

ABSTRACTS

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2. LBP

PT early intervention

Spine (Phila Pa 1976). 2017 Mar;42(5):285-290. doi: 10.1097/BRS.0000000000001729.

Cost-Effectiveness of Primary Care Management With or Without Early Physical Therapy for Acute Low Back Pain: Economic Evaluation of a Randomized Clinical Trial.

Fritz JM¹, Kim M, Magel JS, Asche CV.
Author information

Abstract

STUDY DESIGN: Economic evaluation of a randomized clinical trial.

OBJECTIVE: Compare costs and cost-effectiveness of usual primary care management for patients with acute low back pain (LBP) with or without the addition of early physical therapy.

SUMMARY OF BACKGROUND DATA: Low back pain is among the most common and costly conditions encountered in primary care. Early physical therapy after a new primary care consultation for acute LBP results in small clinical improvement but cost-effectiveness of a strategy of early physical therapy is unknown.

METHODS: Economic evaluation was conducted alongside a randomized clinical trial of patients with acute, nonspecific LBP consulting a primary care provider. All patients received usual primary care management and education, and were randomly assigned to receive four sessions of physical therapy or usual care of delaying referral consideration to permit spontaneous recovery. Data were collected in a randomized trial involving 220 participants age 18 to 60 with LBP <16 days duration without red flags or signs of nerve root compression. The EuroQoL EQ-5D health states were collected at baseline and after 1-year and used to compute the quality adjusted life year (QALY) gained. Direct (health care utilization) and indirect (work absence or reduced productivity) costs related to LBP were collected monthly and valued using standard costs. The incremental cost-effectiveness ratio was computed as incremental total costs divided by incremental QALYs.

RESULTS: Early physical therapy resulted in higher total 1-year costs (mean difference in adjusted total costs=\$580, 95% CI: \$175, \$984, P=0.005) and better quality of life (mean difference in QALYs=0.02, 95% CI: 0.005, 0.35, P=0.008) after 1-year. The incremental cost-effectiveness ratio was \$32,058 (95% CI: \$10,629, \$151,161) per QALY.

CONCLUSION: Our results support early physical therapy as cost-effective relative to usual primary care after 1 year for patients with acute, nonspecific LBP.

Fat infiltration

RESEARCH REPORT

Trunk Muscle Characteristics of the Multifidi, Erector Spinae, Psoas, and Quadratus Lumborum in Older Adults With and Without Chronic Low Back Pain

Authors: J. Megan Sions, DPT, PhD, James M. Elliott, PT, PhD, Ryan T. Pohlig, PhD, Gregory E. Hicks, PT, PhD

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2017 **Volume:**47 **Issue:**3 **Pages:**173–179 **DOI:**10.2519/jospt.2017.7002

Study Design

Cross-sectional study

Objective

To determine whether there are differences in trunk muscle characteristics between older adults with and without chronic low back pain (LBP), while controlling for age, sex, and body mass index.

Background

Muscle support for the trunk is provided by the multifidi, erector spinae, psoas, and quadratus lumborum. Trunk muscle characteristics may be altered with aging and/or chronic LBP. To date, most trunk muscle research has been conducted among younger adults. Given age-related muscle changes, such as reduced size and increased intramuscular fat, studies are needed in older adults, including those comparing older adults with and without LBP.

Methods

One hundred two older adults with ($n = 53$) and without ($n = 49$) chronic LBP were included. Cross-sectional area (CSA) measurements were taken by tracing inside the fascial borders on magnetic resonance images. Pixel intensity summaries were obtained to compute muscle-to-fat indices and relative muscle CSA, that is, CSA void of fat. Right/left averages for levels L2 through L5 were determined. Mixed-design analyses of covariance were used to test for differences between groups, based on LBP presence and sex, across levels ($P \leq .05$).

Results

Older adults with LBP had a greater average multifidus muscle-to-fat index (0.51 versus 0.49) and smaller average erector spinae relative muscle CSA (8.56 cm² versus 9.26 cm²) when compared to control participants without LBP. No interactions between LBP status and average muscle characteristics were found for the psoas or quadratus lumborum ($P > .05$).

Conclusion

Up to 54% of older adult trunk muscle CSA may be fat. Women have smaller muscles and greater intramuscular fat (at lower spinal levels) than men. *J Orthop Sports Phys Ther* 2017;47(3):173–179. Epub 3 Feb 2017. doi:10.2519/jospt.2017.7002

Hip involvement

RESEARCH REPORT

Hip and Lumbar Spine Physical Examination Findings in People Presenting With Low Back Pain, With or Without Lower Extremity Pain

Authors: Heidi Prather, DO, Abby Cheng, MD, Karen Steger-May, MA, Vaibhav Maheshwari, DO, Linda Van Dillen, PT, PhD

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2017 **Volume:**47 **Issue:**3 **Pages:**163–172 **DOI:**10.2519/jospt.2017.6567

Study Design

Prospective cohort study, cross-sectional design.

Background

The hip-spine syndrome is described in patients with known arthritis of the hip. This study describes the hip examination findings of people presenting with low back pain (LBP).

Objectives

To (1) report examination findings of the hip in patients with LBP and (2) compare pain and function in patients with positive hip examination findings to those in patients without positive hip examination findings.

Methods

An examination and validated questionnaires of spine and hip pain and function were completed. Pain and function scores were compared between patients with and without positive hip findings.

Results

Consecutive patients (68 women, 33 men) with a mean age of 47.6 years (range, 18.4–79.8 years) participated. On physical examination, 81 (80%) had reduced hip flexion; 76 (75%) had reduced hip internal rotation; and 25 (25%) had 1, 32 (32%) had 2, and 23 (23%) had 3 positive provocative hip tests. Patients with reduced hip flexion had worse LBP-related (mean modified Oswestry Disability Index, 35.3 versus 25.6; $P = .04$) and hip-related function (mean modified Harris Hip Score, 66.0 versus 82.0; $P = .03$). Patients with reduced hip internal rotation had worse LBP-related function (mean Roland-Morris questionnaire, 12.4 versus 8.2; $P = .003$). A positive provocative hip test was coupled with more intense pain (median, 9 versus 7; $P = .05$) and worse LBP-related (mean Roland-Morris questionnaire, 12.1 versus 8.5; $P = .02$) and hip-related function (mean modified Harris Hip Score, 65.8 versus 89.7; $P = .005$).

Conclusion

Physical examination findings indicating hip dysfunction are common in patients presenting with LBP. Patients with LBP and positive hip examination findings have more pain and worse function compared to patients with LBP but without positive hip examination findings.

Level of Evidence

Symptom prevalence, level 1b. *J Orthop Sports Phys Ther* 2017;47(3):163–172. Epub 3 Feb 2017. doi:10.2519/jospt.2017.6567

7. PELVIC ORGANS/WOMAN'S HEALTH

Hysterectomy and pelvic floor dysfunction

Dis Colon Rectum. 2017 Mar;60(3):303-310. doi: 10.1097/DCR.0000000000000786.

Effects of Hysterectomy on Pelvic Floor Disorders: A Longitudinal Study.

Kocaay AF¹, Oztuna D, Su FA, Elhan AH, Kuzu MA.

Author information

Abstract

BACKGROUND: Hysterectomy might adversely affect pelvic floor functions and result in many different symptoms, such as urinary and anal incontinence, obstructed defecation, and constipation.

OBJECTIVE: The aim of this prospective study was to evaluate the influence of hysterectomy on pelvic floor disorders.

DESIGN: This was a prospective and longitudinal study.

SETTINGS: The study was conducted at the Ankara University Department of Surgery and the Dr Zekai Tahir Burak Women's Health Research and Education Hospital between September 2008 and March 2011.

PATIENTS: The study was performed on patients who underwent hysterectomy for benign pathologies.

MAIN OUTCOME MEASURES: A questionnaire about urinary incontinence (International Continence Society scoring), anal incontinence, constipation, and obstructed defecation (Rome criteria and constipation severity score), along with an extensive obstetric history, was administered preoperatively and postoperatively annually for 4 years.

RESULTS: Patients (N = 327) who had completed each of the 4 annual postoperative follow-ups were included in this study. Compared with the preoperative observations, the occurrence of each symptom was significantly increased at each of the follow-up years ($p < 0.001$). Over the 4 postoperative years, the frequencies for constipation (n = 245) were 7.8%, 8.2%, 8.6%, and 5.3%; those for obstructed defecation (n = 269) were 4.5%, 5.2%, 4.1%, and 3.0%; those for anal incontinence (n = 252) were 4.8%, 6.3%, 6.0%, and 5.2%, and those for urinary incontinence (n = 99) were 12.1%, 12.1%, 11.1%, and 13.1%. In addition, patients who had no preoperative symptom (n = 70) from any of the selected symptoms showed a postoperative occurrence of at least 1 of these symptoms of 15.8%, 14.3%, 11.4%, and 8.6% for the postoperative years 1, 2, 3, and 4.

LIMITATIONS: Although the study had several limitations, no comparison with a control population was the most important one.

CONCLUSIONS: Hysterectomy for benign gynecologic pathologies had a significant negative impact on pelvic floor functions in patients who had no previous symptoms.

Scar tissue

Surgical treatment of adhesion-related chronic abdominal and pelvic pain after gynaecological and general surgery: A systematic review and meta-analysis

Human Reproduction Update, 03/03/2017 van den Beukel BA, et al.

Analysts examine the adequacy and harms of surgical interventions for chronic post-operative pain attributable to adhesions. The outcome suggests laparoscopic adhesiolysis decrease pain from adhesions in ~70% of patients in the initial phase after treatment. In any case, there is little proof for the long-term efficacy of adhesiolysis for chronic pain. Other drawbacks of laparoscopic adhesiolysis are the high rate of negative laparoscopies and the risk of bowel injury. At present, there is little evidence to bolster the routine use of adhesiolysis in treatment for chronic pain. New research is needed to examine whether the outcomes of adhesiolysis can be enhanced with new techniques for diagnosis and prevention of adhesion reformation.

