2 procedures.

METHODS:

A total of 42 consecutive patients who underwent 2-level ACDF-CA or ACDF-CPC for 2-level cervical disk disease and who completed 2 years of follow-up were included in this study. The patients were divided into 2 groups: ACDF-CA group (n=22) and ACDF-CPC group (n=20). The following parameters were assessed using radiographs: disk space narrowing, anterior osteophyte formation, calcification of the anterior longitudinal ligament, and fusion status. Clinical outcomes were assessed using the Robinson criteria.

RESULTS:

No difference in clinical outcomes was observed between the 2 groups. Moreover, the ACDF-CPC group showed a similar fusion rate compared with the ACDF-CA group (100% vs. 95%, P=0.335). There was also no statistical significance in anterior osteophyte formation and calcification of the anterior longitudinal ligament. However, mean intervertebral disk height change of an adjacent segment was significantly lower in the ACDF-CA group than the ACDF-CPC group (upper level: 0.08±0.24 vs. 0.49±0.35; lower level: 0.06±0.41 vs. 0.49±0.28; P<0.01).

CONCLUSIONS:

The use of a cage with or without plate constructs in 2-level ACDF provides similar clinical results and fusion rates. Notwithstanding, ACDF-CPC showed a higher incidence of ASD than ACDF-CA over the 2-year follow-up.

PMID: 23897053

Predictors of outcomes

J Spinal Disord Tech. 2015 Aug;28(7):E405-9. doi: 10.1097/BSD.0b013e31829f5a1f.

Predictors of Motor Weakness and Delayed Recovery in Cervical Disk Herniation.

Nam TW¹, Lee HS, Goh TS, Lee JS.

Author information

Abstract

STUDY DESIGN:

Retrospective study.

OBJECTIVE:

To identify the significant risk factors for motor weakness caused by cervical disk herniation and for delayed recovery after surgery.

SUMMARY OF BACKGROUND DATA:

There were a few clinical trials for detecting the significant risk factors for motor weakness after anterior cervical surgery.

MATERIALS AND METHODS:

We retrospectively examined 72 patients with degenerative disk disease of the cervical spine who were treated with single-level anterior cervical discectomy and fusion. The possible risk factors, including age, sex, symptom duration, operation time, surgery level, preoperative radiologic parameters, and preoperative Neck Disability Index score, were evaluated using multivariate logistic regression analysis.

RESULTS:

The patients included 22 women and 50 men; average age, 47.1±7.8 years. Of these 72 patients, 38 (52.8%) patients had motor deficit before surgery. Complete recovery of motor deficit was seen in 33 (86.8%) patients, and the average duration from surgery to complete recovery was 4.2 months. Multivariate logistic regression analysis showed that disk height (P=0.001, odds ratio=0.32), percentage of herniated nucleus pulposus (HNP) in the spinal canal (P=0.0012, odds ratio=1.24), and presence of signal intensity change in the spinal cord (P=0.0015, odds ratio=35.57) were important risk factors for motor weakness. When the cut-off value of disk height was 5.8 mm, the sensitivity and specificity were 39.5% and 94.1%, respectively. When the cut-off value of HNP in the spinal canal was 28.1%, the sensitivity and specificity were 57.9% and 82.4%, respectively. Furthermore, signal intensity change was identified as an important risk factor for delayed recovery.

CONCLUSIONS:

Decreased disk height, percentage of HNP in the spinal canal, or presence of signal intensity change in the spinal cord seem to be the important risk factors for motor weakness in patients with cervical disk herniation. Moreover, the presence of signal intensity change in the spinal cord seems to be an important risk factor for delayed recovery.

PMID: 26213841

13. CRANIUM/TMJ

Sleep apnea and upper C spine

Eur J Orthod. 2015 Aug;37(4):391-7. doi: 10.1093/ejo/cju064. Epub 2014 Oct 28.

Influence of craniofacial and upper spine morphology on mandibular advancement device treatment outcome in patients with obstructive sleep apnoea: a pilot study.

Svanholt P¹, Petri N², Wildschiødtz G³, Sonnesen L⁴.

Author information

Abstract

BACKGROUND/OBJECTIVES:

The aim of the study was to assess cephalometric predictive markers in terms of craniofacial morphology including posterior cranial fossa and upper spine morphology for mandibular advancement device (MAD) treatment outcome in patients with obstructive sleep apnoea (OSA).

MATERIAL/METHODS:

Twenty-seven OSA patients were treated with MAD for 4 weeks. Apnoea-hypopnoea index (AHI) was recorded before and after MAD treatment. The criteria of treatment success were 75 per cent reduction of AHI. Accordingly, two groups occurred: the success treatment group of 8 patients and the no success treatment group of 19 patients. Before MAD treatment lateral cephalograms were taken and analyses of the craniofacial morphology including the posterior cranial fossa and upper spine morphology were performed. Differences between the groups were analysed by Fisher's exact test, t-test, and multiple regression analysis.

RESULTS:

Upper spine morphological deviations occurred non-significantly in 25 per cent in the success treatment group and in 42.1 per cent in the no success treatment group. Body mass index (BMI; $P < 0.05$), maxillary prognathism (S-N-Ss; $P < 0.01$), mandibular prognathism (S-N-Pg; $P < 0.05$ and S-N-Sm; $P < 0.01$), and the distance between sella turcica and the deepest point in posterior cranial fossa (S-D; $P < 0.05$) was significantly smaller in the success treatment group. The maxillary prognathism ($P < 0.05$) was the most important factor for the MAD treatment outcome ($R(2) = 0.47$).

LIMITATIONS:

Relatively small sample size.

CONCLUSIONS:

The results indicate that BMI, posterior cranial fossa morphology, and retrognathia of the jaws are factors related to MAD treatment outcome. Furthermore, OSA patients with upper spine morphological deviations may respond poorer to MAD treatment.

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PMID: 25351571

Nasomaxillary complex

Eur J Orthod. 2015 Aug;37(4):403-11. doi: 10.1093/ejo/cju066. Epub 2014 Nov 8.

The nasomaxillary complex and the cranial base in artificial cranial deformation: relationships from a geometric morphometric study.

Ferros I¹, Mora MJ¹, Obeso IF¹, Jimenez P², Martinez-Insua A³.

Author information

Abstract

INTRODUCTION:

It is widely accepted that there is a relationship between the cranial base and the development of the nasomaxillary complex (NMC). The objective of the present study was to investigate the morphological relationship between these two anatomical units in skulls that have intentionally been subjected to one of two types of artificial deformity of the cranial vault [artificially deformed skulls (ADS)].

MATERIAL AND METHODS:

A geometric morphometry study was performed on lateral cephalometric X-rays of three groups of crania: 32 with anteroposterior (AP) deformity, 17 with circumferential (C) deformity, and 39 with no apparent deformity.

RESULTS:

The cranial base of the ADS showed marked deformity that produced a restriction of AP growth of the NMC, alterations of the roof of the orbit as a consequence of the rotation of anterior cranial fossa, and nasal protrusion. Pronounced morphological differences were found between the three groups: increased vertical development of the maxilla occurred in both ADS groups due to growth of the alveolar process, and rotation of the maxilla and displacement of the orbital rim was observed in the C group. This confirms that the posterior facial plane is regarded as an axial structure that serves as an interface between the middle cranial base and the NMC (Enlow, D.H. and Hans, M.G. (1996) *Essential of Facial Growth*. WB Saunders Co., Philadelphia, PA).

LIMITATIONS:

It is important to take into account that these results have been obtained from an archaeological sample, with all the limitations that this implies such as being a small sample and with no absolute certainty regarding the use of the same type of deforming device within each group. Furthermore, this is a lateral two-dimensional study in which transverse development has not been analysed.

CONCLUSIONS:

Artificial modification of the shape of the vault has repercussions on the NMC that support the theory of an all-inclusive integration of the different cranial units in normal as well as in restricted development.

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PMID: 25381444

14. HEADACHES

Migraine and quality of life

Migraine, treatment, comorbidities, and quality of life

Journal of Pain Research, 08/18/2015

Malone CD, et al.

This study sought to characterize the experience of stress, treatment patterns, and medical and disability profile in the migraineur population to better understand how the experience of migraines impacts the social and psychological functioning of this group. Stress resulting from frequent migraine headaches may contribute to the development of medical and psychological comorbidities and may be a part of a cyclical relationship wherein stress is both a cause and effect of the social and medical impairments brought about by migraine.

Methods

- In total, 2,907 individuals began the survey and 2,735 met the inclusion criteria for the study.
- The sample was predominantly female (92.8%).
- Migraine-associated stress was correlated with length of time since first onset of symptoms ($P<0.01$) and number of symptoms per month ($P<0.01$).

Results

- Disorders related to stress, such as depression ($P<0.01$) and anxiety ($P<0.01$), were also positively correlated with the measured stress resulting from migraines.
- Migraine-associated stress must be understood as a multidimensional experience with broader impacts of stress on an individual correlating much more highly with negative mental and physical health profiles.

Migraine and risk of stroke

Neurology. 2015 Jul 22. pii: 10.1212/WNL.0000000000001854.

Migraine and risk of stroke in older adults: Northern Manhattan Study.Monteith TS¹, Gardener H², Rundek T², Elkind MS², Sacco RL².

Author information

Abstract

OBJECTIVE:

To examine the association between migraine and stroke/vascular outcomes in a racially/ethnically diverse, older cohort.

METHODS:

Participants from the Northern Manhattan Study, a population-based cohort study of stroke incidence, were assessed for migraine symptoms using a self-report questionnaire based on criteria from the International Classification of Headache Disorders, second edition. We estimated the association between migraine and combined vascular events including stroke and stroke only over a mean follow-up of 11 years, using Cox models adjusted for sociodemographic and vascular risk factors.

RESULTS:

Of 1,292 participants (mean age 68 ± 9 years) with migraine data followed prospectively for vascular events, 262 patients (20%) had migraine and 75 (6%) had migraine with aura. No association was found between migraine (with or without aura) and risk of either stroke or combined cardiovascular events. There was an interaction between migraine and current smoking ($p = 0.02$ in relation to stroke and $p = 0.03$ for combined vascular events), such that those with migraine and smoking were at an increased risk. The hazard ratio of stroke for migraine among current smokers was 3.17 (95% confidence interval [CI] 1.13-8.85) and among current nonsmokers was 0.77 (95% CI 0.44-1.35). In relation to combined vascular events, the hazard ratio for migraine vs no migraine among current smokers was 1.83 (95% CI 0.89-3.75) and among current nonsmokers was 0.63 (95% CI 0.43-0.94).

CONCLUSION:

In our racially/ethnically diverse population-based cohort, migraine was associated with an increased risk of stroke among active smokers but not among nonsmokers.

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PMID: 26203088

15. VESTIBULAR**16. CONCUSSIONS**

Evaluation of cognitive changes

Curr Pain Headache Rep. 2015 Sep;19(9):518. doi: 10.1007/s11916-015-0518-8.

Evaluation of Cognitive Symptoms Following Concussion.

Goldberg M¹, Madathil R.

Author information

Abstract

The assessment of cognitive symptoms following concussion has evolved over the last several decades as a distinct focus in research and an essential component of clinical decision making and management. The aims of this paper are to (1) identify issues related to assessment of postconcussion cognitive functioning and (2) provide a review of common self-report and performance-based measures, including computerized-based assessments (CBAs), and, more traditional, comprehensive neuropsychological evaluations.

We conclude that (1) there has yet to emerge one cognitive-symptom measurement method that can be considered the "gold standard" for all settings, (2) the usefulness of cognitive symptoms assessment findings in the clinical management decisions rests a great deal on the background of the practitioner, and (3) cognitive-symptom assessment needs to be considered in the context of a broader evaluation of other postconcussion symptoms.

PMID:26224031

17. SHOULDER GIRDLE

18. CLAVICLE

19. GLENOHUMERAL/SHOULDER

20 A. ROTATOR CUFF

20 B. LABRUM

21. ADHESIVE CAPSULITIS

Frozen shoulder mobilization/Maitland

The efficacy of different types of mobilization techniques in patients with primary adhesive capsulitis of the shoulder: a systematic review

Suzie Noten, MSc Mira Meeus, PhD Gaetane Stassijns, MD, PhD Francis Van Glabbeek, MD, PhD Olivier Verborgt, MD, PhD Filip Struyf, PhD

DOI: <http://dx.doi.org/10.1016/j.apmr.2015.07.025>

Objective

To systematically review the literature for efficacy of isolated articular mobilization techniques in patients with primary adhesive capsulitis (AC) of the shoulder.

Data Sources

PubMed and Web of Science were searched for relevant studies published before November 2014. Additional references were identified by manual screening of the reference lists.

Study Selection

All English language RCTs evaluating the efficacy of mobilization techniques on range of motion (ROM) and pain in adult patients with primary AC of the shoulder were included in this systematic review. Twelve RCTs involving 810 patients were included.

Data extraction

Two reviewers independently screened the articles, scored methodological quality and extracted data for analysis. The review was conducted and reported according to the PRISMA Statement. All studies were assessed in duplicate for risk of bias using the Physiotherapy Evidence Database scale for randomized controlled trials.

Data Synthesis

The efficacy of 7 different types of mobilization techniques was evaluated. Angular mobilization (N=2), CYRIAX approach (N=1) and Maitland's technique (N=6) showed improvement in pain score and ROM. With respect to translational mobilizations (N=1), posterior glides are preferred to restore external rotation. Spine mobilizations combined with glenohumeral stretching and both angular and translational mobilization (N=1) had a superior effect on active ROM compared to sham ultrasound. High intensity mobilization (N=1) showed less improvement in Constant Murley Score compared to a neglect group. Finally, positive long-term effects of Mulligan's technique (N=1) were found on both pain and ROM.

Conclusion

Overall, mobilization techniques have beneficial effects in patients with primary AC of the shoulder. Due to preliminary evidence for many mobilization techniques, the Maitland's technique and the combined mobilizations seem recommended at the moment.

Key words:

Adhesive capsulitis, frozen shoulder, mobilization, systematic review, efficacy

22 A. IMPINGMENT

22 B. INSTABILITY

23. SURGERY

24. ELBOW

25. WRIST AND HAND

26. CARPAL TUNNEL SYNDROME

Thickness of CT increases with symptoms

Ultrasound Med Biol. 2015 Aug 10. pii: S0301-5629(15)00416-0. doi:

10.1016/j.ultrasmedbio.2015.06.018. [Epub ahead of print]

Idiopathic Carpal Tunnel Syndrome: Evaluation of the Depth of the Carpal Tunnel by Ultrasonography.