8. VISCERA

UC and fatty acids

Clin Gastroenterol Hepatol. 2017 Jan 18. pii: S1542-3565(17)30051-4. doi: 10.1016/j.cgh.2016.12.036.

High Dietary Intake of Specific Fatty Acids Increases Risk of Flares in Patients With Ulcerative Colitis in Remission During Treatment With Aminosalicylates.

Barnes EL¹, Nestor M², Onyewadume L², De Silva P², Korzenik JR²; DREAM Investigators².
Author information

Abstract

BACKGROUND & AIMS:

Dietary factors may have a significant role in relapse of disease among patients with ulcerative colitis (UC). However, the relationship between diet and UC is inadequately understood. We analyzed data from the diet's role in exacerbations of mesalamine maintenance study to determine whether dietary factors affect the risk of disease flares in patients with UC.

METHODS:

We performed a prospective, multicenter, observational study of 412 patients, from 25 sites, with UC in remission during monotherapy with an aminosalicylate. Patients completed a validated food frequency questionnaire at enrollment and were followed for 12 months. We analyzed the relationship between diet and disease remission or flare for groups of macronutrients and micronutrients, and food groups previously associated with an increased risk of flare.

RESULTS:

Forty-five patients (11%) had a UC relapse within 1 year of study enrollment. When analyzed in tertiles, increasing intake of multiple fatty acids was associated with increasing odds of relapse. In multivariable logistic regression analysis, only myristic acid (odds ratio, 3.01; 95% confidence interval, 1.17-7.74) maintained this dose-response relationship. Other foods previously implicated in flares of UC, such as processed meat, alcohol, and foods high in sulfur, were not associated with an increased risk of flare.

CONCLUSIONS:

In a prospective study of more than 400 patients with UC undergoing treatment with aminosalicylates, we associated high dietary intake of specific fatty acids, including myristic acid (commonly found in palm oil, coconut oil, and dairy fats) with an increased risk of flare. These findings can help design interventional studies to evaluate dietary factors in UC.

Celiac disease and diet

A novel patient-derived conceptual model of the impact of celiac disease in adults: Implications for patient-reported outcome and health-related quality-of-life instrument development

Value in Health, 03/03/2017 Leffler DA, et al.

This study was conducted to further understand patients' experience of celiac disease, the impact it has on health-related quality of life (HRQOL), and to develop a conceptual model describing this impact. In this study, it was noticed that both symptoms and maintaining a gluten-free diet (GFD) have a substantial impact on patient functioning and HRQOL in adults with celiac disease.

IBS and QOL

Health Qual Life Outcomes. 2017 Feb 14;15(1):35. doi: 10.1186/s12955-017-0611-2.

Health-related quality of life, work productivity, and indirect costs among patients with irritable bowel syndrome with diarrhea.

Buono JL¹, Carson RT², Flores NM³.

Author information

Abstract

BACKGROUND:

Irritable bowel syndrome (IBS) affects 10-15% of adults in the US, and is associated with significant impairment in health-related quality of life (HRQoL); however, information specific to the diarrhea subtype (IBS-D) is lacking. We assessed the impact of IBS-D on HRQoL, work productivity, and daily activities, and the associated indirect costs, among a sample of the US population.

METHODS:

Respondents (≥ 18 years) from the 2012 US National Health and Wellness Survey who reported an IBS-D diagnosis by a physician or symptoms consistent with Rome II criteria for IBS-D were identified as having IBS-D. Controls included respondents without IBS-D or inflammatory bowel disease. HRQoL was assessed via the Short Form 36 Health Survey version 2 questionnaire and summarized into Mental and Physical Component Summary (MCS; PCS) scores and a Short Form-6 dimension (SF-6D) utility score. Work and activity impairment were assessed via the Work Productivity and Activity Impairment Questionnaire: General Health version (WPAI:GH), which measures absenteeism, presenteeism, overall work productivity loss, and daily activity impairment. Indirect costs were calculated using unit cost data from the Bureau of Labor Statistics and variables from the WPAI:GH. Generalized linear models were used to examine differences in health outcomes between respondents with IBS-D and controls, controlling for demographic and health characteristics.

RESULTS:

In total, 66,491 respondents (1102 IBS-D; 65,389 controls) were analyzed. Mean age was 48.7 years; 50% were female. Compared with controls, the IBS-D cohort reported significantly lower HRQoL (mean MCS: 45.16 vs. 49.48; $p < 0.001$; mean PCS: 47.29 vs. 50.67; $p < 0.001$; mean SF-6D: 0.677 vs. 0.741; $p < 0.001$) and greater absenteeism (5.1% vs. 2.9%; $p = 0.004$), presenteeism (17.9% vs. 11.3%; $p < 0.001$), overall work productivity loss (20.7% vs. 13.2%; $p < 0.001$), and activity impairment (29.6% vs. 18.9%; $p < 0.001$). Respondents with IBS-D also incurred an estimated \$2486 more in indirect costs (\$7008 vs. \$4522; $p < 0.001$).

CONCLUSIONS:

Compared with controls, IBS-D is associated with significantly lower HRQoL, greater impairments in work and daily activities, and higher indirect costs, imposing a substantial burden on patients and employers. These findings suggest a significant unmet need exists for effective IBS-D treatments.

B 12 and Celiac's disease**Lower prevalence of celiac disease and gluten-related disorders in persons living in southern vs northern latitudes of the United States**

Gastroenterology, 02/27/2017 Unalp Arida A, et al. –

The researchers aimed to explore geographic, demographic, and clinical factors associated with the prevalence of celiac disease and gluten-free diet (GFD) in the United States (US). A higher proportion of persons living at latitudes of 35° North or greater have celiac disease and/or avoid gluten than persons living south of this latitude, independent of race or ethnicity, socioeconomic status, or body mass index in the US population. In individuals with the undiagnosed celiac disease, mean levels of B12 and folate are lower and levels of hemoglobin are lower in participants with a diagnosis of celiac disease, compared to individuals without the celiac disease. Methods

- From 2009 through 2014, the researchers analyzed data on gluten-related conditions from the US National Health and Nutrition Examination Survey on 22,277 participants 6 years and older in this population-based study.
- Based on results of serum tests for immunoglobulin A against tissue transglutaminase and endomysium or on both a health care provider diagnosis and adherence to a GFD, they identified persons with celiac disease.
- They defined gluten-avoidance without celiac disease as adherence to a GFD without a diagnosis of celiac disease.
- Based on status of gluten-related conditions, they compared mean serum levels of biochemical and nutritional markers.

Results

- In this study, the researchers observed 0.7% of participants to have celiac disease and 1.1% of participants to avoid gluten without celiac disease.
- Among individuals who lived at latitudes of 35–39° North (odds ratio, 3.2; 95% CI, 1.4–7.1) or at latitudes of 40° North or more (odds ratio, 5.4; 95% CI, 2.6–11.3), celiac disease was more common than individuals who lived at latitudes below 35° North independent of race or ethnicity, socioeconomic status, and body mass index.
- Among individuals who lived at latitudes of 40° North or more, gluten-avoidance without celiac disease was more common independent of demographic factors and body mass index.
- Compared to persons without celiac disease, participants with undiagnosed celiac disease (identified by positive results from serologic tests) had lower mean levels of B12 and folate (data collected from 2009 through 2012).
- Compared to persons without celiac disease, participants with a health-care provider diagnosis of celiac disease had a lower mean level of hemoglobin.
- Between participants with gluten-related conditions and those without, mean levels of albumin, calcium, iron, ferritin, cholesterol, vitamin B6, and vitamin D (data collected from 2009 through 2010) did not differ.

11. UPPER C SPINE

Injuiry

Arch Orthop Trauma Surg. 2017 Feb 22. doi: 10.1007/s00402-017-2655-5.

Factors affecting survival of patients in the acute phase of upper cervical spine injuries.

Morita T¹, Takebayashi T², Irifune H³, Ohnishi H⁴, Hirayama S³, Yamashita T².

Author information

Abstract

INTRODUCTION:

In recent years, on the one hand, the mortality rates of upper cervical spine injuries, such as odontoid fractures, were suggested to be not so high, but on the other hand reported to be significantly high. Furthermore, it has not been well documented the relationship between survival rates and various clinical features in those patients during the acute phase of injury because of few reports. This study aimed to evaluate survival rates and acute-phase clinical features of upper cervical spine injuries.

METHODS:

We conducted a retrospective review of all patients who were transported to the advanced emergency medical center and underwent computed tomography of the cervical spine at our hospital between January 2006 and December 2015. We excluded the patients who were discovered in a state of cardiopulmonary arrest (CPA) and could not be resuscitated after transportation. Of the 215 consecutive patients with cervical spine injuries, we examined 40 patients (18.6%) diagnosed with upper cervical spine injury (males, 28; females, 12; median age, 58.5 years). Age, sex, mechanism of injury, degree of paralysis, the level of cervical injury, injury severity score (ISS), and incidence of CPA at discovery were evaluated and compared among patients classified into the survival and mortality groups.

RESULTS:

The survival rate was 77.5% (31/40 patients). In addition, complete paralysis was observed in 32.5% of patients. The median of ISS was 34.0 points, and 14 patients (35.0%) presented with CPA at discovery. Age, the proportion of patients with complete paralysis, a high ISS, and incidence of CPA at discovery were significantly higher in the mortality group ($p = 0.038$, $p = 0.038$, $p < 0.001$, and $p < 0.001$, respectively).

CONCLUSIONS:

Elderly people were more likely to experience upper cervical spine injuries, and their mortality rate was significantly higher than that in injured younger people. In addition, complete paralysis, high ISS, a state of CPA at discovery, was significantly higher in the mortality group.