Elsaman AM¹, Thabit MN², Radwan AR¹, Ohrndorf S³.

Author information

Abstract

The objective of the work described here was to evaluate the depth of the carpal tunnel (DCT) in patients with idiopathic carpal tunnel syndrome (CTS) and healthy volunteers by ultrasonography (US), through measurement of the distance from the flexor retinaculum to the surface of the capitate bone at the carpal tunnel outlet, and compare it with other ultrasonographic and electrophysiologic parameters in CTS. The study was conducted in 60 non-diabetic patients with idiopathic carpal tunnel syndrome (unilateral n = 37, bilateral n = 23) evidenced by electrophysiologic diagnosis according to the criteria of the American Association of Electrodiagnostic Medicine (AAEM). Furthermore, 40 hands from 20 healthy volunteers were examined. Median nerve cross-sectional area (CSA); flattening ratio (FR), the ratio of the length to the width of the median nerve; and DCT at the canal outlet were measured for all participants. The mean age was 35.6 ± 9.48 y. The female-to-male ratio was 47:13 in the CTS patients. The sensitivity and specificity were 82% and 95% for CSA, 75% and 60% for FR and 75% and 87.5% for DCT, respectively. Differences between patients and healthy controls were significant for all three parameters, greatest for DCT, followed by CSA and then FR.

We conclude that DCT increased in CTS and this new parameter is comparable in sensitivity and specificity to CSA and FR. DCT increased independently of the cause of the CTS (decrease in size of canal or increase in contents).

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KEYWORDS:

Carpal tunnel depth; Electrophysiology; Idiopathic carpal tunnel syndrome; Ultrasonography

PMID:26272109

Depression and pain experience

Pain Med. 2015 Jul 14. doi: 10.1111/pme.12857.

Direct and Indirect Effects of Function in Associated Variables Such as Depression and Severity on Pain Intensity in Women with Carpal Tunnel Syndrome.

Fernández-de-Las-Peñas C^{1,2}, Fernández-Muñoz JJ³, Palacios-Ceña M¹, Navarro-Pardo E⁴, Ambite-Quesada S^{1,2}, Salom-Moreno J^{1,2}.

Author information

Abstract

OBJECTIVE:

To determine the direct and indirect effects of function on clinical variables such as age, pain intensity, years of the disease, severity of symptoms, and depression in women with electrodiagnostic and clinical diagnosis of carpal tunnel syndrome (CTS).

DESIGN:

A cross-sectional study.

SETTING:

Patients from an urban hospital referred to a university clinic.

METHODS:

Two hundred and forty-four ($n = 224$) women with CTS were included. Demographic and clinical data, duration of symptoms, function, symptom's severity of the symptoms, pain intensity, and depression were self-reported collected. Correlation and path analysis with maximum likelihood estimation were conducted to assess the direct and indirect effect of hand function on pain, age, years with the disease, symptoms severity, and depression.

RESULTS:

Significant positive correlations between function and pain intensity, years with pain and symptoms severity were observed. The path analysis found direct effects from depression, symptoms severity, and years with pain to function (all, $P < 0.01$). Paths between function and depression on pain intensity (both, $P < 0.01$) were also observed. The amount of function explained by all predictors was 22%. The indirect effects in the path analysis revealed that function exerted an indirect effect from depression to pain intensity ($B = 0.18$; $P < 0.01$), and from symptoms severity to the intensity of pain ($B = 0.10$; $P < 0.01$). Overall, the amount of current pain intensity explained by all predictors in the model was $R^2 = 0.22$.

CONCLUSIONS:

Our study demonstrated that function mediates the relationship between depression and symptoms severity with pain intensity in women with CTS. Future longitudinal studies will help to determine the clinical implications of these findings.

Wiley Periodicals, Inc.

KEYWORDS:

Carpal Tunnel Syndrome; Depression; Function; Mediation; Pain; Severity

PMID: 26176201

Carpal tunnel and MT vs. surgery

Manual Physical Therapy versus Surgery for Carpal Tunnel Syndrome: a Randomized Parallel-Group Trial

César Fernández-de-las-Peñas, PT, PhD, DMSc Ricardo Ortega-Santiago, PT, PhD Ana I. de-la-Llave-Rincón, PT, PhD Almudena Martínez-Perez, MD Homid Fahandezh-Saddi Díaz, MD Javier Martínez-Martín, MD Juan A. Pareja, MD, PhD Maria L. Cuadrado-Pérez, MD, PhD

DOI: <http://dx.doi.org/10.1016/j.jpain.2015.07.012>

Highlights

- We examine effectiveness of manual therapy and surgery in pain and function in carpal tunnel syndrome
- Manual therapy was more effective at short-term than surgery.
- Manual therapy was similarly effective at medium- and long-term follow-ups than surgery.

Abstract

This randomized clinical trial investigated the effectiveness of surgery compared with physiotherapy consisting of manual therapies including desensitization maneuvers in carpal tunnel syndrome (CTS). The setting was a public hospital and 2 physiotherapy practices in Madrid, Spain. One hundred and twenty women with CTS were enrolled between February 2013 and January 2014 with 1-year follow-up completed in January 2015. Interventions consisted of 3 sessions of manual therapies including desensitization manoeuvres of the central nervous system (physiotherapy group, n=60), or decompression/release of the carpal tunnel (surgical group, n=60). The primary outcome was pain intensity (mean pain and the worst pain), and secondary outcomes included functional status and symptoms severity subscales of the Boston Carpal Tunnel Questionnaire and the self-perceived improvement. They were assessed at baseline, and 1, 3, 6, and 12 months by a blinded assessor. Analysis was intention-to-treat. At 12 months, 111 (92%) women completed the follow-up (55/60 physiotherapy, 56/60 surgery). Adjusted analyses showed an advantage (all, P<0.01) for physiotherapy at 1 and 3 months in mean pain [Δ -2.0 (95%CI -2.8 to -1.2) / -1.3 (95%CI -2.1 to -0.6)], the worst pain [Δ -2.9 (-4.0 to -2.0) / -2.0 (-3.0 to -0.9)] and function [Δ -0.8 (-1.0 to -0.6) / -0.3 (-0.5 to -0.1)], respectively. Changes in pain and function were similar between groups at 6 and 12 months. Both groups had similar improvements in symptoms severity subscale of the Boston Carpal Tunnel Questionnaire at all follow-ups. In women with CTS, physical therapy may result in similar outcomes on pain and function than surgery.

Perspective

This study found that surgery and physical manual therapies including desensitization maneuvers of the central nervous system were similarly effective at medium- and long-term follow-ups for improving pain and function but physiotherapy led to better outcomes at short-term.

Keywords:

carpal tunnel syndrome, surgery, physical therapy, manual therapy, pain

27. HIP

28. REPLACEMENTS

Results/ USA vs Canada - USA wins

JAMA Surg. 2015 Aug 19. doi: 10.1001/jamasurg.2015.1239.

Comparison of US and Canadian Perioperative Outcomes and Hospital Efficiency After Total Hip and Knee Arthroplasty.

Hart A¹, Bergeron SG², Epure L², Huk O², Zukor D², Antoniou J².

Author information

Abstract

IMPORTANCE:

The combination of an aging population, growing number of medical interventions, and surging economic burden of health care has renewed interest in reevaluating and exploring new health care models.

OBJECTIVES:

To compare the performance of the US and Canadian health care systems by assessing major complications following primary total hip arthroplasty (THA) and total knee arthroplasty (TKA) and to measure the efficiency of both health care models by comparing the postoperative length of stay.

DESIGN, SETTING, AND PARTICIPANTS:

With patients grouped according to the country where they underwent surgery, we queried the National Surgical Quality Improvement Program database to identify 55 335 Canadian and US patients who underwent primary elective THA or TKA between January 1, 2011, and December 31, 2012.

MAIN OUTCOMES AND MEASURES:

Differences in patient demographics, as well as the rate of 30-day major complications and length of stay, were compared between patients hospitalized in the United States and Canada.

RESULTS:

Baseline characteristics were similar between the groups. Most US patients underwent general anesthesia (THA, 61.8%; TKA, 59.4%); Canadian patients received more regional anesthesia (THA, 78.7%; TKA, 81.0%). Patients in the United States received more transfusions postoperatively (THA, 9.0% more; TKA, 6.4% more; $P < .001$) and had shorter hospitalizations (THA, 1.4 days less; TKA, 1.3 days less; $P < .001$) with a greater proportion of patients discharged to rehabilitation facilities (THA, 21.6% more; TKA, 26.6% more; $P < .001$). With results reported as incidence rate ratios (95% CIs), after adjusting for all other variables, risk factors, and adverse outcomes, having surgery in Canada increased the postoperative length of stay by 57% (1.57 [1.53-1.61]) for THA and 49% (1.49 [1.46-1.52]) for TKA. With results reported as odds ratios (95% CIs), major complications were significantly more common in Canada following TKA (1.65 [1.31-2.07]) but not THA (1.09 [0.79-1.51]).

CONCLUSIONS AND RELEVANCE:

The rate of major complications was significantly higher in Canada following TKA, but there was no significant difference following THA. Patients undergoing the procedures in US hospitals also had substantially shorter lengths of hospital stay, perhaps reflecting more efficient postoperative care and discharge planning in those facilities. PMID: 26288005

29. OA**Aggressive exercise**

Preoperative progressive explosive-type resistance training is feasible and effective in patients with hip osteoarthritis scheduled for total hip arthroplasty - a randomized controlled trial

Andreas Hermann Anders Holsgaard-Larsen Bo Zerahn Steen Mejdahl Søren Overgaard

DOI: <http://dx.doi.org/10.1016/j.joca.2015.07.030>

Objective

To investigate the efficacy and feasibility of progressive explosive-type resistance training (RT) in patients with osteoarthritis (OA) of the hip scheduled for total hip arthroplasty (THA).

Method

Randomized controlled trial (1:1) in patients diagnosed with hip OA and scheduled for THA. The intervention group (IG) performed supervised preoperative progressive explosive-type RT twice a week for 10 weeks; four exercises (hip/thigh) performed in 3 series each (8-12 repetition maximum). The control group (CG) received 'care as usual'.

Efficacy was reported as the between-group difference in the Hip Osteoarthritis Outcome Score (HOOS) (primary endpoint; ADL function), and leg muscle power at post intervention follow-up immediate before surgery. Intention-to-treat analyses were performed in a multilevel regression model adjusting for baseline, sex, age and weight. Feasibility was reported as adherence, exercise related pain and adverse effects. Post-surgical follow up will be reported separately. ClinicalTrials.gov registration: NCT01164111.

Results

Eighty patients (age 70.4 ± 7.6 years, BMI 27.8 ± 4.6 , 52 females (65%)) were included. Adherence was high (93%) with acceptable exercise related pain (VAS score ≤ 5) reported in 83% of sessions and no adverse events. Changes in HOOS 'function' was 10.0 points 95%CI [4.7; 15.3] higher in IG compared to CG ($p < 0.001$). For all the remaining HOOS subscales IG scored significantly better ($p < 0.03$) and had higher leg extension muscle power ($p < 0.0001$) compared to CG.

Conclusion

Progressive explosive-type RT was feasible in the included group of hip OA patients scheduled for THA and resulted in significant improvement in self-reported outcomes and increased leg muscle power.

Keywords:

Strength training, osteoarthritis, HOOS, muscle power, patient reported Outcomes, rehabilitation, total joint replacement

30 A. IMPINGEMENT

30 B. LABRUM

31. KNEE

Risk of injury

Scand J Med Sci Sports. 2015 Jul 15. doi: 10.1111/sms.12521.

Self-reported previous knee injury and low knee function increase knee injury risk in adolescent female football.

Clausen MB^{1,2}, Tang L^{2,3,4}, Zebis MK^{2,5}, Krstrup P^{6,7}, Hölmich P¹, Wedderkopp N⁸, Andersen LL⁹, Christensen KB¹⁰, Møller M¹¹, Thorborg K¹.

Author information

Abstract

Knee injuries are common in adolescent female football. Self-reported previous knee injury and low Knee injury and Osteoarthritis Outcome Score (KOOS) are proposed to predict future knee injuries, but evidence regarding this in adolescent female football is scarce. The aim of this study was to investigate self-reported previous knee injury and low KOOS subscale score as risk factors for future knee injuries in adolescent female football. A sample of 326 adolescent female football players, aged 15-18, without knee injury at baseline, were included. Data on self-reported previous knee injury and KOOS questionnaires were collected at baseline. Time-loss knee injuries and football exposures were reported weekly by answers to standardized text-message questions, followed by injury telephone interviews. A priori, self-reported previous knee injury and low KOOS subscale scores (< 80 points) were chosen as independent variables in the risk factor analyses. The study showed that self-reported previous knee injury significantly increased the risk of time-loss knee injury [relative risk (RR): 3.65, 95% confidence (CI) 1.73-7.68; $P < 0.001$].

Risk of time-loss knee injury was also significantly increased in players with low KOOS subscale scores (< 80 points) in Activities of Daily Living (RR: 5.0), Sport/Recreational (RR: 2.2) and Quality of Life (RR: 3.0) ($P < 0.05$). In conclusion, self-reported previous knee injury and low scores in three KOOS subscales significantly increase the risk of future time-loss knee injury in adolescent female football.

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KEYWORDS:

KOOS; SMS; relative risk; risk factor; text message

PMID: 26179111

Knee symptoms and willingness to manage

Arthritis Care Res (Hoboken). 2015 Aug 3. doi: 10.1002/acr.22664.

A Qualitative Study Exploring the Meaning of Knee Symptoms to Adults Aged 35-65 Years.

MacKay C^{1,2,3}, Sale J^{4,5}, Badley EM^{1,6}, Jaglal SB^{3,4,7}, Davis AM^{1,3,4}.

Author information

Abstract

BACKGROUND:

While osteoarthritis (OA) has mainly been viewed as a disease affecting older people, the prevalence in younger adults is substantial. However, there is limited research on how younger adults understand knee symptoms. This paper explores the meaning of knee symptoms to adults aged 35-65 years.

METHODS:

This qualitative study comprised six focus groups and 10 one-on-one interviews with 51 participants (median age 49; 61% female) who self-reported knee OA or reported knee symptoms (i.e. pain, aching or stiffness) on most days of the past month. Constructivist grounded theory guided sampling, data collection and analysis. Data were analyzed using a constant comparative method.

RESULTS:

Central to participants' understanding of knee symptoms was a perception that symptoms were preventable, meaning there was the potential to prevent the onset of symptoms and to alter the course of symptoms. This understanding was demonstrated in how participants explained symptoms. Participants commented on the cause, prevention, and course of symptoms. Moreover, participants reflected on their experience with symptoms, indicating that symptoms made them feel older than their current age. However, they did not perceive their symptoms as normal or acceptable.

CONCLUSIONS:

Participants interpreted knee symptoms as potentially preventable, suggesting they may be open to primary and secondary prevention strategies. This article is protected by copyright. All rights reserved.

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PMID: 26238409

32 A. KNEE/ACL

LE mechanics in women

Med Sci Sports Exerc. 2015 Aug 7.

Biomechanical Deficit Profiles Associated with ACL Injury Risk in Female Athletes.

Pappas E¹, Shiyko MP, Ford KR, Myer GD, Hewett TE.

Author information

Abstract

PURPOSE:

To quantify the prevalence of biomechanical deficit patterns associated with ACL injury risk and their inter-connections in a large cohort of female athletes during an unanticipated cutting task.

METHODS:

High school female athletes (N=721) performed an unanticipated cutting task in the biomechanics laboratory. Trunk and lower extremity 3D kinetics and kinematics were measured and entered into a latent profile analysis model.

RESULTS:

Approximately 40% of female athletes demonstrated no biomechanical deficits and were categorized into the low risk group. The second most prevalent profile (24%) demonstrated a combination of high quadriceps and leg dominance deficits and was labeled as quadriceps-leg. The third most prevalent profile (22%) demonstrated a combination of trunk and leg dominance deficits and to lesser extent ligament dominance deficits, and was labeled as trunk-leg-ligament. Finally, the fourth profile (14%) demonstrated very high ligament dominance deficits only and it was labeled as ligament dominance profile.

CONCLUSIONS:

This is the first study to identify the most common biomechanical profiles associated with ACL injury during a cutting task in a large cohort of female athletes. Approximately 60% of female athletes belong to one of the high-risk profiles. With the exception of the ligament dominance profile, the current analysis indicates that risk profiles consist of a combination of biomechanical deficits. The findings provide important insight into the prevalence of biomechanical deficits and future directions for the development of injury prevention programs. The findings can be used to guide the development of quick and easy tests that accurately categorize athletes into one of the profiles and subsequently prescribe tailored injury prevention programs that will be more effective and efficient than the current generic ones.

PMID:26258858

32 B. KNEE/PCL

33. MENISCUS

34. PATELLA

35. KNEE/TOTAL

Malalignment tibial is worst

Deviations from Optimal Alignment in TKA: Is There a Biomechanical Difference Between Femoral or Tibial Component Alignment?

Bernardo Innocenti, PhD Johan Bellemans Fabio Catani

DOI: <http://dx.doi.org/10.1016/j.arth.2015.07.038>

Abstract

Restoration of neutral mechanical alignment is one of the prerequisites for long-term TKA survival. This study aimed to investigate the effect of deviations from neutral alignment on bone and implant stress and on ligament strain. Using a previously validated finite element model, a neutrally aligned TKA model was compared to 3 different varus and valgus configurations induced by the tibial or by the femoral component only and by both component simultaneously. Each model underwent a 2500N vertical load simulating the peak walking force.

Varus and valgus alignment increased polyethylene and bone stress, and altered ligament strains, as compared to the neutral aligned model. Changes in alignment of the tibial component were always associated with more detrimental effects compared to the one of the femoral component.

Keywords:

TKA, neutral mechanical alignment, varus alignment, valgus alignment, tibial stress, collateral ligament strain

36. KNEE/EXERCISE

37. OSTEOARTHRITIS/KNEE

Contraceptive use and decreased inflammation

Arthritis Care Res (Hoboken). 2015 Aug 14. doi: 10.1002/acr.22667. [Epub ahead of print]

The association between the use of oral contraceptives and patient-reported outcomes in an early arthritis cohort.

Albrecht K¹, Callhoff J¹, Buttgereit F², Straub RH³, Westhoff G¹, Psych D¹, Zink A^{1,2}.

Author information

Abstract

OBJECTIVE:

To evaluate the association between exposure to oral contraceptives (OC) and clinical outcomes in an early arthritis cohort.

METHODS:

Female patients with early inflammatory arthritis, aged 18 to 60, who were enrolled in an early arthritis cohort and had no exposure to hormone replacement were studied (n=273). Associations between OC exposure (current/past/never) and disease activity, treatment and patient-reported outcomes, including the Rheumatoid Arthritis Impact of Disease Score (RAID), the Rheumatoid Arthritis Disease Activity Index (RADAI), the Profile of Mood and Discomfort (PROFAD) and the Hannover Functional Assessment (FFbH), were studied over 2 years. Linear mixed models adjusted for age, BMI, parity, smoking and education were used.

RESULTS:

Eighteen percent of patients had never used OCs, 63% had used OCs in the past, and 19% currently used OCs. After adjustment, the current/past OC use was associated with better RAID, PROFAD, RADAI and FFbH scores at 12 months (all $p < 0.05$) compared to never use. Longitudinally over two years, the mean RAID scores were significantly better in women with current/past OC use ($p < 0.001$). Actual inflammatory markers were not associated with OC use. Glucocorticoids were used by a higher percentage of OC never users than by current/past users ($p = 0.08$), especially in patients with impaired function ($FFbH < 70$: OR 4.2 [1.6, 11]).

CONCLUSION:

For past as well as current use, OCs seem to moderate patient-reported outcomes in inflammatory arthritis. Protective effects may be induced via central nervous pathways rather than through the suppression of peripheral inflammation. This article is protected by copyright. All rights reserved.

© 2015, American College of Rheumatology.

KEYWORDS:

early rheumatoid arthritis; glucocorticoids; oral contraceptives; outcomes research; patient-reported outcomes

PMID: 26275790

Fat pad volume decreases with cartilage reduction

J Rheumatol. 2015 Aug 15. pii: jrheum.150175.

Association Between Infrapatellar Fat Pad Volume and Knee Structural Changes in Patients with Knee Osteoarthritis.

Cai J¹, Xu J¹, Wang K¹, Zheng S¹, He F¹, Huan S¹, Xu S¹, Zhang H¹, Laslett L¹, Ding C¹.

Author information

Abstract

OBJECTIVE:

The function of the infrapatellar fat pad (IPFP) in knee osteoarthritis (OA) remains uncertain. This study aimed to examine cross-sectional associations between IPFP volume and knee structures in patients with knee OA.

METHODS:

The study included 174 patients with clinical knee OA (mean age, 55.5 yrs). Fat-suppressed 3-D T1-weighted spoiled gradient recall magnetic resonance imaging (MRI) was used to measure the IPFP and cartilage volume. T2-weighted fast spin echo MRI was used to assess cartilage defects and bone marrow lesions (BML). Radiographic knee osteophytes and joint space narrowing (JSN) were assessed using the Osteoarthritis Research Society International atlas.

RESULTS:

After adjustment for potential confounders, greater IPFP volume was associated with greater tibial and patellar cartilage volume (all $p < 0.05$), and fewer cartilage defects at all sites (OR 0.88-0.91, all $p < 0.05$). IPFP volume was associated with presence of BML at lateral tibial and medial femoral sites (OR 0.88-0.91, all $p < 0.05$) and osteophytes at lateral tibiofemoral compartment (OR 0.88, $p < 0.05$). IPFP volume was not significantly associated with JSN.

CONCLUSION:

Greater IPFP volume was associated with greater knee cartilage volume and fewer structural abnormalities, suggesting a protective role of IPFP size in knee OA.

PMID: 26276969

38 A. FOOT AND ANKLE

38 B. FOOT TYPES

38 C. FOOT EXERCISE

39 A. ORTHOTICS

39 B. SHOES

40. ANKLE SPRAINS AND INSTABILITY

41 A. ACHILLES TENDON AND CALF

Orthotics not effective in tendonitis

Br J Sports Med. 2015 Aug;49(15):989-94. doi: 10.1136/bjsports-2014-093845. Epub 2014 Sep 22.

Effectiveness of customised foot orthoses for Achilles tendinopathy: a randomised controlled trial.

Munteanu SE¹, Scott LA¹, Bonanno DR¹, Landorf KB¹, Pizzari T², Cook JL³, Menz HB¹.

Author information

Abstract

AIM:

To evaluate the effectiveness of customised foot orthoses in chronic mid-portion Achilles tendinopathy.

METHODS:

This was a participant-blinded, parallel-group randomised controlled trial at a single centre (La Trobe University, Melbourne, Australia). One hundred and forty participants aged 18-55 years with mid-portion Achilles tendinopathy were randomised to receive eccentric calf muscle exercises with either customised foot orthoses (intervention group) or sham foot orthoses (control group). Allocation to intervention was concealed. The Victorian Institute of Sports Assessment-Achilles (VISA-A) questionnaire was completed at baseline, then at 1, 3, 6 and 12 months, with 3 months being the primary end point. Differences between groups were analysed using intention to treat with analysis of covariance.

RESULTS:

After randomisation into the customised foot orthoses group (n=67) or sham foot orthoses group (n=73), there was 70.7% follow-up of participants at 3 months. There were no significant differences between groups at any time point. At 3 months, the mean (SD) VISA-A score was 82.1 (16.3) and 79.2 (20.0) points for the customised and sham foot orthosis groups, respectively (adjusted mean difference (95% CI)=2.6 (-2.9 to 8.0), p=0.353). There were no clinically meaningful differences between groups in any of the secondary outcome measures.

CONCLUSIONS:

Customised foot orthoses, prescribed according to the protocol in this study, are no more effective than sham foot orthoses for reducing symptoms and improving function in people with mid-portion Achilles tendinopathy undergoing an eccentric calf muscle exercise programme.

TRIAL REGISTRATION NUMBER:

Australian New Zealand Clinical Trials Registry: number ACTRN12609000829213.

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KEYWORDS:

Achilles; Eccentric; Physiotherapy; Podiatry; Soft tissue

PMID: 25246441

Neuromechanical adaptations

J Physiol. 2015 Aug 1;593(15):3373-87. doi: 10.1113/JP270220. Epub 2015 Jun 30.

The neuromechanical adaptations to Achilles tendinosis.

Chang YJ¹, Kulig K¹.

Author information

Abstract

KEY POINTS:

Achilles tendinosis is a localized degenerative musculoskeletal disorder that develops over a long period of time and leads to a compliant human Achilles tendon. We demonstrate that the compliant Achilles tendon elicited a series of adaptations from different levels of the human movement control system, such as the muscle-tendon interaction, CNS control and other muscles in the lower leg. These results illustrate the human body's capacity to adapt to tendon pathology and provide the physiological basis for intervention or prevention strategies.

ABSTRACT:

Human movement is initiated, controlled and executed in a hierarchical system including the nervous system, muscle and tendon. If a component in the loop loses its integrity, the entire system has to adapt to that deficiency. Achilles tendon, when degenerated, exhibits lower stiffness. This local mechanical deficit may be compensated for by an alteration of motor commands from the CNS. These modulations in motor commands from the CNS may lead to altered activation of the agonist, synergist and antagonist muscles. The present study aimed to investigate the effect of tendon degeneration on its mechanical properties, the neuromechanical behaviour of the surrounding musculature and the existence of the CNS modulation accompanying tendinosis. We hypothesize that the degenerated tendon will lead to diminished tissue mechanical properties and protective muscle activation patterns, as well as an up-regulated descending drive from the CNS. Strong evidence, as reported in the present study, indicates that tendinotic tendons are more compliant compared to healthy tendons. This unilateral involvement affected the neuromuscular control on the involved side but not the non-involved side. The muscle-tendon unit on the tendinotic side exhibits a lowered temporal efficiency, which leads to altered CNS control. The altered CNS control is then expressed as an adapted muscle activation pattern in the lower leg. Taken together, the findings of the present study illustrate the co-ordinated multi-level adaptations to a mechanical lesion in a tendon caused by pathology.

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PMID:26046962

41 B. COMPARTMENT SYNDROME

42. PLANTAR SURFACE

43. HALLUX VALGUS

44. RHUMATOID ARTHRITIS

45 A. MANUAL THERAPY LUMBAR & GENERAL

45 B. MANUAL THERAPY CERVICAL

MT and elderly

Topics in Geriatric Rehabilitation: Post Author Corrections: July 31, 2015

doi: 10.1097/TGR.0000000000000075

Cervical Spine Manual Therapy for Aging and Older Adults.

Tudini, Frank PT, DScPT, OCS, COMT, FAAOMPT; Chui, Kevin K. PT, DPT, PhD, GCS, OCS, FAAOMPT; Grimes, Jason PT, MPT, OCS, ATC; Laufer, Rachel PT, DPT; Kim, Sean PT, DPT; Yen, Sheng-Che PT, PhD; Vaughan, Victor PT, DPT, MS, OCS, ATC

Published Ahead-of-Print



Abstract

Neck pain is a common problem in aging and older adults. This narrative review synthesizes recent literature on manual therapy to the cervical spine and adjacent regions. Emphasis has been placed on summarizing high-quality randomized clinical trials, systematic reviews with a narrative synthesis or meta-analysis, and clinical practice guidelines. The synthesis suggests that although there is limited high-quality evidence, a multimodal approach including manual therapy and exercise seems safe and effective, especially in the short term, for improving outcomes in aging and older adults with neck pain.

The results for cervicogenic dizziness and headache were too varied to arrive at a firm conclusion. Additional research using consistent outcome measures is needed to establish the optimal manual therapy techniques and parameters for these common cervical conditions.

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Blood flow with HVM – subcranial

Man Ther. 2015 Aug;20(4):614-22. doi: 10.1016/j.math.2015.02.008. Epub 2015 Mar 2.

The immediate effect of atlanto-axial high velocity thrust techniques on blood flow in the vertebral artery: A randomized controlled trial.

Erhardt JW¹, Windsor BA², Kerry R³, Hoekstra C⁴, Powell DW², Porter-Hoke A⁵, Taylor A³.