12 A. WHIPLASH**Sensory changes**

RESEARCH REPORT

The Effect of Visual Feedback of the Neck During Movement in People With Chronic Whiplash-Associated Disorders: An Experimental Study

Authors: Sanneke Don, PT, MPT, Margot De Kooning, PT, PhD, Lennard Voogt, PT, MT, PhD, Kelly Ickmans, PT, PhD, Liesbeth Daenen, PT, PhD, Jo Nijs, PT, MT, PhD

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2017 **Volume:**47 **Issue:**3 **Pages:**190–199 **DOI:**10.2519/jospt.2017.6891

Study Design

Controlled laboratory study.

Background

Chronic whiplash-associated disorder (WAD) is an important health issue associated with poor recovery outcomes. Sensorimotor incongruence (SMI), defined as a mismatch between the efference copy in the brain and afferent sensory feedback from the body, is proposed as a possible underlying cause of chronic pain.

Objectives

To determine whether SMI causes sensory disturbances or pain in people with chronic WAD and healthy controls.

Methods

Sixty-four participants (30 with chronic WAD and 34 healthy controls) participated in a visual feedback experiment involving the neck and a bimanual coordination experiment involving the arms. In both experimental setups, SMI was induced by modifying the visual feedback during movement. Sensory disturbances and pain were the primary outcomes.

Results

A statistically significant difference in perceived sensory disturbance between conditions was found in the WAD group ($P < .001$). Intensity scores were highest for induced SMI, but only for visual feedback of the neck and not for visual feedback of the arms. This effect was not present in the control group ($P = .139$). Sensorimotor incongruence did not affect pain in either group.

Conclusion

Persons with chronic WAD are more susceptible to sensory disturbances owing to SMI, and this effect is specific to the region affected by pain. The hypothesis that SMI causes pain was not substantiated by the results of the present study. *J Orthop Sports Phys Ther* 2017;47(3):190–199. Epub 3 Feb 2017. doi:10.2519/jospt.2017.6891

Keyword: bimanual coordination experiment, cervical spine, pain, sensorimotor incongruence, visual feedback experiment

13. CRANIUM/TMJ

Teeth and health

J Public Health Dent. 2017 Feb 13. doi: 10.1111/jphd.12200.

Having fewer than 21 teeth associated with poorer general health among South Australians.

Jamieson L¹, Brennan D¹, Peres M¹, Luzzi L¹, Miller C², Bowden J², McCaffery N³.

Author information

Abstract

OBJECTIVE:

To explore whether having less than 21 teeth is associated with poorer general health in a representative population sample of South Australians.

METHODS:

Data were from a cross-sectional state-based survey, conducted from September to December 2013. Complete data were available for 2,908 participants (58 percent response rate). General health-related quality of life (HrQOL), as measured by the EuroQol instrument (EQ-5D-5L), was the main outcome measure. Total disutility scores were calculated, with the five individual EQ-5D dimensions then dichotomized into "no problems" and "at least one problem." The main explanatory variable was self-reported missing teeth, as assessed by having <21 teeth versus 21+ teeth in a questionnaire.

RESULTS:

Overall, disutility was low (0.09) (ranges from 0 to 1, with high scores indicating poorer general health). In multivariable analysis, total disutility was positively associated with older age, lower annual household income, lower levels of physical activity, being a current tobacco smoker, receiving mental health treatment and <21 teeth. When individual dimensions were considered, missing teeth remained significantly associated with mobility problems (PR 1.26, 95 percent CI 1.06, 1.50) and pain/discomfort (PR 1.16, 95 percent CI 1.06, 1.27).

CONCLUSIONS:

Missing teeth was associated with poor general health status as measured by EQ-5D-5L disutility. The relationship was especially evident with respect to mobility and pain/discomfort. The findings emphasize the importance of oral health as predictors of general health.

Weather and TMD

J Oral Rehabil. 2017 Feb 28. doi: 10.1111/joor.12498.

Effect of weather on temporal pain patterns in patients with temporomandibular disorders and migraine.

Cioffi I^{1,2}, Farella M³, Chiodini P⁴, Ammendola L², Capuozzo R², Klein C², Vollaro S², Michelotti A².

Author information

Abstract**BACKGROUND:**

Patients with masticatory muscle pain and migraine typically report that the intensity of pain fluctuates over time and is affected by weather changes. Weather variables, such as ambient temperature and humidity, may vary significantly depending on whether the individual is outdoor or indoor. It is, therefore, important to assess these variables at the individual level by using portable monitors, during everyday life.

OBJECTIVES:

To determine the temporal pattern of pain intensity in individuals affected with facial and head pain, and to investigate its relation with weather changes.

METHODS:

Eleven patients (27.3±7.4 years) with chronic masticatory muscle pain (MP) and twenty (33.1±8.7 years) with migraine headache (MH) were asked to report their current pain level on a visual analogue scale (VAS) every hour over fourteen consecutive days. The VAS scores were collected using portable data-loggers, which were also used to record temperature, atmospheric pressure, and relative humidity.

RESULTS:

VAS scores varied markedly over time in both groups. Pain VAS scores fluctuate less in the MP group than in the MH group, but their mean, minimum and maximum values were higher than those of migraine patients (all p<0.05). Pain scores<2 cm were more common in the MH than in the MP group (p<0.001). Perceived intensity of pain was negatively associated with atmospheric pressure in the MP group and positively associated with temperature and atmospheric in the MH group.

CONCLUSION:

Patients with masticatory muscle pain and patients with migraine present typical temporal pain patterns that are influenced in a different way by weather changes. This article is protected by copyright. All rights reserved.

Culture and TMD pain

J Oral Rehabil. 2017 Feb 28. doi: 10.1111/joor.12499.

Influence of culture on pain comorbidity in women with and without temporomandibular disorder-pain.

Al-Harthy M^{1,2,3}, Michelotti A⁴, List T^{2,3,5}, Ohrbach R⁶.
Author information

Abstract**BACKGROUND:**

Evidence on cultural differences in prevalence and impact of common chronic pain conditions, comparing individuals with temporomandibular disorders (TMD) vs individuals without TMD, is limited.

OBJECTIVE:

The aim was to assess cross-cultural comorbid pain conditions in women with chronic TMD pain.

METHODS:

Consecutive women patients (n=122) with the index condition of chronic TMD pain diagnosed per the Research Diagnostic Criteria for TMD and TMD-free controls (n=121) matched for age were recruited in Saudi Arabia, Italy and Sweden. Self-report questionnaires assessed back, chest, stomach and head pain for prevalence, pain intensity, and interference with daily activities. Logistic regression was used for binary variables and ANCOVA was used for parametric data analysis, adjusting for age and education.

RESULTS:

Back pain was the only comorbid condition with a different prevalence across cultures; Swedes reported a lower prevalence compared to Saudis (P<0.01). Saudis reported higher prevalence of work reduced >50% due to back pain compared to Italians or Swedes (P<0.01). Headache was the most common comorbid condition in all three cultures. The total number of comorbid conditions did not differ cross-culturally but were reported more by TMD-pain cases than TMD-free controls (P<0.01). For both back and head pain, higher average pain intensities (P<0.01) and interference with daily activities (P<0.01) were reported by TMD-pain cases, compared to TMD-free controls. Among TMD-pain cases, Italians reported the highest pain-related disability (P<0.01).

CONCLUSION:

Culture influences the associated comorbidity of common pain conditions. The cultural influence on pain expression is reflected in different patterns of physical representation. This article is protected by copyright. All rights reserved.

Clinching TMD

J Oral Rehabil. 2017 Feb 28. doi: 10.1111/joor.12497.

Influence of sustained submaximal clenching fatigue test on electromyographic activity and maximum voluntary bite forces in healthy subjects and patients with temporomandibular disorders.

Xu L¹, Fan S¹, Cai B¹, Fang Z¹, Jiang X¹.

Author information

Abstract

This study aimed to investigate whether the fatigue induced by sustained motor task in the jaw elevator muscles differed between healthy subjects and patients with temporomandibular disorder (TMD). Fifteen patients with TMD and thirteen age- and sex-matched healthy controls performed a fatigue test consisting of sustained clenching contractions at 30% maximal voluntary clenching(MVC) intensity until test failure(the criterion for terminating the fatigue test was when the biting force decreased by 10% or more from the target force consecutively for >3 seconds). The pre- and post-maximal bite forces (MBFs) were measured. Surface Electromyographic signals were recorded from the superficial masseter muscles and anterior temporal muscles bilaterally, and the median frequency at the beginning, middle, and end of the fatigue test was calculated. The duration of the fatigue test was also quantified. Both pre- and post-MBFs were lower in TMD patients than in controls ($P < 0.01$). No significant difference was found in the percentage change in MBF between groups. The duration of the fatigue test in TMD patients was significantly shorter than that of the controls ($P < 0.05$). Our results suggest that, compared to healthy subjects, TMD patients become more easily fatigued, but the electromyographic activation process during the fatigue test is similar between healthy subjects and TMD patients. However, the mechanisms involved in this process remain unclear and further research is warranted. This article is protected by copyright. All rights reserved.

Jaw muscle pain

J Headache Pain. 2017 Dec;18(1):30. doi: 10.1186/s10194-017-0737-y. Epub 2017 Feb 27.

Increased levels of intramuscular cytokines in patients with jaw muscle pain.

Louca Jounger S^{1,2}, Christidis N^{3,4}, Svensson P^{3,4,5}, List T^{4,6}, Ernberg M^{3,4}.

Author information

Abstract

BACKGROUND:

The aim of this study was to investigate cytokine levels in the masseter muscle, their response to experimental tooth-clenching and their relation to pain, fatigue and psychological distress in patients with temporomandibular disorders (TMD) myalgia.

METHODS:

Forty women, 20 with TMD myalgia (Diagnostic Criteria for TMD) and 20 age-matched healthy controls participated. Intramuscular microdialysis was performed to sample masseter muscle cytokines. After 140 min (baseline), a 20-minute tooth-clenching task was performed (50% of maximal voluntary contraction force). Pain (Numeric rating scale 0-10) and fatigue (Borg's Ratings of Perceived Exertion 6-20) were assessed throughout microdialysis, while pressure-pain thresholds (PPT) were assessed before and after microdialysis. Perceived stress (PSS-10) and Trait Anxiety (STAI) were assessed before microdialysis.

RESULTS:

The levels of IL-6, IL-7, IL-8 and IL-13 were higher in patients than controls (Mann Whitney U-test; P's < 0.05) during the entire microdialysis. IL-6, IL-8 and IL-13 changed during microdialysis in both groups (Friedman; P's < 0.05), while IL-1 β , IL-7 and GM-CSF changed only in patients (P's < 0.01). IL-6 and IL-8 increased in response to tooth-clenching in both groups (Wilcoxon test; P's < 0.05), while IL-7, IL-13 and TNF increased only in patients (P's < 0.05). Patients had higher pain and fatigue than controls before and after tooth-clenching (P < 0.001), and lower PPTs before and after microdialysis (P < 0.05). There were no correlations between cytokine levels, pain or fatigue. Also, there were no differences in stress or anxiety levels between groups.

CONCLUSIONS:

In conclusion, the masseter levels of IL-6, IL-7, IL-8 and IL-13 were elevated in patients with TMD myalgia and increased in response to tooth-clenching. Tooth-clenching increased jaw muscle pain and fatigue, but without correlations to cytokine levels. This implies that subclinical muscle inflammation may be involved in TMD myalgia pathophysiology, but that there is no direct cause-relation between inflammation and pain.

14. HEADACHES

Acupuncture helps

JAMA Intern Med. 2017 Feb 20. doi: 10.1001/jamainternmed.2016.9378.

The Long-term Effect of Acupuncture for Migraine Prophylaxis: A Randomized Clinical Trial.

Zhao L¹, Chen J¹, Li Y¹, Sun X², Chang X³, Zheng H¹, Gong B⁴, Huang Y⁵, Yang M¹, Wu X¹, Li X⁴, Liang F¹.

Author information

Abstract

IMPORTANCE: The long-term prophylactic effects of acupuncture for migraine are uncertain.

OBJECTIVE: To investigate the long-term effects of true acupuncture compared with sham acupuncture and being placed in a waiting-list control group for migraine prophylaxis.

DESIGN, SETTING, AND PARTICIPANTS: This was a 24-week randomized clinical trial (4 weeks of treatment followed by 20 weeks of follow-up). Participants were randomly assigned to true acupuncture, sham acupuncture, or a waiting-list control group. The trial was conducted from October 2012 to September 2014 in outpatient settings at 3 clinical sites in China. A total of 249 participants 18 to 65 years old with migraine without aura based on the criteria of the International Headache Society, with migraine occurring 2 to 8 times per month.

INTERVENTIONS: Participants in the true acupuncture and sham acupuncture groups received treatment 5 days per week for 4 weeks for a total of 20 sessions. Participants in the waiting-list group did not receive acupuncture but were informed that 20 sessions of acupuncture would be provided free of charge at the end of the trial.

MAIN OUTCOMES AND MEASURES: Participants used diaries to record migraine attacks. The primary outcome was the change in the frequency of migraine attacks from baseline to week 16. Secondary outcome measures included the migraine days, average headache severity, and medication intake every 4 weeks within 24 weeks.

RESULTS: A total of 249 participants 18 to 65 years old were enrolled, and 245 were included in the intention-to-treat analyses. One hundred eighty-nine (77.1%) were women. Baseline characteristics were comparable across the 3 groups. The mean (SD) change in frequency of migraine attacks differed significantly among the 3 groups at 16 weeks after randomization ($P < .001$); the mean (SD) frequency of attacks decreased in the true acupuncture group by 3.2 (2.1), in the sham acupuncture group by 2.1 (2.5), and the waiting-list group by 1.4 (2.5); a greater reduction was observed in the true acupuncture than in the sham acupuncture group (difference of 1.1 attacks; 95% CI, 0.4-1.9; $P = .002$) and in the true acupuncture vs waiting-list group (difference of 1.8 attacks; 95% CI, 1.1-2.5; $P < .001$). Sham acupuncture was not statistically different from the waiting-list group (difference of 0.7 attacks; 95% CI, -0.1 to 1.4; $P = .07$).

CONCLUSIONS AND RELEVANCE: Among patients with migraine without aura, true acupuncture may be associated with long-term reduction in migraine recurrence compared with sham acupuncture or assigned to a waiting list.

BOTOX helps

J Headache Pain. 2017 Dec;18(1):23. doi: 10.1186/s10194-017-0723-4. Epub 2017 Feb 17.

OnabotulinumtoxinA effectiveness on chronic migraine, negative emotional states and sleep quality: a single-center prospective cohort study.

Aydinlar EI¹, Dikmen PY², Kosak S², Kocaman AS².
Author information

Abstract

BACKGROUND:

OnabotulinumtoxinA (OnabotA) is considered effective in in patients with chronic migraine (CM) who failed on traditional therapies. This study was designed to evaluate the effect of OnabotA injection series on migraine outcome, negative emotional states and sleep quality in patients with CM.

METHODS:

A total of 190 patients with CM (mean (SD) age: 39.3 (10.2) years; 87.9% were female) were included. Data on Pittsburgh sleep quality index (PSQI), headache frequency and severity, number of analgesics used, Migraine Disability Assessment Scale. (MIDAS) scores and Depression, Anxiety and Stress Scale (DASS-21) were evaluated at baseline (visit 1) and 4 consecutive follow up visits, each conducted after OnabotA injection series; at week 12 (visit 2), week 24 (visit 3), week 36 (visit 4) and week 48 (visit 5) to evaluate change from baseline to follow up.

RESULTS:

From baseline to visit 5, significant decrease was noted in least square (LS) mean headache frequency (from 19.5 to 8.4, $p = 0.002$), headache severity (from 8.1 to 6.1, $p = 0.017$), number of analgesics (from 26.9 to 10.4, $p = 0.023$) and MIDAS scores (from 67.3 to 18.5, $p < 0.001$). No significant change from baseline was noted in global PSQI and DASS-21 scores throughout the study.

CONCLUSIONS:

Our findings revealed that OnabotA therapy was associated with significant improvement in migraine outcome leading to decrease in headache frequency and severity, number of analgesics used and MIDAS scores. While no significant change was noted in overall sleep quality and prevalence of negative emotional states, patients without negative emotional states at baseline showed improved sleep quality throughout the study.

26. CARPAL TUNNEL SYNDROME

MT vs surgery

RESEARCH REPORT

The Effectiveness of Manual Therapy Versus Surgery on Self-reported Function, Cervical Range of Motion, and Pinch Grip Force in Carpal Tunnel Syndrome: A Randomized Clinical Trial

Authors: César Fernández-de-las-Peñas, PT, PhD, DMSc, Joshua Cleland, PT, PhD, OCS, FAAOMPT, María Palacios-Ceña, PT, Stella Fuensalida-Novo, PT, Juan A. Pareja, MD, PhD, Cristina Alonso-Blanco, PT, PhD

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2017 **Volume:**47 **Issue:**3 **Pages:**151–161 **DOI:**10.2519/jospt.2017.7090

Study Design

Randomized parallel-group trial.

Background

Carpal tunnel syndrome (CTS) is a common pain condition that can be managed surgically or conservatively.

Objective

To compare the effectiveness of manual therapy versus surgery for improving self-reported function, cervical range of motion, and pinch-tip grip force in women with CTS.

Methods

In this randomized clinical trial, 100 women with CTS were randomly allocated to either a manual therapy (n = 50) or a surgery (n = 50) group. The primary outcome was self-rated hand function, assessed with the Boston Carpal Tunnel Questionnaire. Secondary outcomes included active cervical range of motion, pinch-tip grip force, and the symptom severity subscale of the Boston Carpal Tunnel Questionnaire. Patients were assessed at baseline and 1, 3, 6, and 12 months after the last treatment by an assessor unaware of group assignment. Analysis was by intention to treat, with mixed analyses of covariance adjusted for baseline scores.

Results

At 12 months, 94 women completed the follow-up. Analyses showed statistically significant differences in favor of manual therapy at 1 month for self-reported function (mean change, -0.8 ; 95% confidence interval [CI]: $-1.1, -0.5$) and pinch-tip grip force on the symptomatic side (thumb-index finger: mean change, 2.0 ; 95% CI: $1.1, 2.9$ and thumb-little finger: mean change, 1.0 ; 95% CI: $0.5, 1.5$). Improvements in self-reported function and pinch grip force were similar between the groups at 3, 6, and 12 months. Both groups reported improvements in symptom severity that were not significantly different at all follow-up periods. No significant changes were observed in pinch-tip grip force on the less symptomatic side and in cervical range of motion in either group.

Conclusion

Manual therapy and surgery had similar effectiveness for improving self-reported function, symptom severity, and pinch-tip grip force on the symptomatic hand in women with CTS. Neither manual therapy nor surgery resulted in changes in cervical range of motion.

27. HIP

Involvement in LBP

RESEARCH REPORT

Hip and Lumbar Spine Physical Examination Findings in People Presenting With Low Back Pain, With or Without Lower Extremity Pain

Authors: Heidi Prather, DO, Abby Cheng, MD, Karen Steger-May, MA, Vaibhav Maheshwari, DO, Linda Van Dillen, PT, PhD

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2017 **Volume:**47 **Issue:**3 **Pages:**163–172 **DOI:**10.2519/jospt.2017.6567

Study Design

Prospective cohort study, cross-sectional design.

Background

The hip-spine syndrome is described in patients with known arthritis of the hip. This study describes the hip examination findings of people presenting with low back pain (LBP).