Author information

Abstract

BACKGROUND:

High velocity thrust (HVT) cervical techniques have been associated with serious vertebral artery (VA) trauma. Despite numerous studies, the nature of this association is uncertain. Previous studies have failed to demonstrate haemodynamic effects on the VA in simulated pre-thrust positions. No study has investigated haemodynamic affects during or immediately following HVT, nor sufficiently controlled for the influence of the thrust.

OBJECTIVES:

To investigate the immediate effects of HVT of the atlanto-axial joint upon haemodynamics in the sub-occipital portion of the vertebral artery (VA3).

DESIGN:

Randomized Controlled Trial.

METHOD:

Twenty-three healthy participants (14 women, 9 men; mean age 40, range 27-69 years of age) were randomly assigned to two groups: an intervention group (MANIP, n = 11) received HVT to the atlanto-axial segment whilst a control group (CG, n = 12) was held in the pre-manipulative hold position. Colour-flow Doppler ultrasound was used to measure VA3 haemodynamics. Primary outcome measures were peak systolic (PSV) and end diastolic velocities (EDV) of three cardiac cycles measured at neutral (N1), pre-HVT (PreMH), post-HVT (PostMH), post-HVT-neutral (N2) positions.

RESULTS:

Test-retest reliability for the Doppler measures demonstrated intra-class correlation coefficient (ICC) of 0.99 (95% CI 0.98-1.0) for PSV and 0.91 (95% CI 0.84-0.96) for EDV. Visually, EDV were lower in the MANIP group than in the CONTROL group across the four measurements. However, there were no significantly different changes (at $p \leq 0.01$) between the MANIP and CONTROL groups for any measurement variable.

CONCLUSIONS:

HVT to the atlanto-axial joint segment does not affect the haemodynamics of the sub-occipital portion of the vertebral artery during or immediately following HVT in healthy subjects.

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KEYWORDS:

Cervical manipulation; Manual therapy; Vertebral artery

PMID: 25814193

Condylar glide

Man Ther. 2015 Aug 1. pii: S1356-689X(15)00144-7. doi: 10.1016/j.math.2015.07.005.

3D motion reliability of occipital condylar glide testing: From concept to kinematics evidence.

Beyer B¹, Sobczak S², Salem W³, Feipel V⁴, Dugailly PM⁵.

Author information

Abstract

BACKGROUND:

To date, segmental data analyzing kinematics of occipital condylar testing or mobilization is lacking.

OBJECTIVES:

The objective of this study was to assess occipitoatlantal 3D motion components and to analyze inter- and intra-rater reliability during in vitro condylar glide test.

METHODS:

To conduct this study, four fresh cadavers were included. Dissection was carried out to ensure technical clusters placement to skull, C1 and C2. During condylar glide test, bone motion data was computed using an optoelectronic system. The reliability of motion kinematics was assessed for three skilled practitioners performing two sessions of 3 trials on two days interval.

FINDINGS:

During testing, average absolute motion ROM (\pm SD) were up to $4.1 \pm 2.1^\circ$, $0.7 \pm 1.3^\circ$ and $10.3 \pm 2.5^\circ$ for occipitoatlantal lateral bending, axial rotation and flexion-extension, respectively. For position variation, magnitudes were 2.3 ± 1.8 mm, 1.1 ± 1.3 mm and 2.6 ± 0.8 mm for anteroposterior, cephalocaudal and mediolateral displacements. Concerning motion reliability, variation ranged from 0.6° to 3.4° and from 0.3 mm to 1.6 mm for angular displacement and condyle position variation, respectively. In general, good to excellent agreement was observed (ICC ranging from 0.728 to 0.978) for the same operator, while consistency was limited to lateral/side bending and lateral condyle displacement between operators, with respective ICCs of 0.800 and 0.955.

CONCLUSIONS:

This study shows specific motion patterns involving extension and lateral bending of the occipitoatlantal level for anterior condylar glide test. In addition, condyle position variation demonstrated coupled components in forward and heterolateral directions. However, task seems not to be side specific. In general, reliability of 3D motion components showed good intra-operator agreement and limited inter-operator agreement.

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KEYWORDS:

Condylar glide; Kinematics; Reliability; Upper cervical spine

PMID: 26261003

45 C. MANUAL THERAPY THORACIC

Shoulder pain and rib manip.

J Manipulative Physiol Ther. 2015 Aug 5. pii: S0161-4754(15)00072-X. doi:

10.1016/j.jmpt.2015.06.008.

Changes in Shoulder Pain and Disability After Thrust Manipulation in Subjects Presenting With Second and Third Rib Syndrome.

Dunning J¹, Mourad F², Giovannico G³, Maselli F⁴, Perreault T⁵, Fernández-de-Las-Peñas C⁶.

Author information

Abstract

OBJECTIVE:

The purpose of this preliminary study was to investigate changes in shoulder pain, disability, and perceived level of recovery after 2 sessions of upper thoracic and upper rib high-velocity low-

amplitude (HVLA) thrust manipulation in patients with shoulder pain secondary to second and third rib syndrome.

METHODS:

This exploratory study evaluated 10 consecutive individuals with shoulder pain, with or without brachial pain, and a negative Neer impingement test, who completed the Shoulder Pain and Disability Index (SPADI), the numeric pain rating scale (NPRS), and the global rating of change. Patients received 2 sessions of HVLA thrust manipulation targeting the upper thoracic spine bilaterally and the second and third ribs on the symptomatic side. Outcome measures were completed after the first treatment session, at 48 hours, 1 month, and 3 months.

RESULTS:

Patients showed a significant decrease in SPADI ($F = 59.997$; $P = .001$) and significant decrease in resting shoulder NPRS ($F = 63.439$; $P = .001$). For both NPRS and SPADI, there were significant differences between the pretreatment scores and each of the postintervention scores through 3-month follow-up ($P < .05$). Large within-group effect sizes (Cohen's $d \geq 0.8$) were found between preintervention data and all postintervention assessments in both outcomes. Mean global rating of change scores (+6.8 at 3 months) indicated "a very great deal better" outcome at long-term follow-up.

CONCLUSION:

This group of patients with shoulder pain secondary to second and third rib syndrome who received upper thoracic and upper rib HVLA thrust manipulations showed significant reductions in pain and disability and improvement in perceived level of recovery.

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KEYWORDS:

Manipulation; Manual Therapy; Ribs; Shoulder Pain; Spinal; Thoracic Vertebrae

PMID: 26254852

RI and manip.

Volume 23, Issue 3 (July 2015), pp. 139-146

Regional interdependence and manual therapy directed at the thoracic spine

Amy McDevitt 1 ; Jodi Young 2 ; Paul Mintken 1 ; Josh Cleland 2

JMMT DOI: <http://dx.doi.org/10.1179/2042618615Y.0000000005>

Abstract

Thoracic spine manipulation is commonly used by physical therapists for the management of patients with upper quarter pain syndromes. The theoretical construct for using thoracic manipulation for upper quarter conditions is a mainstay of a regional interdependence (RI) approach. The RI concept is likely much more complex and is perhaps driven by a neurophysiological response including those related to peripheral, spinal cord and supraspinal mechanisms. Recent evidence suggests that thoracic spine manipulation results in

neurophysiological changes, which may lead to improved pain and outcomes in individuals with musculoskeletal disorders. The intent of this narrative review is to describe the research supporting the RI concept and its application to the treatment of individuals with neck and/or shoulder pain. Treatment utilizing both thrust and non-thrust thoracic manipulation has been shown to result in improvements in pain, range of motion and disability in patients with upper quarter conditions.

Research has yet to determine optimal dosage, techniques or patient populations to which the RI approach should be applied; however, emerging evidence supporting a neurophysiological effect for thoracic spine manipulation may negate the need to fully answer this question. Certainly, there is a need for further research examining both the clinical efficacy and effectiveness of manual therapy interventions utilized in the RI model as well as the neurophysiological effects resulting from this intervention.

Keywords: Thoracic manipulation, Regional interdependence, Physical therapy, Thoracic spine, Manual therapy, Neck, Shoulder

Safety of manip.

JMMT Volume 23, Issue 3 (July 2015), pp. 154-161

Safety of thrust joint manipulation in the thoracic spine: a systematic review

Emilio J. Puentedura ; William H. O'Grady

DOI: <http://dx.doi.org/10.1179/2042618615Y.0000000012>

There appears to be very little in the research literature on the safety of thrust joint manipulation (TJM) when applied to the thoracic spine.

Purpose:

To retrospectively analyze all available documented case reports in the literature describing patients who had experienced severe adverse events (AE) after receiving TJM to their thoracic spine.

Data Sources:

Case reports published in peer reviewed journals were searched in Medline (using Ovid Technologies, Inc.), Science Direct, Web of Science, PEDro (Physiotherapy Evidence Database), Index of Chiropractic literature, AMED (Allied and Alternative Medicine Database), PubMed and the Cumulative Index to Nursing and Allied Health (CINHAL) from January 1950 to February 2015.

Study Selection:

Case reports were included if they: (1) were peer-reviewed; (2) were published between 1950 and 2015; (3) provided case reports or case series; and (4) had TJM as an intervention. Articles were excluded if: (1) the AE occurred without TJM (e.g. spontaneous); (2) the article was a systematic or literature review; or (3) it was written in a language other than English or Spanish.

Data Extraction:

Data extracted from each case report included: gender; age; who performed the TJM and why; presence of contraindications; the number of manipulation interventions performed; initial symptoms experienced after the TJM; as well as type of severe AE that resulted.

Results:

Ten cases, reported in 7 case reports, were reviewed. Cases involved females (8) more than males (2), with mean age being 43.5 years (SD=18.73, Range = 17 -71). The most frequent AE reported was injury (mechanical or vascular) to the spinal cord (7/10), with pneumothorax and hematothorax (2/10) and CSF leak secondary to dural sleeve injury (1/10).

Limitations:

There were only a small number of case reports published in the literature and there may have been discrepancies between what was reported and what actually occurred, since physicians dealing with the effects of the AE, rather than the clinician performing the TJM, published the cases.

Conclusions:

Serious AE do occur in the thoracic spine, most commonly, trauma to the spinal cord, followed by pneumothorax. This suggests that excessive peak forces may have been applied to thoracic spine, and it should serve as a cautionary note for clinicians to decrease these peak forces.

Keywords: Adverse events, Manipulation, Thoracic spine, Injury, Chiropractic, Osteopathy, Orthopedic manipulative therapy

45 D. MANUAL THERAPY EXTREMITIES

Foot and ankle manip to increase DF

Increased treatment durations lead to greater improvements in non-weight bearing dorsiflexion range of motion for asymptomatic individuals immediately following an anteroposterior grade IV mobilisation of the talus

Christopher James Holland Kevin Campbell Kim Hutt

DOI: <http://dx.doi.org/10.1016/j.math.2015.02.003>

Highlights

- Asymptomatic individuals were subjected to 4 different treatment durations.
- Treatment consisted of an anteroposterior talocrural joint mobilisation.
- DF-ROM was assessed in non-weight bearing and weight bearing positions.
- Increases in treatment duration is associated with improvements in non-weight bearing DF-ROM.

Abstract

Manual therapy aims to minimise pain and restore joint mobility and function. Joint mobilisations are integral to these techniques, with anteroposterior (AP) talocrural joint mobilisations purported to increase dorsiflexion range of motion (DF-ROM). This study aimed to determine whether different treatment durations of single grade IV anteroposterior talocrural joint mobilisations elicit statistically significant differences in DF-ROM. Sixteen asymptomatic male football players (age = 27.1 ± 5.3 years) participated in the study. Non-weight bearing (NWB) and weight bearing (WB) DF-ROM was measured before and after 4 randomised treatment conditions: control treatment, 30 s, 1 min, 2 min. NWB DF-ROM was measured using a universal goniometer, and WB DF-ROM using the weight-bearing lunge test. A within-subjects design was employed so that all participants received each of the treatment conditions. A 4×4 balanced Latin square design and 1 week interval between sessions reduced any residual effects. Two-way repeated measures ANOVA revealed a significant improvement in DF-ROM following all AP mobilisation treatments ($p < 0.001$). The within subjects contrasts showed that increases in treatment duration was associated with statistically significant improvements in DF-ROM (NWB DF-ROM control = 0.01%, 30 s = 14.2%, 1 min = 21.6%, 2 min = 32.8%; WB DF-ROM control = 0.01%, 30 s = 5.0%, 1 min = 7.6%, 2 min = 10.9%; $p < 0.05$). However, WB DF-ROM improvements were below the minimal detectable change scores needed to conclude that improvements were not a consequence of measurement error. This research shows that single session mobilisations can elicit NWB DF-ROM improvements in asymptomatic individuals in the absence of pain, whilst increases in treatment duration confer greater improvements in NWB DF-ROM within this population.

Keywords:

Maitland, Mobilisation, Anteroposterior, Dorsiflexion

Frozen shoulder mobilization/Maitland

The efficacy of different types of mobilization techniques in patients with primary adhesive capsulitis of the shoulder: a systematic review

Suzie Noten, MSc Mira Meeus, PhD Gaetane Stassijns, MD, PhD Francis Van Glabbeek, MD, PhD Olivier Verborgt, MD, PhD Filip Struyf, PhD

DOI: <http://dx.doi.org/10.1016/j.apmr.2015.07.025>

Objective

To systematically review the literature for efficacy of isolated articular mobilization techniques in patients with primary adhesive capsulitis (AC) of the shoulder.

Data Sources

PubMed and Web of Science were searched for relevant studies published before November 2014. Additional references were identified by manual screening of the reference lists.

Study Selection

All English language RCTs evaluating the efficacy of mobilization techniques on range of motion (ROM) and pain in adult patients with primary AC of the shoulder were included in this systematic review. Twelve RCTs involving 810 patients were included.

Data extraction

Two reviewers independently screened the articles, scored methodological quality and extracted data for analysis. The review was conducted and reported according to the PRISMA Statement. All studies were assessed in duplicate for risk of bias using the Physiotherapy Evidence Database scale for randomized controlled trials.

Data Synthesis

The efficacy of 7 different types of mobilization techniques was evaluated. Angular mobilization (N=2), CYRIAX approach (N=1) and Maitland's technique (N=6) showed improvement in pain score and ROM. With respect to translational mobilizations (N=1), posterior glides are preferred to restore external rotation. Spine mobilizations combined with glenohumeral stretching and both angular and translational mobilization (N=1) had a superior effect on active ROM compared to sham ultrasound. High intensity mobilization (N=1) showed less improvement in Constant Murley Score compared to a neglect group. Finally, positive long-term effects of Mulligan's technique (N=1) were found on both pain and ROM.