Objectives

To (1) report examination findings of the hip in patients with LBP and (2) compare pain and function in patients with positive hip examination findings to those in patients without positive hip examination findings.

Methods

An examination and validated questionnaires of spine and hip pain and function were completed. Pain and function scores were compared between patients with and without positive hip findings.

Results

Consecutive patients (68 women, 33 men) with a mean age of 47.6 years (range, 18.4–79.8 years) participated. On physical examination, 81 (80%) had reduced hip flexion; 76 (75%) had reduced hip internal rotation; and 25 (25%) had 1, 32 (32%) had 2, and 23 (23%) had 3 positive provocative hip tests. Patients with reduced hip flexion had worse LBP-related (mean modified Oswestry Disability Index, 35.3 versus 25.6; $P = .04$) and hip-related function (mean modified Harris Hip Score, 66.0 versus 82.0; $P = .03$). Patients with reduced hip internal rotation had worse LBP-related function (mean Roland-Morris questionnaire, 12.4 versus 8.2; $P = .003$). A positive provocative hip test was coupled with more intense pain (median, 9 versus 7; $P = .05$) and worse LBP-related (mean Roland-Morris questionnaire, 12.1 versus 8.5; $P = .02$) and hip-related function (mean modified Harris Hip Score, 65.8 versus 89.7; $P = .005$).

Conclusion

Physical examination findings indicating hip dysfunction are common in patients presenting with LBP. Patients with LBP and positive hip examination findings have more pain and worse function compared to patients with LBP but without positive hip examination findings.

Gluteal tendon pain

Br J Sports Med. 2017 Mar;51(6):519-524. doi: 10.1136/bjsports-2016-096175. Epub 2016 Sep 15.

Utility of clinical tests to diagnose MRI-confirmed gluteal tendinopathy in patients presenting with lateral hip pain.

Grimaldi A^{1,2}, Mellor R², Nicolson P³, Hodges P⁴, Bennell K³, Vicenzino B^{2,4}.

Author information

Abstract**PURPOSE:**

Gluteal tendinopathy (GT) is a source of lateral hip pain, yet common clinical diagnostic tests have limited validity. Patients with GT are often misdiagnosed, resulting in inappropriate management, including surgery. This study determined the diagnostic utility of clinical tests for GT, using MRI as the reference standard.

METHODS:

65 participants with lateral hip pain were examined to evaluate the ability of clinical tests to detect MRI-determined GT (an increase in intratendinous signal intensity on T2-weighted images). Palpation of the greater trochanter and several clinical pain provocation tests applying compressive and tensile loads on the gluteal tendons were investigated. MRI of the painful hip was examined by a radiologist, blind to clinical findings.

RESULTS:

Pain reported within 30 s of standing on the affected limb conclusively moves a (nominal) 50% pretest probability of GT presence on MRI to a post-test probability of 98% (specificity 100%, positive likelihood ratio ~12), whereas no pain on palpation (80% sensitivity) would rule out its presence. 20 participants (31%) had GT on MRI but clinically negative (ie, not positive on palpation and another test).

CONCLUSIONS:

Keeping in mind that the sample size was small (ie, possibly underpowered for indices of diagnostic utility with low precision), the results of this study indicate that a patient who reports lateral hip pain within 30 s of single-leg-standing is very likely to have GT. Patients with lateral hip pain who are not palpably tender over the greater trochanter are unlikely to have MRI-detected GT.

28. REPLACEMENTS

Early weight bearing

J Orthop Surg Res. 2017 Feb 17;12(1):31. doi: 10.1186/s13018-017-0527-x.

Partial versus early full weight bearing after uncemented total hip arthroplasty: a meta-analysis.

Tian P¹, Li ZJ², Xu GJ¹, Sun XL¹, Ma XL³.

Author information

Abstract

BACKGROUND:

This meta-analysis aimed to investigate the efficacy and safety of partial weight bearing (PWB) versus early full weight bearing (FWB) after uncemented total hip arthroplasty (THA).

METHODS:

We conducted a search in PubMed, EMBASE, The Cochrane Library, and Web of Science for randomized controlled trials (RCTs) and non-RCTs comparing PWB and early FWB after uncemented THA. Two authors conducted the selection of studies, data extraction, and assessment of risk of bias independently. A pooled meta-analysis was performed using the RevMan 5.3 software.

RESULTS:

Six RCTs and three non-RCTs met the inclusion criteria. The meta-analysis indicated that compared with PWB, the FWB group showed greater femoral subsidence at 3-month follow-up (MD = -0.12, 95% CI -0.22 to -0.01, P = 0.03). There were no significant differences in the hip Harris score at 1-year and 2-year follow-up (MD = 1.54, 95% CI -0.83 to 3.90, P = 0.20; MD = 0.08, 95% CI -1.19 to 1.34, P = 0.90, respectively), in femoral subsidence at 2-year follow-up and at two additional years of follow-up (MD = -0.03, 95% CI -0.31 to 0.25, P = 0.84; (MD = -0.02, 95% CI -0.37 to 0.33, P = 0.91, respectively). There were no significant differences in the incidences of bone ingrowth fixation, spot welds, and radiolucent lines.

CONCLUSIONS:

This meta-analysis shows that early FWB in patients with uncemented THA could be safe and could not increase the incidence of postoperative complications.

32 A. KNEE/ACL**Neuroplasticity****RESEARCH REPORT****Neuroplasticity Associated With Anterior Cruciate Ligament Reconstruction**

Authors: Dustin R. Grooms, PhD, ATC, Stephen J. Page, PhD, OTR/L, Deborah S. Nichols-Larsen, PT, PhD, Ajit M.W. Chaudhari, PhD, Susan E. White, PhD, James A. Onate, PhD

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2016 **Volume:**47 **Issue:**3 **Pages:**180–189 **DOI:**10.2519/jospt.2017.7003

Study Design

Controlled laboratory study.

Background

Anterior cruciate ligament (ACL) injury may result in neuroplastic changes due to lost mechanoreceptors of the ACL and compensations in neuromuscular control. These alterations are not completely understood. Assessing brain function after ACL injury and anterior cruciate ligament reconstruction (ACLR) with functional magnetic resonance imaging provides a means to address this gap in knowledge.

Objective

To compare differences in brain activation during knee flexion/extension in persons who have undergone ACLR and in matched controls.

Methods

Fifteen participants who had undergone left ACLR (38.13 ± 27.16 months postsurgery) and 15 healthy controls matched on age, sex, height, mass, extremity dominance, education level, sport participation, and physical activity level participated. Functional magnetic resonance imaging data were obtained during a unilateral knee motor task consisting of repeated cycles of knee flexion and extension.

Results

Participants who had undergone ACLR had increased activation in the contralateral motor cortex, lingual gyrus, and ipsilateral secondary somatosensory area and diminished activation in the ipsilateral motor cortex and cerebellum when compared to healthy matched controls.

Conclusion

Brain activation for knee flexion/extension motion may be altered following ACLR. The ACLR brain activation profile may indicate a shift toward a visual-motor strategy as opposed to a sensory-motor strategy to engage in knee movement.

Level of Evidence Cohort, level 3. *J Orthop Sports Phys Ther* 2017;47(3):180–189. Epub 5 Nov 2016. doi:10.2519/jospt.2017.7003

33. MENISCUS

Return to sport

Knee Surg Sports Traumatol Arthrosc. 2017 Feb 27. doi: 10.1007/s00167-017-4463-4.

Sport-specific outcomes after isolated meniscal repair: a systematic review.

Eberbach H¹, Zwingmann J², Hohloch L², Bode G², Maier D², Niemeyer P^{2,3}, Südkamp NP², Feucht MJ².

Author information

Abstract

PURPOSE:

The purpose of this systematic review was to assess sport-specific outcomes after repair of isolated meniscal tears.

METHODS:

A systematic electronic search of the MEDLINE and Cochrane database was performed in May 2016 to identify studies that reported sport-specific outcomes after isolated meniscal repair. Included studies were abstracted regarding study characteristics, patient demographics, surgical technique, rehabilitation, and outcome measures. The methodological quality of the included studies was assessed with the Coleman Methodology Score (CMS).

RESULTS:

Twenty-eight studies with a total of 664 patients met the inclusion criteria. The methodological quality of the included studies was moderate, with a mean CMS of 69.7 ± 8.3 . The mean patient age was 26 ± 7.2 years and 71% of patients were male. Mean preoperative Tegner score improved from 3.5 ± 0.3 to 6.2 ± 0.8 postoperatively. Comparing preinjury and postoperative Tegner scores, comparable values were observed (6.3 ± 1.1 and 5.7 ± 0.8 , respectively). Return to sports on the preinjury level was achieved in 89%. Mixed-level populations returned to their preinjury activity level in 90% and professional athletes in 86%. Mean delay of return to sports varied between 4.3 and 6.5 months, with comparable results between professional and mixed-level athletes. The pooled failure rate was 21%. The failure rate was lower in professional athletes compared to mixed-level athletes (9% vs. 22%).

CONCLUSION:

This systematic review suggests that isolated repair of meniscal tears results in good to excellent sport-specific outcomes and a high return to sports rate in both recreational and professional athletes. The failure rate is comparable to systematic reviews not focusing on sportive patients.

Large extrusion

Knee Surg Sports Traumatol Arthrosc. 2017 Feb 15. doi: 10.1007/s00167-017-4441-x.

Large meniscus extrusion ratio is a poor prognostic factor of conservative treatment for medial meniscus posterior root tear.

Kwak YH¹, Lee S¹, Lee MC¹, Han HS².

Author information

Abstract

PURPOSE:

The purpose of this study was to find a prognostic factor of medial meniscus posterior root tear (MMPRT) for surgical decision making.

METHODS:

Eighty-eight patients who were diagnosed as acute or subacute MMPRT without severe degeneration of the meniscus were treated conservatively for 3 months. Fifty-seven patients with MMPRT showed good response to conservative treatment (group 1), while the remaining 31 patients who failed to conservative treatment (group 2) received arthroscopic meniscus repair. Their demographic characteristics and radiographic features including hip-knee-ankle angle, joint line convergence angle, Kellgren-Lawrence grade in plain radiographs, meniscus extrusion (ME) ratio (ME-medial femoral condyle ratio, ME-medial tibial plateau ratio, ME-meniscus width ratio), the location of bony edema, and cartilage lesions in MRI were compared. Receiver operating characteristic (ROC) curve analysis was also performed to determine the cut-off values of risk factors.

RESULTS:

The degree of ME-medial femoral condyle and medial tibia plateau ratio of group 2 was significantly higher than group 1 (0.08 and 0.07 vs. 0.1 and 0.09, respectively, both $p < 0.001$). No significant (n.s.) difference in other variables was found between the two groups. On ROC curve analysis, ME-medial femoral condyle ratio was confirmed as the most reliable prognostic factor of conservative treatment for MMPRT (area under ROC = 0.8).

CONCLUSION:

The large meniscus extrusion ratio was the most reliable poor prognostic factor of conservative treatment for MMPRT. Therefore, for MMPRT patients with large meniscus extrusion, early surgical repair could be considered as the primary treatment option.

Slope and ACL

Knee Surg Sports Traumatol Arthrosc. 2017 Feb 17. doi: 10.1007/s00167-017-4447-4.

Proximal tibial bony and meniscal slopes are higher in ACL injured subjects than controls: a comparative MRI study.

Elmansori A^{1,2}, Lording T³, Dumas R², Elmajri K^{1,2}, Neyret P^{1,2}, Lustig S^{4,5}.

Author information

Abstract

PURPOSE:

Increased tibial slope is reported as a risk factor of non-contact anterior cruciate ligament (ACL) injury, but the effect of the soft tissues on slope remains unclear. The primary aims of this study were to compare the tibial bony and soft tissue slopes between patients with and without ACL injury, and to investigate the relationship between the meniscal slopes (MS) and the tibial bony slope. Our hypothesis was that the menisci would correct the inclination of the bony tibial slope towards the horizontal.

METHODS:

Using magnetic resonance imaging (MRI), the lateral and medial tibial slopes (LTS, MTS) and lateral and medial meniscal slopes (LMS, MMS) were compared in 100 patients with isolated ACL injury and a control group of 100 patients with patello-femoral pain and an intact ACL.

RESULTS:

Repeated-measures analysis of variance showed good inter- and intra-observer reliability for both bony and soft tissue slopes (ICC (0.88-0.93) and (0.78-0.91) for intra- and inter-observer reliability, respectively). The LTS and MTS were significantly greater in the ACL injury group (10.4 ± 3.1 and 9.4 ± 3.3) than in the control group (7.3 ± 3.4 and 7.0 ± 3.7). Similarly, the LMS and MMS were significantly greater in the ACL injury group (4.7 ± 4.7 and 6.0 ± 3.4) than the control group (0.9 ± 4.8 and 3.7 ± 3.6). In both groups, the lateral bony tibial slope was greater than the medial bony tibial slope, but the medial soft tissue slope was greater than the lateral soft tissue slope.

CONCLUSION:

Increased tibial slopes, both bony and meniscal, are risk factors for ACL injury. As the meniscus tends to correct the observed slope towards the horizontal, loss of the posterior meniscus may potentiate this effect by increasing the functional slope

37. OSTEOARTHRITIS/KNEE**Progression of**

Med Sci Sports Exerc. 2017 Feb 25. doi: 10.1249/MSS.0000000000001238.

Physical Activity Is Related with Cartilage Quality in Women with Knee Osteoarthritis.

Munukka M¹, Waller B, Häkkinen A, Nieminen MT, Lammentausta E, Kujala UM, Paloneva J, Kautiainen H, Kiviranta I, Heinonen A.

Author information

Abstract**PURPOSE:**

To study the relationship between 12-month leisure-time physical activity (LTPA) level and changes in estimated biochemical composition of tibiofemoral cartilage in postmenopausal women with mild knee osteoarthritis (OA).

METHODS:

Originally 87 volunteer postmenopausal women, aged 60-68 years, with mild knee OA (Kellgren Lawrence I/II and knee pain) participated in a randomised controlled, 4-month aquatic training trial (RCT), after which 76 completed the 12-month post-intervention follow-up period. Self-reported LTPA was collected along the 12-month period using a diary from which metabolic equivalent task hours (MET_h) per month were calculated. Participants were divided into MET_h tertiles: 1=lowest (n=25), 2=middle (n=25) and 3=highest (n=26). The biochemical composition of the cartilage was estimated using transverse relaxation time (T₂) mapping sensitive to the properties of the collagen network and delayed gadolinium-enhanced magnetic resonance imaging of the cartilage (dGEMRIC index) sensitive to the cartilage glycosaminoglycan (GAG) content. Secondary outcomes were cardiorespiratory fitness, isometric knee extension and flexion force and the knee injury and osteoarthritis outcome questionnaire (KOOS).

RESULTS:

During the 12-month follow-up period, there was a significant linear relationship between higher LTPA level and increased dGEMRIC index changes in the posterior region of interest (ROI) of the lateral (p=0.003 for linearity) and medial (p=0.006) femoral cartilage. Furthermore, these changes were seen in the posterior lateral femoral cartilage superficial (p=0.004) and deep (p=0.007) ROIs and in the posterior medial superficial ROI (p<0.001). There was no linear relationship between LTPA level and other measured variables.

CONCLUSIONS:

These results suggest that higher LTPA level is related to regional increases in estimated GAG content of tibiofemoral cartilage in postmenopausal women with mild knee OA as measured with dGEMRIC index during a 12-month period.

44. RHUMATOID ARTHRITIS

Inflammation mediators

Arthritis Res Ther. 2017 Feb 10;19(1):32. doi: 10.1186/s13075-017-1232-1.

Endothelial injury in rheumatoid arthritis: a crosstalk between dimethylarginines and systemic inflammation.

Dimitroulas T^{1,2}, Hodson J³, Sandoo A⁴, Smith J⁵, Kitas GD⁶.

Author information

Abstract

BACKGROUND:

Symmetric (SDMA) and asymmetric (ADMA) dimethylarginines have emerged as novel biomarkers of cardiovascular disease (CVD) in several disease settings associated with atherosclerosis. Rheumatoid arthritis (RA) is a chronic systemic inflammatory disease characterized by high CVD mortality and morbidity. ADMA and SDMA levels are abnormal in RA patients, but their correlation with assessments of endothelial function and structure remains unknown. We aimed to investigate whether SDMA and ADMA are associated with carotid intima media thickness (cIMT) and arterial stiffness as well as non-invasive assessments of in vivo micro- and macrovascular endothelial function in RA patients with high systemic inflammatory load.

METHOD:

ADMA and SDMA levels were measured using immunoassays in 197 RA individuals. Twenty-six of these [23 (86.4%) females, median age 70, quartiles (60, 73)] were identified as having high inflammatory markers [erythrocyte sedimentation rate (ESR) >25 mm/hr and C-reactive protein (CRP) > 5 mg/L], and were compared to the remainder of the cohort. Patients underwent assessments of microvascular endothelium-dependent and endothelium-independent function [laser Doppler imaging with iontophoresis of acetylcholine (ACh) and sodium-nitroprusside (SNP) respectively], macrovascular endothelium-dependent and endothelium-independent function (flow-mediated dilatation and glyceryl-trinitrate-mediated dilation respectively), and vascular morphology [pulse wave analysis, and carotid intima media thickness (cIMT)].

RESULTS:

Significant interactions with inflammation were detected in the associations between ACh and both SDMA ($p = 0.014$) and ADMA:SDMA ratio ($p = 0.027$), as well as between SNP and SDMA ($p = 0.042$) and between arterial stiffness and ADMA:SDMA ($p = 0.036$), with the associations being stronger in the patients with high inflammatory markers in each case.

CONCLUSIONS:

Besides their emerging role as markers of endothelial dysfunction SDMA and ADMA may promote endothelial injury in RA as mediators of the adverse effects of systemic inflammation on micro- and macrovasculature respectively in patients with active disease.

Use of alternative medicine

Rheumatol Int. 2017 Mar;37(3):337-351. doi: 10.1007/s00296-016-3616-y. Epub 2016 Nov 26.

A critical review of complementary and alternative medicine use among people with arthritis: a focus upon prevalence, cost, user profiles, motivation, decision-making, perceived benefits and communication.

Yang L¹, Sibbritt D¹, Adams J².
Author information

Abstract

A critical review of complementary and alternative medicine (CAM) use among people with arthritis was conducted focusing upon prevalence and profile of CAM users as well as their motivation, decision-making, perceived benefits and communication with healthcare providers. A comprehensive search of peer-reviewed literature published from 2008 to 2015 was undertaken via CINAHL, Medline and AMED databases. The initial search identified 4331 articles, of which 49 articles met selection criteria. The review shows a high prevalence of CAM use (often multiple types and concurrent to conventional medical care) among those with arthritis which is not restricted to any particular geographic or social-economic status. A large proportion of arthritis sufferers using CAM consider these medicines to be somewhat or very effective but almost half do not inform their healthcare provider about their CAM use. It is suggested that rheumatologists and others providing health care for patients with arthritis should be cognizant of the high prevalence of CAM use and the challenges associated with possible concurrent use of CAM and conventional medicine among their patients.

48 B. TRIGGER POINTS NEEDLING/ACUPUNCTURE**Effectiveness of DN****RESEARCH REPORT****The Effectiveness of Trigger Point Dry Needling for Musculoskeletal Conditions by Physical Therapists: A Systematic Review and Meta-analysis**

Authors: Eric Gattie, PT, DPT, Joshua A. Cleland, PT, PhD, Suzanne Snodgrass, PT, PhD

Published: *Journal of Orthopaedic & Sports Physical Therapy*,
2017 **Volume:**47 **Issue:**3 **Pages:**133–149 **DOI:**10.2519/jospt.2017.7096

Study Design

Systematic review and meta-analysis.