Conclusion

Overall, mobilization techniques have beneficial effects in patients with primary AC of the shoulder. Due to preliminary evidence for many mobilization techniques, the Maitland's technique and the combined mobilizations seem recommended at the moment.

Key words:

Adhesive capsulitis, frozen shoulder, mobilization, systematic review, efficacy

46 A. UPPER LIMB NEUROMOBILIZATION

Carpal tunnel and MT vs. surgery/ MT wins

Manual Physical Therapy versus Surgery for Carpal Tunnel Syndrome: a Randomized Parallel-Group Trial

César Fernández-de-las-Peñas, PT, PhD, DMSc Ricardo Ortega-Santiago, PT, PhD Ana I. de-la-Llave-Rincón, PT, PhD Almudena Martínez-Perez, MD Homid Fahandezh-Saddi Díaz, MD Javier Martínez-Martín, MD Juan A. Pareja, MD, PhD Maria L. Cuadrado-Pérez, MD, PhD

DOI: <http://dx.doi.org/10.1016/j.jpain.2015.07.012>

Highlights

- We examine effectiveness of manual therapy and surgery in pain and function in carpal tunnel syndrome
- Manual therapy was more effective at short-term than surgery.
- Manual therapy was similarly effective at medium- and long-term follow-ups than surgery.

Abstract

This randomized clinical trial investigated the effectiveness of surgery compared with physiotherapy consisting of manual therapies including desensitization maneuvers in carpal tunnel syndrome (CTS). The setting was a public hospital and 2 physiotherapy practices in Madrid, Spain. One hundred and twenty women with CTS were enrolled between February 2013 and January 2014 with 1-year follow-up completed in January 2015. Interventions consisted of 3 sessions of manual therapies including desensitization manoeuvres of the central nervous system (physiotherapy group, n=60), or decompression/release of the carpal tunnel (surgical group, n=60). The primary outcome was pain intensity (mean pain and the worst pain), and secondary outcomes included functional status and symptoms severity subscales of the Boston Carpal Tunnel Questionnaire and the self-perceived improvement. They were assessed at baseline, and 1, 3, 6, and 12 months by a blinded assessor. Analysis was intention-to-treat. At 12 months, 111 (92%) women completed the follow-up (55/60 physiotherapy, 56/60 surgery). Adjusted analyses showed an advantage (all, $P < 0.01$) for physiotherapy at 1 and 3 months in mean pain [Δ -2.0 (95%CI -2.8 to -1.2) / -1.3 (95%CI -2.1 to -0.6)], the worst pain [Δ -2.9 (-4.0 to -2.0) / -2.0 (-3.0 to -0.9)] and function [Δ -0.8 (-1.0 to -0.6) / -0.3 (-0.5 to -0.1)], respectively. Changes in pain and function were similar between groups at 6 and 12 months. Both groups had similar improvements in symptoms severity subscale of the Boston Carpal Tunnel Questionnaire at all follow-ups. In women with CTS, physical therapy may result in similar outcomes on pain and function than surgery.

Perspective

This study found that surgery and physical manual therapies including desensitization maneuvers of the central nervous system were similarly effective at medium- and long-term follow-ups for improving pain and function but physiotherapy led to better outcomes at short-term.

Keywords:

carpal tunnel syndrome, surgery, physical therapy, manual therapy, pain

46 B. LOWER LIMB NEUROMOILIZATION

Slump sitting effective for neuropathic pain

J Orthop Sports Phys Ther. 2015 Aug;45(8):596-603. doi: 10.2519/jospt.2015.5414. Epub 2015 Jun 24.

Diagnostic Accuracy of the Slump Test for Identifying Neuropathic Pain in the Lower Limb.

Urban LM¹, MacNeil BJ.

Author information

Abstract

Study Design Diagnostic accuracy study with nonconsecutive enrollment.

Objectives To assess the diagnostic accuracy of the slump test for neuropathic pain (NeP) in those with low to moderate levels of chronic low back pain (LBP), and to determine whether accuracy of the slump test improves by adding anatomical or qualitative pain descriptors.

Background Neuropathic pain has been linked with poor outcomes, likely due to inadequate diagnosis, which precludes treatment specific for NeP. Current diagnostic approaches are time consuming or lack accuracy.

Methods A convenience sample of 21 individuals with LBP, with or without radiating leg pain, was recruited. A standardized neurosensory examination was used to determine the reference diagnosis for NeP. Afterward, the slump test was administered to all participants. Reports of pain location and quality produced during the slump test were recorded.

Results The neurosensory examination designated 11 of the 21 participants with LBP/sciatica as having NeP. The slump test displayed high sensitivity (0.91), moderate specificity (0.70), a positive likelihood ratio of 3.03, and a negative likelihood ratio of 0.13. Adding the criterion of pain below the knee significantly increased specificity to 1.00 (positive likelihood ratio = 11.9). Pain-quality descriptors did not improve diagnostic accuracy.

Conclusion The slump test was highly sensitive in identifying NeP within the study sample. Adding a pain-location criterion improved specificity. Combining the diagnostic outcomes was very effective in identifying all those without NeP and half of those with NeP. Limitations arising from the small and narrow spectrum of participants with LBP/sciatica sampled within the study prevent application of the findings to a wider population. Level of Evidence Diagnosis, level 4-. *J Orthop Sports Phys Ther* 2015;45(8):596-603. Epub 24 Jun 2015. doi:10.2519/jospt.2015.5414.

KEYWORDS:

neurodynamic testing; sensitivity; specificity

PMID: 26107044

47. STRETCHING/MUSCLES

48 A. STM

Massage after exercise. Positive

J Strength Cond Res. 2015 Aug;29(8):2255-60. doi: 10.1519/JSC.0000000000000688.

Effects of Massage on Muscular Strength and Proprioception After Exercise-Induced Muscle Damage.

Shin MS¹, Sung YH.

Author information

Abstract

Shin, M-S and Sung, Y-H. Effects of massage on muscular strength and proprioception after exercise-induced muscle damage. *J Strength Cond Res* 29(8): 2255-2260, 2015-Exercise-induced muscle damage (EIMD), which is commonly associated with eccentric exercise, unaccustomed exercise, and resistance training, may lead to delayed onset muscle soreness, swelling, decreased muscle strength, and range of motion. Many researchers have evaluated various interventions to treat the signs and symptoms of EIMD. However, the effects of massage after EIMD are unclear. Here, we investigated the effect of massage on muscle strength and proprioception after EIMD.

All subjects randomly were divided into an EIMD-treated control group (n = 10) and a massage-treated after EIMD experimental group (n = 11). Exercise-induced muscle damage was induced by repeated exercise. Massage treatment was provided by physiotherapist for 15 minutes. It consists of light stroking, milking, friction, and skin rolling. Lactate was evaluated by Lactate Pro analyzer in pre- and postexercise. Surface electromyography (muscle activity) and sonography (muscle thickness) were used to confirm the muscular characteristics. Proprioception was investigated by dual inclinometer.

As a result, massage treatment on the gastrocnemius after EIMD increased activation of the medial gastrocnemius during contraction ($p \leq 0.05$). In the lateral and medial gastrocnemius, the θ_s , which is the angle between muscle fibers and superficial aponeurosis, showed a significant change ($p \leq 0.05$). However, there are no differences in the θ_d , which is the angle between muscle fibers and deep aponeurosis. We also found that proprioceptive acuity in the ankle joint was significantly greater in the massage-treated experimental group compared with that in the control group ($p \leq 0.05$).

These findings suggest that massage of the gastrocnemius after EIMD can improve muscle strength and proprioception by influencing the superficial layer of the gastrocnemius.

PMID: 25226328

48 B. TRIGGER POINTS NEEDLING/ACUPUNCTURE

Dry needling and MTP's

The effect of the combination of dry needling and MET on latent trigger point upper trapezius in females

Ameneh Yeganeh Lari, MSc in Physiotherapy Dr Farshad Okhovatian, PhD (Professor of Physiotherapy) Sedigheh sadat Naimi, PhD (Assistant Professor of Physiotherapy) , Alireza Akbarzadeh Baghban, Ph.D in Biostatistics (Associate Professor)

DOI: <http://dx.doi.org/10.1016/j.math.2015.08.004>

Highlights

- The effectiveness of DN and MET for treating the latent MTrPs in upper trapezius.
- Sixty patients were randomly divided into 3 groups i.e., DN with MET, MET, and DN.
- The variables have been measured after treatment protocols, were VAS, PPT & CLF.
- The significant recovery (all variables) in DN & MET; compare with two others.
- No significant differences between only DN & only MET groups in VAS, PPT and CLF.

Abstract

Aim

The purpose of this clinical trial experiment was to compare the effects of the combination of dry needling (DN) and the muscle energy technique (MET) on the upper trapezius latent myofascial trigger point.

Method

Sixty female patients, aged 18-30 with latent myofascial trigger points in the upper trapezius muscle were randomly divided into three groups: group 1 (n=20) received DN and MET, group 2 (n=20) received only MET, and group 3 (n=20) received only DN. The visual analogue scale (VAS), pressure pain threshold (PPT), and range of active contra lateral flexion (CLF) were measured before each treatment. The patients were treated for three sessions in a one-week period with at least a two-day break between each session, and in session four, an assessment of primary outcomes was conducted without any treatment.

Results

All three treatment groups showed decreases in pain ($p=0.001$) and increases in PPT levels ($p=0.001$) as well as increases in CLF ($P=0.001$). But the group receiving trigger point DN together with MET showed more significant improvement than the other two groups in VAS, PPT and ROM. No significant differences were found between the MET-only group and the DN-only group.

Conclusion

Our results indicate that all three treatments used in this study were effective for treating MTP. According to this study, DN and MET is suggested as a new method for the treatment of MTP.

Keywords:

Myofascial pain syndromes, trigger point, MET, dry needling

48 C. MUSCLES

49. STRETCHING

50 A. MOTOR CONTROL

50 B. PNF

51. CFS/BET

52. EXERCISE

53. CORE

Tailored vs general ex for LBP

A tailored exercise program versus general exercise for a subgroup of patients with low back pain and movement control impairment: SHORT-TERM results of a randomised controlled trial

Jeannette Saner, MSc PT Judith M. Sieben, PhD Jan Kool, PhD, PT Hannu Luomajoki, PhD, Carolien HG. Bastiaenen, PhD, PT Rob A. de Bie, PhD, PT

DOI: <http://dx.doi.org/10.1016/j.jbmt.2015.08.001>

Background

Exercise is an effective treatment for patients with sub-acute and chronic low back pain (LBP). Patients with a movement control impairment (MCI) can be diagnosed as a subgroup of patients with LBP. Unknown is which exercise intervention is most beneficial for this subgroup.

This study assessed the short-term effect of a specific exercise program targeting movement control impairment versus general exercise treatment on disability in patients with LBP and MCI.

Methods

In a multicentre parallel group randomised controlled pragmatic trial, patients with sub-acute and chronic LBP were included. Further inclusion criteria were disability of ≥ 5 points on the Roland-Morris Disability Questionnaire and ≥ 2 positive tests out of a set of 6 movement control impairment tests.

A total of 106 patients were randomly assigned to either tailored movement control exercise intervention (MC, n=52) or a general exercise intervention (GE, n=54); both 9-18 individual treatment sessions, over a maximum of 12 weeks. The primary outcome was disability measured with the Patient Specific Functional scale (PSFS). Secondary outcome was the Roland-Morris disability scale (RMDQ). Measurements were taken pre- and posttreatment.

Results

No significant difference was found following the treatment period. Baseline-adjusted between-group mean difference for the PSFS was 0.5 (SD = 0.5; $p = 0.32$) in favour of MC exercises. The Roland-Morris Disability Questionnaire revealed a significant, but not clinically relevant, between-group difference of 2.0 points (SD = 0.8; $p = 0.01$).

Conclusion

Disability in LBP patients was reduced considerably by both interventions. However, the limited contrast between the two exercise programs may have influenced outcomes.

Keywords:

randomised controlled trial, movement control impairment, exercise, low back pain, clinical trial, posture, rehabilitation, patient specific functional scale

54. POSTURE

Female postural adjustments in coronal plane

HSS Journal © July 2015 Date: 29 Jul 2015

Young Females Exhibit Decreased Coronal Plane Postural Stability Compared to Young Males

Robert H. Brophy MD, Jonathon R. Staples MD, John Motley PT, Ryan Blalock MD, Karen Steger-May MA, Mark Halstead MD

Abstract

Background

Female athletes are at significantly higher risk of noncontact ACL injury than males, particularly in pivoting sports such as soccer and basketball. Sex-based differences in proprioception and core stability may contribute to this elevated risk.

Questions/Purpose

This study evaluates a novel method of assessing dynamic stability to test the hypothesis that healthy adolescent controls have sex-based differences in postural stability.

Methods

Seventy-nine male and 72 female subjects completed three rounds of dynamic postural stability testing. During the assessment, subjects attempted to stabilize their torso and upper body in response to random movements of the platform. The total time a subject lasted on the platform and dynamic motion analysis (DMA) score, a summation of motion in five planes throughout testing, was calculated for each subject. The average score for each subject was included in the analysis.

Results

Males lasted longer on the platform (98 ± 14 s) than females (94 ± 13 s) ($p = 0.04$). Coronal plane and rotation stability differed significantly between genders (323 ± 126 vs. 365 ± 128 , $p = 0.04$).

and (318 ± 82 vs. 403 ± 153 , $p = 0.0002$), respectively. No statistically significant difference was seen in the other planes of motion.

Conclusions

Females have less dynamic postural stability than their male counterparts in the coronal plane based on a novel assessment tool. This finding may contribute to better understanding of sex-based differences in rates of injury such as noncontact ACL tears.

55. SCOLIOSIS

56. ATHLETICS

Lifters and posture

J Biomech. 2015 Jul 16;48(10):1693-9. doi: 10.1016/j.jbiomech.2015.05.022. Epub 2015 Jun 4.

Novice lifters exhibit a more kyphotic lifting posture than experienced lifters in straight-leg lifting.

Riley AE¹, Craig TD¹, Sharma NK², Billinger SA², Wilson SE³.