Background

An increasing number of physical therapists in the United States and throughout the world are using dry needling to treat musculoskeletal pain.

Objective

To examine the short- and long-term effectiveness of dry needling delivered by a physical therapist for any musculoskeletal pain condition.

Methods

Electronic databases were searched. Eligible randomized controlled trials included those with human subjects who had musculoskeletal conditions that were treated with dry needling performed by a physical therapist, compared with a control or other intervention. The overall quality of the evidence was assessed using the Grading of Recommendations Assessment, Development and Evaluation.

Results

The initial search returned 218 articles. After screening, 13 were included. Physiotherapy Evidence Database quality scale scores ranged from 4 to 9 (out of a maximum score of 10), with a median score of 7. Eight meta-analyses were performed. In the immediate to 12-week follow-up period, studies provided evidence that dry needling may decrease pain and increase pressure pain threshold when compared to control/sham or other treatment. At 6 to 12 months, dry needling was favored for decreasing pain, but the treatment effect was not statistically significant. Dry needling, when compared to control/sham treatment, provides a statistically significant effect on functional outcomes, but not when compared to other treatments.

Conclusion

Very low-quality to moderate-quality evidence suggests that dry needling performed by physical therapists is more effective than no treatment, sham dry needling, and other treatments for reducing pain and improving pressure pain threshold in patients presenting with musculoskeletal pain in the immediate to 12-week follow-up period. Low-quality evidence suggests superior outcomes with dry needling for functional outcomes when compared to no treatment or sham needling. However, no difference in functional outcomes exists when compared to other physical therapy treatments. Evidence of long-term benefit of dry needling is currently lacking.

53. CORE

Fat infiltration

RESEARCH REPORT

Trunk Muscle Characteristics of the Multifidi, Erector Spinae, Psoas, and Quadratus Lumborum in Older Adults With and Without Chronic Low Back Pain

Authors: J. Megan Sions, DPT, PhD, James M. Elliott, PT, PhD, Ryan T. Pohlig, PhD, Gregory E. Hicks, PT, PhD

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2017 **Volume:**47 **Issue:**3 **Pages:**173–179 **DOI:**10.2519/jospt.2017.7002

Study Design

Cross-sectional study.

Objective

To determine whether there are differences in trunk muscle characteristics between older adults with and without chronic low back pain (LBP), while controlling for age, sex, and body mass index.

Background

Muscle support for the trunk is provided by the multifidi, erector spinae, psoas, and quadratus lumborum. Trunk muscle characteristics may be altered with aging and/or chronic LBP. To date, most trunk muscle research has been conducted among younger adults. Given age-related muscle changes, such as reduced size and increased intramuscular fat, studies are needed in older adults, including those comparing older adults with and without LBP.

Methods

One hundred two older adults with ($n = 53$) and without ($n = 49$) chronic LBP were included. Cross-sectional area (CSA) measurements were taken by tracing inside the fascial borders on magnetic resonance images. Pixel intensity summaries were obtained to compute muscle-to-fat indices and relative muscle CSA, that is, CSA void of fat. Right/left averages for levels L2 through L5 were determined. Mixed-design analyses of covariance were used to test for differences between groups, based on LBP presence and sex, across levels ($P \leq .05$).

Results

Older adults with LBP had a greater average multifidus muscle-to-fat index (0.51 versus 0.49) and smaller average erector spinae relative muscle CSA (8.56 cm^2 versus 9.26 cm^2) when compared to control participants without LBP. No interactions between LBP status and average muscle characteristics were found for the psoas or quadratus lumborum ($P > .05$).

Conclusion

Up to 54% of older adult trunk muscle CSA may be fat. Women have smaller muscles and greater intramuscular fat (at lower spinal levels) than men. *J Orthop Sports Phys Ther* 2017;47(3):173–179. Epub 3 Feb 2017. doi:10.2519/jospt.2017.7002

54. POSTURE**Kyphosis and fx increase**

Osteoporos Int. 2017 Mar 1. doi: 10.1007/s00198-017-3971-x.

Thoracolumbar kyphosis is associated with compressive vertebral fracture in postmenopausal women.

Wei Y¹, Tian W², Zhang GL¹, Lv YW¹, Cui GY¹.

Author information

Abstract

The main aim of this retrospective cross-sectional study was to examine the relationship between vertebral compression fracture and thoracolumbar Cobb angles. Fracture prevalence was found to be significantly higher for patients with moderate [odds ratio (OR) = 4.78 (2.88-7.95)] or severe kyphosis [OR = 10.7 (5.11-22.40)] than for patients with mild kyphosis. The relationship between degree of thoracolumbar kyphosis and vertebral compression fracture was analyzed.

INTRODUCTION:

The hypothesis that vertebral compression fracture in women is related to thoracolumbar kyphosis severity was tested, and a clinically important cutoff degree of sagittal thoracolumbar Cobb angle (TLCobb) was determined.

METHODS:

Demographic data, clinical data, and quantitative computed tomography (QCT) findings were compiled for 212 postmenopausal women with thoracolumbar fracture (study group) and 150 postmenopausal women with degenerative lumbar disease (control group). Group proportions and characteristics were compared with chi-squared tests and unpaired t tests, respectively.

RESULTS:

In this retrospective cross-sectional study cohort, 17 patients had T11 fractures, 79 had T12 fractures, 89 had L1 fractures, and 27 had L2 fractures. QCT findings and TLCobb differed between the study and control groups (both $p < 0.001$). No significant differences were found in body mass index (BMI), disk height, or coronal TLCobb. After adjustment for age, BMI, and QCT findings, fracture prevalence was found to be higher in the thoracolumbar kyphosis study group than in the control group [OR = 6.16, 95% confidence interval (CI) 3.88-9.78]. Sagittal TLCobbs of 7.5-15° and >15° were associated with an increased fracture prevalence, with ORs of 4.78 (2.88-7.95) and 10.7 (5.11-22.40), respectively.

CONCLUSION:

Vertebral fracture prevalence in postmenopausal women was found to be associated with thoracolumbar kyphosis. A TLCobb sagittal angle >15° should be considered an indicator for vertebral fracture assessment.

55. SCOLIOSIS

Comparisons of position

Upright, prone, and supine spinal morphology and alignment in adolescent idiopathic scoliosis

Scoliosis, 03/01/2017 Brink RC, et al.

Researchers, for the first time, compared the coronal, axial, and sagittal morphology of the scoliotic spine in three different body positions (upright, prone, and supine) and between three different imaging modalities (X-ray, CT, and MRI). They found that in contrast to the upright position, a generalized underestimation of morphological parameters of the scoliotic deformity in the supine and prone positions was evident, however, a significant correlation of these parameters was still obvious among different body positions by different imaging modalities. Overall, outcomes indicated that severity of scoliotic deformity in adolescent idiopathic scoliosis (AIS) patients can be largely represented by different imaging modalities despite the difference in body positioning.

57. GAIT**Treadmill vs. ground walking**

Gait Posture. 2017 Feb 9;53:248-253. doi: 10.1016/j.gaitpost.2017.02.003.

Comparison of body's center of mass motion relative to center of pressure between treadmill and over-ground walking.

Lu HL¹, Lu TW², Lin HC³, Chan WP⁴.

Author information

Abstract

Treadmills have been used in rehabilitation settings to provide convenient protocols and continuous monitoring of movement over multiple cycles at well-controlled speeds for gait and balance training. However, the potential differences in the movement control may affect the translation of the training outcomes to real life over-ground walking (OW). The similarities and differences in the balance control between treadmill walking (TW) and OW have largely been unexplored. The current study bridged the gap by comparing the motions of the body's center of mass (COM) relative to the center of pressure (COP) between TW and OW, in terms of the COM-COP inclination angle (IA) and its rate of change (RCIA). The movement of the COM and COP separately were quite different between OW and TW, but when describing the COM motion relative to the COP, the COM motions became similar qualitatively with similar butterfly patterns. However, significantly increased peak values in the mediolateral RCIA and greater ranges of mediolateral IA were found during TW ($p < 0.004$). In the sagittal plane, the posterior velocity of the belt led to an anterior RCIA (posterior RCIA in OW) with increasing anterior IA during early double-limb support phase, and reduced posterior RCIA ($p < 0.009$) with an increased anterior IA ($p < 0.001$) during the remainder of the phase. These differences between TW and OW may have to be taken into account in future designs of strategies to optimize the translation of treadmill gait training outcomes into real life over-ground walking.

59. PAIN**Placebo and neuropathic pain**

Muscle Nerve. 2017 Mar 1. doi: 10.1002/mus.25635.

Placebo response in pain, fatigue, and performance: possible implications for neuromuscular disorders.

Shaibani A¹, Frisaldi E², Benedetti F^{2,3}.

Author information

Abstract

The placebo response in neuromuscular disorders is not well understood. The only available data regarding the underlying mechanisms are related to neuropathic pain. In this review, we describe the factors that contribute to improved outcomes in the placebo arm, with specific attention to pain and fatigue, as well as some of the most important psychobiological mechanisms that may explain such a response. This approach might also improve our insight into the symptomatology and therapeutic responses of other neuromuscular disorders. The fact that more than 90% of tested analgesics for neuropathic pain have failed in advanced phases of clinical trials should prompt a greater investment of effort and resources into understanding the mechanisms and impact of placebos in clinical research. Such an endeavor will help improve the design of clinical trials and will provide information that informs clinical neuromuscular practice. This article is protected by copyright. All rights reserved.

62 A. NUTRITION/VITAMINS**FODMAP diet**

Aliment Pharmacol Ther. 2017 Feb 24. doi: 10.1111/apt.13978.

Predictors of response to a low-FODMAP diet in patients with functional gastrointestinal disorders and lactose or fructose intolerance.

Wilder-Smith CH¹, Olesen SS², Materna A¹, Drewes AM².

Author information

Abstract

BACKGROUND:

Diets low in fermentable sugars (low-FODMAP diets) are increasingly adopted by patients with functional gastrointestinal disorders (FGID), but outcome predictors are unclear.

AIM:

To identify factors predictive of an efficacious response to a low-FODMAP diet in FGID patients with fructose or lactose intolerance thereby gaining insights into underlying mechanisms.

METHODS:

Fructose and lactose breath tests were performed in FGID patients to determine intolerance (positive symptom score) and malabsorption (increased hydrogen or methane concentrations). Patients with fructose or lactose intolerance consumed a low-FODMAP diet and global adequate symptom relief was assessed after 6-8 weeks and correlated with pre-diet clinical symptoms and breath test results.

RESULTS:

A total of 81% of 584 patients completing the low-FODMAP diet achieved adequate relief, without significant differences between FGID subgroups or types of intolerance. Univariate analysis yielded predictive factors in fructose intolerance (chronic diarrhoea and pruritus, peak methane concentrations and fullness during breath tests) and lactose intolerance (peak hydrogen and methane concentrations and flatulence during breath tests). Using multivariate analysis, symptom relief was independently and positively predicted in fructose intolerance by chronic diarrhoea [odds ratio (95% confidence intervals): 2.62 (1.31-5.27), P = 0.007] and peak breath methane concentrations [1.53 (1.02-2.29), P = 0.042], and negatively predicted by chronic nausea [0.33 (0.16-0.67), P = 0.002]. No independent predictive factors emerged for lactose intolerance.

CONCLUSIONS:

Adequate global symptom relief was achieved with a low-FODMAP diet in a large majority of functional gastrointestinal disorders patients with fructose or lactose intolerance. Independent predictors of a satisfactory dietary outcome were only seen in fructose intolerant patients, and were indicative of changes in intestinal host or microbiome metabolism.

Med diet and CA

J Nutr. 2017 Feb 22. pii: jn244129. doi: 10.3945/jn.116.244129.

Postdiagnostic Mediterranean and Healthy Nordic Dietary Patterns Are Inversely Associated with All-Cause Mortality in Long-Term Colorectal Cancer Survivors.

Ratjen I¹, Schafmayer C², di Giuseppe R¹, Waniek S¹, Plachta-Danielzik S¹, Koch M^{1,3}, Nöthlings U⁴, Hampe J⁵, Schlesinger S^{1,6}, Lieb W⁷.

Author information

Abstract

Background: Dietary factors are known to affect the risk of new-onset colorectal cancer (CRC), but information on the extent to which postdiagnostic diet affects mortality in long-term CRC survivors is scarce.

Objective: We investigated the association of 2 a priori-defined postdiagnostic dietary patterns [Modified Mediterranean Diet Score (MMDS) and healthy Nordic Food Index (HNFI)] with all-cause mortality in long-term CRC survivors.

Methods: Diet was assessed at a median time of 6 y after cancer diagnosis in 1404 CRC survivors (median age: 69 y; 56% men) in a prospective cohort study in Northern Germany by using a semiquantitative food-frequency questionnaire. Cox proportional hazard models, adjusting for clinical and sociodemographic characteristics, were used to assess associations of the MMDS and the HNFI with all-cause mortality.

Results: A total of 204 patients died during a median follow-up time of 7 y after diet assessment. In multivariable-adjusted models, higher adherence to the modified Mediterranean diet was significantly associated with lower all-cause mortality (HR: 0.48; 95% CI: 0.32, 0.74 for highest compared with lowest score quartile and HR: 0.88; 95% CI: 0.81, 0.96 per 1-point increment in pattern score). Similarly, the HNFI was inversely associated with all-cause mortality when the highest was compared with the lowest index quartile (HR: 0.63; 95% CI: 0.39, 1.04) and when modeled as a continuous trait (HR: 0.90; 95% CI: 0.82, 0.99 per 1-point increment in the score).

Conclusions: Our results suggest that higher adherences to the Mediterranean diet and to the healthy Nordic diet after CRC diagnosis are associated with better overall survival in long-term CRC survivors.

Fish and asthma

Fish and seafood consumption during pregnancy and the risk of asthma and allergic rhinitis in childhood: A pooled analysis of 18 European and US birth cohorts

International Journal of Epidemiology, 03/01/2017

Stratakis N, et al. – The researchers performed this work to evaluate whether fish and seafood consumption in pregnancy is related to childhood wheeze, asthma and allergic rhinitis. They found no evidence supporting a protective relationship of fish and seafood consumption during pregnancy with offspring symptoms of wheeze, asthma and allergic rhinitis from infancy to mid-childhood.

Methods

- In the present study, the researchers pooled individual data from 60774 mother-child pairs taking an interest in 18 European and US birth cohort studies.
- Data on wheeze, asthma and allergic rhinitis prevalence was gathered utilizing validated questionnaires.
- The time periods of interest were: infancy (0-2 years), preschool age (3-4 years), and school age (5-8 years).
- They utilized multivariable generalized models to evaluate relationship of fish and seafood (other than fish) consumption during pregnancy with child respiratory outcomes in cohort-specific analyses, with subsequent random-effects meta-analyses.

Results

- It was observed in the findings that the median fish consumption during pregnancy ranged from 0.44 times/week in The Netherlands to 4.46 times/week in Spain.
- Maternal fish intake during pregnancy was not related to offspring wheeze symptoms in any age group nor with the risk of child asthma [adjusted meta-analysis relative risk (RR) per 1-time/week = 1.01, 95% confidence interval 0.97-1.05] and allergic rhinitis at school age (RR = 1.01, 0.99-1.03).
- These outcomes were consistently found in further analyses by type of fish and seafood consumption and in sensitivity analyses.

Vit. D and statin use

J Am Geriatr Soc. 2017 Feb 27. doi: 10.1111/jgs.14784.

Statin Use and 25-Hydroxyvitamin D Blood Level Response to Vitamin D Treatment of Older Adults.

Bischoff-Ferrari HA^{1,2}, Fischer K^{1,2}, Orav EJ³, Dawson-Hughes B⁴, Meyer U^{1,2}, Chocano-Bedoya PO^{1,2}, Meyer OW^{1,2}, Ernst R^{1,2}, Schietzel S^{1,2}, Eberli F⁵, Staehelin HB⁶, Freystätter G^{1,2}, Roas S¹, Theiler R^{1,2}, Egli A^{1,2}, Wilson NM^{1,2}.

Author information

Abstract**OBJECTIVES:**

To determine whether statin use alters response of 25-hydroxyvitamin D (25(OH)D) level to vitamin D treatment.

DESIGN:

Pooled analysis.

SETTING:

Three double-blind randomized controlled trials that tested different doses of vitamin D.

PARTICIPANTS:

Participants of three trials (N = 646; mean age 76.3 ± 8.4, 65% female).

MEASUREMENTS:

In all three trials, 25(OH)D status and statin use were assessed repeatedly over time (baseline, 6 and 12 months). Repeated-measures analysis was used to compare 25(OH)D response to vitamin D treatment at baseline and 6 and 12 months of statin users and nonusers, controlling for age, sex, body mass index, Charlson Comorbidity Index, vitamin D dose, trial, and season.

RESULTS:

At baseline, 17.5% were statin users, and 65% were vitamin D deficient (25(OH)D < 20 ng/mL). Baseline 25(OH)D levels did not differ significantly between groups at baseline (18.8 for statin users, 17.2 ng/mL for nonusers, P = .07), but according to the longitudinal analyses, the total increase over 12 months in 25(OH)D concentration was significantly lower in statin users (13.1 ng/L) than nonusers (15.9 ng/mL; 21.4% difference; P = .009).

CONCLUSION:

Of persons aged 60 and older at high risk of vitamin D deficiency, statin users had a 21.4% smaller increase in 25(OH)D serum concentrations over time than nonusers, independent of vitamin D dose and other covariates.

63. PHARMACOLOGY

Opioid use and psychological state

Pain. 2017 Mar;158(3):391-399. doi: 10.1097/j.pain.0000000000000768.

Psychosocial factors predict opioid analgesia through endogenous opioid function.

Burns JW¹, Bruehl S, France CR, Schuster E, Orłowska D, Buvanendran A, Chont M, Gupta RK.
Author information

Abstract

Use of opioid analgesics for management of chronic nonmalignant pain has become common, yet there are presently no well-validated predictors of optimal opioid analgesic efficacy. We examined whether psychosocial factors (eg, depressive symptoms) predicted changes in spontaneous low back pain after administration of opioid analgesics, and whether endogenous opioid (EO) function mediated these relationships. Participants with chronic low back pain but who were not chronic opioid users (N = 89) underwent assessment of low back pain intensity pre- and post-drug in 3 (counterbalanced) conditions: (1) placebo, (2) intravenous naloxone, and (3) intravenous morphine. Comparison of placebo condition changes in back pain intensity to those under naloxone and morphine provided indexes of EO function and opioid analgesic responses, respectively. Results showed that (1) most psychosocial variables were related significantly and positively to morphine analgesic responses for low back pain, (2) depressive symptoms, trait anxiety, pain catastrophizing, and pain disability were related negatively to EO function, and (3) EO function was related negatively to morphine analgesic responses for low back pain. Bootstrapped mediation analyses showed that links between morphine analgesic responses and depressive symptoms, trait anxiety, pain catastrophizing, and perceived disability were partially mediated by EO function.

Results suggest that psychosocial factors predict elevated analgesic responses to opioid-based medications, and may serve as markers to identify individuals who benefit most from opioid therapy. Results also suggest that people with greater depressive symptoms, trait anxiety, pain catastrophizing, and perceived disability may have deficits in EO function, which may predict enhanced response to opioid analgesics.