Author information

Abstract

As torso flexion and repetitive lifting are known risk factors for low back pain and injury, it is important to investigate lifting techniques that might reduce injury during repetitive lifting. By normalizing lumbar posture to a subject's range of motion (ROM), as a function of torso flexion, this research examined when subjects approached their range of motion limits during dynamic lifting tasks. For this study, it was hypothesized that experienced lifters would maintain a more neutral lumbar angle relative to their range of motion, while novice lifters would approach the limits of their lumbar ROM during the extension phase of a straight-leg lift. The results show a statistically significant difference in lifting patterns for these two groups supporting this hypothesis. The novice group maintained a much more kyphotic lumbar angle for both the flexion (74% of the lumbar angle ROM) and extension phases (86% of the lumbar angle ROM) of the lifting cycle, while the experienced group retained a more neutral curvature throughout the entire lifting cycle (37% of lumbar angle ROM in flexion and 48% of lumbar angle ROM in extension). By approaching the limits of their range of motion, the novice lifters could be at greater risk of injury by placing greater loads on the supporting soft tissues of the spine. Future research should examine whether training subjects to assume more neutral postures during lifting could indeed lower injury risks.

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KEYWORDS:

Lifting; Lumbar; Occupational; Spine

PMID: 26077846

57. GAIT

Elderly/gait and exercise

Sports Med. 2015 Aug 19.

Effects of Three Types of Exercise Interventions on Healthy Old Adults' Gait Speed: A Systematic Review and Meta-Analysis.

Hortobágyi T¹, Lesinski M, Gäbler M, VanSwearingen JM, Malatesta D, Granacher U.
Author information

Abstract

BACKGROUND:

Habitual walking speed predicts many clinical conditions later in life, but it declines with age. However, which particular exercise intervention can minimize the age-related gait speed loss is unclear.

PURPOSE:

Our objective was to determine the effects of strength, power, coordination, and multimodal exercise training on healthy old adults' habitual and fast gait speed.

METHODS:

We performed a computerized systematic literature search in PubMed and Web of Knowledge from January 1984 up to December 2014. Search terms included 'Resistance training', 'power training', 'coordination training', 'multimodal training', and 'gait speed (outcome term)'. Inclusion criteria were articles available in full text, publication period over past 30 years, human species, journal articles, clinical trials, randomized controlled trials, English as publication language, and subject age ≥ 65 years. The methodological quality of all eligible intervention studies was assessed using the Physiotherapy Evidence Database (PEDro) scale. We computed weighted average standardized mean differences of the intervention-induced adaptations in gait speed using a random-effects model and tested for overall and individual intervention effects relative to no-exercise controls.

RESULTS:

A total of 42 studies (mean PEDro score of 5.0 ± 1.2) were included in the analyses (2495 healthy old adults; age 74.2 years [64.4-82.7]; body mass 69.9 ± 4.9 kg, height 1.64 ± 0.05 m, body mass index 26.4 ± 1.9 kg/m², and gait speed 1.22 ± 0.18 m/s). The search identified only one power training study, therefore the subsequent analyses focused only on the effects of resistance, coordination, and multimodal training on gait speed. The three types of intervention improved gait speed in the three experimental groups combined ($n = 1297$) by 0.10 m/s (± 0.12) or 8.4 % (± 9.7), with a large effect size (ES) of 0.84. Resistance (24 studies; $n = 613$; 0.11 m/s; 9.3 %; ES: 0.84), coordination (eight studies, $n = 198$; 0.09 m/s; 7.6 %; ES: 0.76), and multimodal training (19 studies; $n = 486$; 0.09 m/s; 8.4 %, ES: 0.86) increased gait speed statistically and similarly.

CONCLUSIONS:

Commonly used exercise interventions can functionally and clinically increase habitual and fast gait speed and help slow the loss of gait speed or delay its onset.

PMID: 26286449

Texting and walking

Dual task interference during walking: The effects of texting on situational awareness and gait stability

Jongil Lim Avelino Amado Leo Sheehan Richard E.A. Van Emmerik

DOI: <http://dx.doi.org/10.1016/j.gaitpost.2015.07.060>

Highlights

- We quantified the effect of texting while walking on situational awareness and gait kinematics.
- Texting while walking resulted in almost a 50% drop in visual cue detection rate.
- Texting results in a significant increase in lateral sway during walking.
- Loss of situational awareness was dependent upon the nature of the visual task imposed.

Abstract

Dual-task interference caused by mobile phone use while walking increases safety risks by increasing attentional and cognitive demands. Situational awareness, important for control of walking and safety, has been examined previously but measured only by the awareness of visually noteworthy objects in the environment or the number of times the person looked up from the phone. This study systematically investigated the effects of texting on situational awareness to different environments and its consequent impact on gait kinematics. Twenty healthy volunteers walked on a treadmill while texting and attending to visual tasks simultaneously. Gait parameters and situational awareness examined under dual-task conditions (walk and text or walk, text, and visual task) were compared with those of single-task conditions (text, walk or visual task only). The size of the visual field, display duration of the visual cue, and visual acuity demand were varied across the visual task conditions. About half of the visual cues provided during walking and texting were not perceived (48.3%) as compared to the visual task only condition. The magnitude of this loss of situational awareness was dependent upon the nature of visual information provided.

While gait parameters were not different among visual task conditions, greater total medial-lateral excursion of the pelvis was observed in the walk and text condition compared to the walk

only condition, showing the dual-task effects of texting on gait kinematics. The study provides further evidence of dual-task effects of texting on situational awareness as well as gait kinematics.

Keywords:

Dual-task, Texting, Situational awareness, Gait kinematics, Attention

Constrained gait

Gait Posture. 2015 Jul 22. pii: S0966-6362(15)00738-9. doi: 10.1016/j.gaitpost.2015.07.010.

Effects of constrained arm swing on vertical center of mass displacement during walking.

Yang HS¹, Atkins LT², Jensen DB², James CR².

Author information

Abstract

The purpose of this study was to determine the effects of constraining arm swing on the vertical displacement of the body's center of mass (COM) during treadmill walking and examine several common gait variables that may account for or mask differences in the body's COM motion with and without arm swing. Participants included 20 healthy individuals (10 male, 10 female; age: 27.8 ± 6.8 years). The body's COM displacement, first and second peak vertical ground reaction forces (VGRFs), and lowest VGRF during mid-stance, peak summed bilateral VGRF, lower extremity sagittal joint angles, stride length, and foot contact time were measured with and without arm swing during walking at 1.34m/s. The body's COM displacement was greater with the arms constrained (arm swing: 4.1 ± 1.2 cm, arm constrained: 4.9 ± 1.2 cm, $p < 0.001$). Ground reaction force data indicated that the COM displacement increased in both double limb and single limb stance. However, kinematic patterns visually appeared similar between conditions. Shortened stride length and foot contact time also were observed, although these do not seem to account for the increased COM displacement. However, a change in arm COM acceleration might have contributed to the difference.

These findings indicate that a change in arm swing causes differences in vertical COM displacement, which could increase energy expenditure.

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KEYWORDS:

Energy; Gait; Ground reaction force; Kinematics

PMID: 26234472

58. RUNNING

Taping and running mechanics

Scand J Med Sci Sports. 2015 Aug;25(4):517-24. doi: 10.1111/sms.12269. Epub 2014 Jul 2.

Effects of two different knee tape procedures on lower-limb kinematics and kinetics in recreational runners.

Howe A¹, Campbell A¹, Ng L¹, Hall T¹, Hopper D¹.

Author information

- ¹School of Physiotherapy and Exercise Science, Curtin Health Innovation Research Institute, Curtin University, Perth, Australia.

Abstract

The purpose of this study was to compare the effects of Mulligan's tape (MT) and kinesio tape (KT) with no tape (NT) on hip and knee kinematics and kinetics during running. Twenty-nine female recreational runners performed a series of 'run-throughs' along a 10-m runway under the three taping conditions. Two force plates and a 14-camera Vicon motion analysis system (Oxford Metrics, Inc., Oxford, UK) captured kinematic and kinetic data for each dependent variable from ground contact to toe off. Comparisons of each dependent variable under three taping conditions were assessed through Statistical Package for the Social Sciences (SPSS; SPSS, Inc., Chicago, Illinois, USA; P-value < 0.01) using repeated measure analyses of variance. For each dependent variable with a P-value < 0.01, repeated measures with pairwise comparisons and Bonferroni adjustment were conducted to compare the three taping conditions. MT induced a significant reduction in anterior and posterior hip forces, knee flexion angular velocity, knee extensor moments, and hip flexion and extension moments compared with NT and KT (P = 0.001).

There was no difference in hip or knee, kinematics or kinetics, between KT and NT (P = 1.000). MT appears to influence hip and knee biomechanics during running in an asymptomatic sample, whereas KT appeared to be biomechanically not different from NT.

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KEYWORDS:

Patellofemoral; biomechanics; injury

PMID: 24989992

Barefoot and change in mechanics

Med Sci Monit. 2015 Jul 13;21:2021-30. doi: 10.12659/MSM.893518.

Six Weeks Habituation of Simulated Barefoot Running Induces Neuromuscular Adaptations and Changes in Foot Strike Patterns in Female Runners.

Khowailed IA¹, Petrofsky J², Lohman E², Daher N².

Author information

Abstract

BACKGROUND The aim of this study was to examine the effects of a 6-week training program of simulated barefoot running (SBR) on running kinetics in habitually shod (wearing shoes) female recreational runners. **MATERIAL AND METHODS** Twelve female runners age 25.7±3.4 years gradually increased running distance in Vibram FiveFingers minimal shoes over a 6-week period. The kinetic analysis of treadmill running at 10 Km/h was performed pre- and post-intervention in shod running, non-habituated SBR, and habituated SBR conditions. Spatiotemporal parameters, ground reaction force components, and electromyography (EMG) were measured in all conditions. **RESULTS** Post-intervention data indicated a significant decrease across time in the habituation SBR for EMG activity of the tibialis anterior (TA) in the pre-activation and absorptive phase of running ($P<0.001$). A significant increase was denoted in the pre-activation amplitude of the gastrocnemius (GAS) between the shod running, unhabituated SBR, and habituated SBR. Six weeks of SBR was associated with a significant decrease in the loading rates and impact forces. Additionally, SBR significantly decrease the stride length, step duration, and flight time, and stride frequency was significantly higher compared to shod running. **CONCLUSIONS** The findings of this study indicate that changes in motor patterns in previously habitually shod runners are possible and can be accomplished within 6 weeks. Non-habituation SBR did not show a significant neuromuscular adaptation in the EMG activity of TA and GAS as manifested after 6 weeks of habituated SBR.

PMID: 26166443

59. PAIN**Habituation and repeated pain**

J Pain Res. 2015 Jul 23;8:431-6. doi: 10.2147/JPR.S86732. eCollection 2015.

The influence of repeated pain stimulation on the emotional aspect of pain: a preliminary study in healthy volunteers.

Maeoka H¹, Hiyamizu M¹, Matsuo A¹, Morioka S¹.

Author information

Abstract

PURPOSE:

Pain is a multidimensional experience with sensory-discriminative, cognitive-evaluative, and affective-motivational components. Emotional factors, such as unpleasantness or anxiety, are known to have influence on pain in humans. Repeated painful stimulation has been reported to reduce subjective pain intensity. Nevertheless, there is little evidence of the influence of such stimulation on the emotional factors of pain. The aim of this study was to evaluate the influence of repeated painful stimulation on the experience of unpleasantness and anxiety.

MATERIALS AND METHODS:

Eight subjects (six females, two males) volunteered to participate in this study. Subjects received repeated painful stimulation for 3 consecutive days each instance lasting 6 seconds, 60 times per day, on the medial side of the forearm of the nondominant hand. We examined the following items to evaluate changes of responses to painful stimulation: pain thresholds, pain tolerance levels, pain intensities, unpleasantness, and anxiety. Furthermore, pain thresholds and pain tolerance levels were compared between different sites on the ipsilateral and contralateral forearms.

RESULTS:

No immediate or chronological changes in pain thresholds or pain tolerance levels were observed. Pain intensities were reduced significantly over the 3-day experimental period ($P < 0.05$). On the other hand, there was no great change in unpleasantness during the 3-day period. Anxiety was

increased significantly after the painful stimulation compared with that without the painful stimulation and before day 1 of the stimulation ($P < 0.05$).

CONCLUSION:

These results suggest that repeated painful stimulation may result in habituation to pain intensities but not habituation to emotional factors.

KEYWORDS:

anxiety; habituation; pain intensity; unpleasantness

PMID: 26229502

Parenting styles and chronic pain

BMC Psychiatry. 2015 Jul 31;15:181. doi: 10.1186/s12888-015-0574-y.

Paternal and maternal bonding styles in childhood are associated with the prevalence of chronic pain in a general adult population: the Hisayama Study.

Anno K1, Shibata M2,3, Ninomiya T4,5, Iwaki R6, Kawata H7, Sawamoto R8, Kubo C9, Kiyohara Y10, Sudo N11,12, Hosoi M13.

Author information

Abstract

BACKGROUND:

Previous research has suggested that extraordinary adverse experiences during childhood, such as abuse, are possible risk factors for the development of chronic pain. However, the relationship between the perceived parental bonding style during childhood and chronic pain has been much less studied.

METHODS:

In this cross-sectional study, 760 community-dwelling Japanese adults were asked if they had pain that had been present for six months or more. They completed the Parental Bonding Instrument (PBI), a self-administrated questionnaire designed to assess perceived parental bonding, and the Patient Health Questionnaire-9 to assess current depressive symptoms. The PBI consists of care and overprotection subscales that are analyzed by assigning the parental bonding style to one of four quadrants: Optimal bonding (high care/low overprotection), neglectful parenting (low care/low overprotection), affectionate constraint (high care/high overprotection), and affectionless control (low care/high overprotection). Logistic regression analysis was done to estimate the contribution of the parental bonding style to the risk of chronic pain, controlling for demographic variables.

RESULTS:

Compared to the optimal bonding group, the odds ratios (ORs) for having chronic pain were

significantly higher in the affectionless control group for paternal bonding (OR: 2.21, 95 % CI: 1.50-3.27) and for maternal bonding (OR: 1.60, 95 % CI: 1.09-2.36). After adjusting for depression, significance remained only for paternal bonding.

CONCLUSION:

The results demonstrate that the parental bonding style during childhood is associated with the prevalence of chronic pain in adults in the general population and that the association is more robust for paternal bonding than for maternal bonding.

PMID: 26227149

Sleep and pain

Pain Med. 2015 Aug 14. doi: 10.1111/pme.12894.

Familial Contributions to Self-Reported Sleep and Pain in Female Twins.

Godfrey KM^{1,2}, Strachan E³, Mostoufi S^{1,2}, Poeschla B³, Succop A⁴, Afari N^{2,5}.

Author information

Abstract

OBJECTIVE:

The relationship between sleep quality and pain has been studied in populations with chronic pain and in nonclinical populations using experimental paradigms. Little is known about the familial contributions to this relationship. This study examines self-reported sleep quality and pain in a nonclinical sample and to explore familial (i.e., shared genetic and common family environment) confounding in those relationships.

DESIGN:

Cross-sectional.

SUBJECTS:

Ninety nine community-based female twin pairs (N = 198) with a mean age of 29 years; 72% monozygotic.

METHODS:

The short form McGill Pain Questionnaire (McGill), a visual analog scale (VAS), a body map, and the Pittsburgh Sleep Quality Index (PSQI) measured self-reported pain and sleep quality. Mixed model regression adjusted for age was used to examine relationships between the pain indices and PSQI in overall and within-pair models.

RESULTS:

Higher PSQI total scores were significantly associated with higher scores across the McGill sensory (B = 0.37, p < 0.001), affective (B = 0.16, p < 0.001), total scores (B = 0.54, p < 0.001), the VAS (B = 2.41, p < 0.001), and number of sites with any pain on the body map (B = 0.42,

$p = 0.001$). All of these associations were diminished and rendered nonsignificant in within-pair analyses that accounted for genetic and familial factors (all p 's ≥ 0.01 ; Bonferroni $\alpha = 0.01$).

CONCLUSIONS:

These findings support an association between poor sleep quality and pain and suggest that this relationship may be confounded by shared genetic and environmental factors, which could elucidate biological mechanisms that underlie the development and maintenance of pain and sleep problems.

Wiley Periodicals, Inc.

KEYWORDS:

Familial Factors; Females; Genetics; Pain; Sleep; Twins

PMID: 26271474

Patterns of pain

Best Pract Res Clin Rheumatol. 2015 Feb;29(1):131-46. doi: 10.1016/j.berh.2015.04.021. Epub 2015 May 23.

Meta-analyses of pain studies: What we have learned.

Häuser W¹, Tölle TR².

Author information

Abstract

Meta-analysis is a statistical procedure that integrates the results of at least two independent studies. The biggest threats to meta-analysis are publication bias due to missing studies with negative results and low-quality evidence due to methodological limitations imposed by included studies. Tools to improve the quality of meta-analysis have been developed by the Cochrane Collaboration and by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Meta-analyses of trials have demonstrated that pain responses in patients with chronic pain, following treatment, are not normally distributed but have a bimodal distribution with the majority of patients having either very little or very good pain relief. The benefit can be detected within 2-4 weeks following drug administration.

Further, the efficacy of drug and physical treatments is hampered by high placebo response rates, with modest average benefits with active treatments over placebo in both parallel and crossover design trials.

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KEYWORDS:

Chronic pain; Efficacy; Meta-analysis; Nocebo response; Placebo response; Systematic review

PMID: 26267007

Mindfulness and decreased pain

Pain Med. 2015 Aug 8. doi: 10.1111/pme.12883.

A Brief Mindfulness Meditation Training Increases Pain Threshold and Accelerates Modulation of Response to Tonic Pain in an Experimental Study.

Reiner K¹, Granot M^{2,3}, Soffer E¹, Lipsitz JD¹.

Author information

Abstract

OBJECTIVE:

Research shows that mindfulness meditation (MM) affects pain perception; however, studies have yet to measure patterns of change over time. We examined effects of MM on perception of experimental heat pain using multiple psychophysical indices, including pattern of change in response to tonic painful stimuli. We also tested the potential moderating role of baseline mindfulness.

METHOD:

Forty participants were randomly assigned to a brief MM training or control group. We assessed: a) heat pain threshold (HPT), b) temperature which induces pain at a fixed, target intensity level, and c) response pattern over time to tonic heat pain.

RESULTS:

Compared to control group, the MM group showed increased HPT and more rapid attenuation of pain intensity for tonic pain stimuli. Moderation analyses indicated that baseline mindfulness moderated effects of MM on HPT.

CONCLUSIONS:

A brief MM intervention appears to affect perception of experimental pain both by increasing pain threshold and accelerating modulation of response. Findings may help elucidate mechanisms of MM for chronic pain.

Wiley Periodicals, Inc.

KEYWORDS:

Mindfulness meditation; Moderation; Pain modulation; Pain threshold; Tonic pain

PMID: 26257209

Cerebellar involvement in Pain

Cerebellum. 2015 Jul 23.

Cerebellar Clustering and Functional Connectivity During Pain Processing.

Diano M¹, D'Agata F, Cauda F, Costa T, Geda E, Sacco K, Duca S, Torta DM, Geminiani GC.
Author information

Abstract

The cerebellum has been traditionally considered a sensory-motor structure, but more recently has been related to other cognitive and affective functions. Previous research and meta-analytic studies suggested that it could be involved in pain processing. Our aim was to distinguish the functional networks subserved by the cerebellum during pain processing. We used functional magnetic resonance imaging (fMRI) on 12 subjects undergoing mechanical pain stimulation and resting state acquisition. For the analysis of data, we used fuzzy c-mean to cluster cerebellar activity of each participant during nociception. The mean time courses of the clusters were used as regressors in a general linear model (GLM) analysis to explore brain functional connectivity (FC) of the cerebellar clusters. We compared our results with the resting state FC of the same cluster and explored with meta-analysis the behavior profile of the FC networks. We identified three significant clusters: cluster V, involving the culmen and quadrangular lobules (vermis IV-V, hemispheres IV-V-VI); cluster VI, involving the posterior quadrangular lobule and superior semilunar lobule (hemisphere VI, crus 1, crus 2), and cluster VII, involving the inferior semilunar lobule (VIIb, crus1, crus 2). Cluster V was more connected during pain with sensory-motor areas, cluster VI with cognitive areas, and cluster VII with emotional areas.

Our results indicate that during the application of mechanical punctate stimuli, the cerebellum is not only involved in sensory functions but also with areas typically associated with cognitive and affective functions. Cerebellum seems to be involved in various aspects of nociception, reflecting the multidimensionality of pain perception.

PMID: 26202672

60. COMPLEX REGIONAL PAIN**61. FIBROMYALGIA****FM and bladder problems**

Pain Manag Nurs. 2015 Aug 7. pii: S1524-9042(15)00080-6. doi: 10.1016/j.pmn.2015.06.001.

Pelvic Floor and Urinary Distress in Women with Fibromyalgia.

Jones KD¹, Maxwell C², Mist SD², King V³, Denman MA⁴, Gregory WT⁴.

Author information

Abstract

Fibromyalgia (FM) patients were recently found to have more symptom burden from bothersome pelvic pain syndromes than women seeking care for pelvic floor disease at a urogynecology clinic. We sought to further characterize pelvic floor symptoms in a larger sample of FM patients using validated questionnaires. Female listserv members of the Fibromyalgia Information Foundation completed an online survey of three validated questionnaires: the Pelvic Floor Distress Inventory 20 (PFDI-20), the Pelvic Pain, Urgency and Frequency Questionnaire (PUF), and the Revised Fibromyalgia Impact Questionnaire (FIQR). Scores were characterized using descriptive statistics. Patients (n = 204 with complete data on 177) were on average 52.3 ± 11.4 years with a mean parity of 2.5 ± 1.9. FM severity based on FIQR score (57.2 ± 14.9) positively correlated with PFDI-20 total 159.08 ± 55.2 (r = .34, p < .001) and PUF total 16.54 ± 7 (r = .36, p < .001).

Women with FM report significantly bothersome pelvic floor and urinary symptoms. Fibromyalgia management should include evaluation and treatment of pelvic floor disorders recognizing that pelvic distress and urinary symptoms are associated with more severe FM symptoms. Validated questionnaires, like the ones used in this study, are easily incorporated into clinical practice.

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PMID: 26259883

FM and sleep/ subgroups

Nonrestorative sleep in fibromyalgia

Journal of Pain Research, 08/18/2015

Liedberg GM, et al.

The purpose of this study was: 1) to determine variables that might characterize good or bad sleep; and 2) to describe the relationship between sleep, impairment of body functions, personal function factors, and quality of life based on quality of sleep in women with fibromyalgia (FM). This study found that it was possible to identify two subgroups of women with FM based on quality of sleep variables. The two subgroups differed significantly with respect to pain, psychological factors, impairments of body functions, and perceived quality of life, where the subgroup with bad sleep had a worse situation.

Methods

- This cross-sectional descriptive study included 224 consecutive patients diagnosed at a specialist center.
- These patients were mailed a questionnaire concerning sleep, body functions, personal factors, and health-related quality of life.
- In total, 145 completed questionnaires were collected.

Results

- Using sleep variables (sleep quality, waking up unrefreshed, and tiredness when getting up), the authors identified two subgroups – the good sleep subgroup and the bad sleep subgroup – of women with FM.
- These subgroups exhibited significantly different characteristics concerning pain intensity, psychological variables (depressed mood, anxiety, catastrophizing, and self-efficacy), impairments of body functions, and generic and health-related quality of life.

- The good sleep subgroup reported a significantly better situation, including higher employment/study rate.
- The bad sleep subgroup reported a greater use of sleep medication.
- Five variables determined inclusion into either a good sleep or a bad sleep subgroup: pain in the evening, self-efficacy, anxiety, and according to the Short Form health survey role emotional and physical functioning.

Music and FM

Clin Rheumatol. 2015 Aug 6.

Effects of music on pain in patients with fibromyalgia.

Alparslan GB¹, Babadağ B, Özkaraman A, Yıldız P, Musmul A, Korkmaz C.
Author information

Abstract

Fibromyalgia syndrome (FMS) is a chronic syndrome characterized by diffuse musculoskeletal system pain and painful tender points in certain areas of the body. The aim of the investigation was to determine the effects of music on pain in fibromyalgia patients. This randomized clinical trial was carried out with 37 fibromyalgia outpatients as an experimental group (n = 21) and control group (n = 16) at a University Hospital Internal Medicine and Rheumatology Clinic between 1 June and 1 December 2014. The research instruments used were descriptive characteristics questionnaire, Visual Analogue Scale (VAS), music CD which includes water and wave sounds recommended by the Turkish Psychological Association for psychological relaxation, and pain evaluation form. According to the findings, the average age of patients was 43.59 years \pm 10.30, 94.6 % were women and 81.1 % were married. The fibromyalgia patients had the disease ranged from 1 month to 20 years, the average of disease duration was 23.6 \pm 45.5 months, and the average of pain intensity was 6.89 \pm 1.64 on the VAS. Average pain was reported in the experimental group in VAS on day 1 (5.45 \pm 2.73), day 7 (4.57 \pm 2.71), and day 14 (4.14 \pm 2.45), and significant reduction in pain in the listening music group was seen (p = 0.026). A repeated measure analysis of variance controlling for differences between days demonstrated a significant decrease in pain between day 1 and day 14 (p = 0.022).

There was no significant decrease in pain among control group participants. The effect of music has been found to control pain in fibromyalgia patients. Music therapy should be suggested in pain management for fibromyalgia patients as a non-pharmacologic nursing intervention.

PMID: 26245724

Management of with LBP

Pain Med. 2015 Aug 14. doi: 10.1111/pme.12863.

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

Fatemi G^{1,2}, Fang MA^{1,2}, Breuer P³, Cherniak PE^{4,5}, Gentili A^{6,7}, Hanlon JT^{8,9,10,11,12}, Karp JF^{13,14,15}, Morone NE¹¹, Rodriguez E¹⁶, Rossi MI¹¹, Schmader K^{17,18}, Weiner DK^{16,19}.

Author information

Abstract

OBJECTIVE:

To present the third in a series of articles designed to deconstruct chronic low back pain (CLBP) in older adults. The series presents CLBP as a syndrome, a final common pathway for the expression of multiple contributors rather than a disease localized exclusively to the lumbosacral spine. Each article addresses one of 12 important contributors to pain and disability in older adults with CLBP. This article focuses on fibromyalgia syndrome (FMS).

METHODS:

A modified Delphi approach was used to create the evaluation and treatment algorithm, the table discussing the rationale behind each of the algorithm components, and the stepped-care drug recommendations. The team involved in the creation of these materials consisted of a principal investigator, a 5-member content expert panel, and a 9-member primary care panel. The evaluation and treatment recommendations were based on availability of medications and other resources within the Veterans Health Administration (VHA) facilities. However, non-VHA panelists were also involved in the development of these materials, which can be applied to both VA and civilian settings. The illustrative clinical case was taken from the clinical practice of the principal investigator.

RESULTS:

Following expert consultations and a review of the literature, we developed an evaluation and treatment algorithm with supporting materials to aid in the care of older adults with CLBP who have concomitant FMS. A case is presented that demonstrates the complexity of pain evaluation and management in older patients with CLBP and concomitant FMS.

CONCLUSIONS:

Recognition of FMS as a common contributor to CLBP in older adults and initiating treatment targeting both FMS and CLBP will lead to improved outcomes in pain and disability.

Wiley Periodicals, Inc.

KEYWORDS:

Back Pain; Chronic Pain; Elderly; Fibromyalgia; Low Back Pain

PMID: 26272644

62 A. NUTRITION/VITAMINS

Coffee and performance

Med Sci Sports Exerc. 2015 Aug 17.

Effect of Caffeine on Golf Performance and Fatigue during a Competitive Tournament.

Mumford PW¹, Tribby AC, Poole CN, Dalbo VJ, Scanlan AT, Moon JR, Roberts MD, Young KC.

Author information

Abstract

PURPOSE:

To determine the effect of a caffeine-containing supplement on golf specific performance and fatigue during a 36-hole competitive golf tournament **METHODS:** Twelve male golfers (34.8 ± 13.9 yrs, 175.9 ± 9.3 cm, 81.23 ± 13.14 kg) with a United States Golf Association (USGA) handicap of 3-10 participated in a double-blind, placebo-controlled, crossover design in which they played an 18-hole round of golf on two consecutive days (36-hole tournament) and were randomly assigned to consume a caffeine-containing supplement (CAF) or placebo (PLA). CAF/PLA was consumed before and after 9 holes during each 18-hole round. Total score, drive distance, fairways and greens in regulation, first putt distance, heart rate, breathing rate, peak trunk acceleration and trunk posture while putting were recorded. Self-perceived ratings of energy, fatigue, alertness and concentration were also recorded.

RESULTS:

Total score (76.9 ± 8.1 vs 79.4 ± 9.1 , $p=0.039$), greens in regulation (8.6 ± 3.3 vs 6.9 ± 4.6 , $p=0.035$) and drive distance (239.9 ± 33.8 vs 233.2 ± 32.4 , $p=0.047$) were statistically better during the CAF condition compared to PLA. Statistically significant main effects for condition ($p<0.05$) and time ($p<0.001$) occurred for perceived feelings of energy and fatigue. Compared to PLA, CAF reported more energy ($p=0.025$) and less fatigue ($p=0.05$) over the competitive round of golf. There were no substantial differences in heart or breathing rates, peak trunk acceleration or putting posture between conditions or over the round ($p>0.05$).

CONCLUSION:

A moderate dose (1.9 ± 0.3 mg[BULLET OPERATOR]kg) of caffeine consumed before and during a round of golf improves golf-specific measures of performance and reduces fatigue in skilled golfers.

PMID: 26285020

Fiber and colon cancer

Am J Clin Nutr. 2015 Aug 12. pii: ajcn113282.

Dietary fiber intake and risk of colorectal cancer and incident and recurrent adenoma in the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial.

Kunzmann AT¹, Coleman HG², Huang WY³, Kitahara CM³, Cantwell MM¹, Berndt SI³.

Author information

Abstract

BACKGROUND:

Dietary fiber has been associated with a reduced risk of colorectal cancer. However, it remains unclear at which stage in the carcinogenic pathway fiber may act or which food sources of dietary fiber may be most beneficial against colorectal cancer development.

OBJECTIVE:

The objective was to prospectively evaluate the association between dietary fiber intake and the risk of incident and recurrent colorectal adenoma and incident colorectal cancer.

DESIGN:

Study participants were identified from the intervention arm of the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial. Participants received flexible sigmoidoscopy at baseline and 3 or 5 y after. Dietary fiber intake was measured by using a self-reported dietary questionnaire. The colorectal cancer, incident adenoma, and recurrent adenoma analyses were based on 57,774, 16,980, and 1667 participants, respectively. Unconditional logistic regression was used to assess the risk of incident and recurrent adenoma, and Cox proportional hazards models were used to assess the risk of colorectal cancer across categories of dietary fiber intake, with adjustment for potential confounders.

RESULTS:

Elevated total dietary fiber intake was associated with a significantly reduced risk of incident distal colorectal adenoma (OR_{highest vs. lowest tertile of intake}: 0.76; 95% CI: 0.63, 0.91; P-trend = 0.003) but not recurrent adenoma (P-trend = 0.67). Although the association was not statistically significant for colorectal cancer overall (HR: 0.85; 95% CI: 0.70, 1.03; P-trend = 0.10), a reduced

risk of distal colon cancer was observed with increased total fiber intake (HR: 0.62; 95% CI: 0.41, 0.94; P-trend = 0.03). Protective associations were most notable for fiber originating from cereals or fruit.

CONCLUSIONS:

This large, prospective study within a population-based screening trial suggests that individuals consuming the highest intakes of dietary fiber have reduced risks of incident colorectal adenoma and distal colon cancer and that this effect of dietary fiber, particularly from cereals and fruit, may begin early in colorectal carcinogenesis. This trial was registered at clinicaltrials.gov as NCT01696981.

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KEYWORDS:

cancer risk; colorectal adenoma; colorectal cancer; dietary fiber; epidemiology

PMID: 26269366

Flavonoid intake decreased osteoporotic fractures

Am J Clin Nutr. 2015 Aug 12. pii: ajcn109892.

Tea and flavonoid intake predict osteoporotic fracture risk in elderly Australian women: a prospective study.

Myers G¹, Prince RL², Kerr DA³, Devine A⁴, Woodman RJ⁵, Lewis JR², Hodgson JM⁶.
Author information

Abstract

BACKGROUND:

Observational studies have linked tea drinking, a major source of dietary flavonoids, with higher bone density. However, there is a paucity of prospective studies examining the association of tea drinking and flavonoid intake with fracture risk.

OBJECTIVE:

The objective of this study was to examine the associations of black tea drinking and flavonoid intake with fracture risk in a prospective cohort of women aged >75 y.

DESIGN:

A total of 1188 women were assessed for habitual dietary intake with a food-frequency and beverage questionnaire. Incidence of osteoporotic fracture requiring hospitalization was determined through the Western Australian Hospital Morbidity Data system. Multivariable adjusted Cox regression was used to examine the HRs for incident fracture.

RESULTS:

Over 10 y of follow-up, osteoporotic fractures were identified in 288 (24.2%) women; 212 (17.8%) were identified as a major osteoporotic fracture, and of these, 129 (10.9%) were a hip fracture. In comparison with the lowest tea intake category (≤ 1 cup/wk), consumption of ≥ 3 cups/d was associated with a 30% decrease in the risk of any osteoporotic fracture (HR: 0.70; 95% CI: 0.50, 0.96). Compared with women in the lowest tertile of total flavonoid intake (from tea and diet), women in the highest tertile had a lower risk of any osteoporotic fracture (HR: 0.65; 95% CI: 0.47, 0.88), major osteoporotic fracture (HR: 0.66; 95% CI: 0.45, 0.95), and hip fracture (HR: 0.58; 95% CI: 0.36, 0.95). For specific classes of flavonoids, statistically significant

reductions with fracture risk were observed for higher intake of flavonols for any osteoporotic fracture and major osteoporotic fracture, as well as flavones for hip fracture ($P < 0.05$).

CONCLUSION:

Higher intake of black tea and particular classes of flavonoids were associated with lower risk of fracture-related hospitalizations in elderly women at high risk of fracture.

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KEYWORDS:

bone; cohort; flavonoids; fracture; tea

PMID: 26269364

Coffee good to prevent reoccurrence of colon cancer

J Clin Oncol. 2015 Aug 17. pii: JCO.2015.61.5062.

Coffee Intake, Recurrence, and Mortality in Stage III Colon Cancer: Results From CALGB 89803 (Alliance).

Guercio BJ¹, Sato K¹, Niedzwiecki D¹, Ye X¹, Saltz LB¹, Mayer RJ¹, Mowat RB¹, Whittom R¹, Hantel A¹, Benson A¹, Atienza D¹, Messino M¹, Kindler H¹, Venook A¹, Hu FB¹, Ogino S¹, Wu K¹, Willett WC¹, Giovannucci EL¹, Meyerhardt JA¹, Fuchs CS².

Author information

Abstract

PURPOSE:

Observational studies have demonstrated increased colon cancer recurrence in states of relative hyperinsulinemia, including sedentary lifestyle, obesity, and increased dietary glycemic load. Greater coffee consumption has been associated with decreased risk of type 2 diabetes and increased insulin sensitivity. The effect of coffee on colon cancer recurrence and survival is unknown.

PATIENTS AND METHODS:

During and 6 months after adjuvant chemotherapy, 953 patients with stage III colon cancer prospectively reported dietary intake of caffeinated coffee, decaffeinated coffee, and nonherbal tea, as well as 128 other items. We examined the influence of coffee, nonherbal tea, and caffeine on cancer recurrence and mortality using Cox proportional hazards regression.

RESULTS:

Patients consuming 4 cups/d or more of total coffee experienced an adjusted hazard ratio (HR) for colon cancer recurrence or mortality of 0.58 (95% CI, 0.34 to 0.99), compared with never drinkers ($P_{\text{trend}} = .002$). Patients consuming 4 cups/d or more of caffeinated coffee experienced significantly reduced cancer recurrence or mortality risk compared with abstainers (HR, 0.48; 95% CI, 0.25 to 0.91; $P_{\text{trend}} = .002$), and increasing caffeine intake also conferred a significant reduction in cancer recurrence or mortality (HR, 0.66 across extreme quintiles; 95% CI, 0.47 to 0.93; $P_{\text{trend}} = .006$). Nonherbal tea and decaffeinated coffee were not associated with patient

outcome. The association of total coffee intake with improved outcomes seemed consistent across other predictors of cancer recurrence and mortality.

CONCLUSION:

Higher coffee intake may be associated with significantly reduced cancer recurrence and death in patients with stage III colon cancer.

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PMID: 26282659

Southern foods

Southern-style eating strikes again: Study finds diet pattern increases heart disease risk

UAB Medicine, 08/11/2015

Previous research from the University of Alabama at Birmingham has shown regularly consuming the “Southern-style” diet of fried foods, processed meats, foods high in fat and sugar-sweetened beverages, can lead to an increased risk of stroke and an increased risk of death for chronic kidney disease patients. The latest research, published in *Circulation* finds regularly consuming the “Southern-style” diet could raise your risk of heart disease — including heart attack and heart disease-related death. Heart disease is the leading cause of death for both men and women in the United States, according to the Centers for Disease Control and Prevention, and the food you eat, along with the amount, is a risk factor. Using data from the Reasons for Geographic and Racial Differences in Stroke, or REGARDS, study, a national, population-based, longitudinal study of white and black adults, the research team derived five dietary patterns using data from 17,418 participants: convenience, plant-based, sweets, Southern, alcohol and salad.

“People who most often ate foods conforming to the Southern-style dietary pattern had a 56 percent higher risk of heart disease compared to those who ate it less frequently,” said study lead author James M. Shikany, Dr.P.H., professor in the Division of Preventive Medicine. Shikany says no other dietary pattern was associated with heart disease risk.

Soy and cancer

Cancer Prev Res (Phila). 2015 Aug 14. pii: canprevres.0464.2014.

Consumption of soy isoflavone enriched bread in men with prostate cancer is associated with reduced pro-inflammatory cytokines and immunosuppressive cells.

Lesinski GB¹, Reville PK², Mace TA², Young GS³, Ahn-Jarvis J⁴, Thomas-Ahner J⁵, Vodovotz Y⁴, Ameen Z², Grainger EM⁶, Riedl K⁷, Schwartz SJ⁴, Clinton SK⁸.

Author information

Abstract

We hypothesized that soy phytochemicals may have immunomodulatory properties that may impact prostate carcinogenesis and progression. A randomized, phase II trial was conducted in 32 prostate cancer patients with asymptomatic biochemical recurrence but no measurable disease on standard staging studies. Patients were randomized to 2 slices of soy bread (34 mg isoflavones/slice) or soy bread containing almond powder daily as a source of β -glucosidase. Flow cytometry and bioplex assays were used to measure cytokines or immune cell phenotype in blood at baseline (day 0) and following intervention (day 56). Adequate blood samples were available at enrollment and day 56 and evaluated. Multiple plasma cytokines and chemokines were significantly decreased on Day 56 versus baseline. Subgroup analysis indicated reduced Th1 ($p=0.028$) and MDSC-associated cytokines ($p=0.035$). Th2 and Th17 cytokines were not significantly altered. Phenotypic analysis revealed no change in CD8+ or CD4+ T cells, but showed increased CD56+ NK cells ($p=0.038$). The percentage of cells with a T regulatory cell phenotype (CD4+CD25+FoxP3+) were significantly decreased after 56 days of soy bread ($p=0.0136$). Significantly decreased monocytic (CD33+HLADRnegCD14+) MDSC were observed in patients consuming soy bread ($p=0.0056$).

These data suggest that soy bread modulates systemic soluble and cellular biomarkers relevant to immunomodulation consistent with limiting inflammation and suppression of MDSCs. Additional studies to elucidate impact on the carcinogenic process or as a complement to immune-based therapy are required.

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PMID: 26276751

Cutting fats and carbs

NIH study finds cutting dietary fat reduces body fat more than cutting carbs

NIH News, 08/14/2015

In a recent study, restricting dietary fat led to body fat loss at a rate 68 percent higher than cutting the same number of carbohydrate calories when adults with obesity ate strictly controlled diets. Carb restriction lowered production of the fat-regulating hormone insulin and increased fat burning as expected, whereas fat restriction had no observed changes in insulin production or fat burning. The research was conducted at the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), part of the National Institutes of Health. Results were published August 13 in *Cell Metabolism*.

62 B. CRYOTHERAPY**63. PHARMACOLOGY****64. ELECTROTHERAPY****65. NEUROLOGICAL CONDITIONS****Stroke and involved UE**

Neurorehabil Neural Repair. 2015 Jul 27. pii: 1545968315597069. [Epub ahead of print]

Impact of Shoulder Abduction Loading on Brain-Machine Interface in Predicting Hand Opening and Closing in Individuals With Chronic Stroke.

Yao J¹, Sheaff C², Carmona C², Dewald JP².

[Author information](#)

[Abstract](#)

BACKGROUND:

Many individuals with moderate and severe stroke are unable to use their paretic hand. Currently, the effect of conventional therapy on regaining meaningful hand function in this population is limited. Efforts have been made to use brain-machine interfaces (BMIs) to control hand function. To date, almost all BMI classification algorithms are designed for detecting hand movements with a resting arm. However, many functional movements require simultaneous movements of the arm and hand. Arm movement will possibly affect the detection of intended hand movements, specifically for individuals with chronic stroke who have muscle synergies. The most prevalent upper-extremity synergy-flexor synergy-is expressed as an abnormal coupling between shoulder abductors and elbow/wrist/finger flexors.

OBJECTIVE:

We hypothesized that because of flexor synergy, shoulder abductor activity would affect the detection of the hand-opening (a movement inhibited by flexion synergy) but not the hand-closing task (a movement facilitated by the flexion synergy).

METHODS:

We evaluated the accuracy of a BMI classification algorithm in detecting hand-opening versus closing after reaching a target with 2 different shoulder-abduction loads in 6 individuals with stroke.

RESULTS:

We found a decreased accuracy in detecting hand opening when an individual with stroke intends to open the hand while activating shoulder abductors. However, such decreased accuracy with increased shoulder loading was not shown while detecting a hand-closing task.

CONCLUSIONS:

This study supports the idea that one should consider the effect of shoulder abduction activity when designing BMI classification algorithms for the purpose of restoring hand function in individuals with moderate to severe stroke.

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KEYWORDS:

basic hand function; brain-machine interface; loss of independent joint control; muscle synergies; stroke PMID: 26216789