

2. LBP

Mindfulness based stress reduction

Ann Intern Med. 2017 Apr 25;1-9. doi: 10.7326/M16-1997

Mindfulness-Based Stress Reduction for Treating Low Back Pain: A Systematic Review and Meta-analysis.

Anheyer D¹, Haller H¹, Barth J¹, Lauche R¹, Dobos G¹, Cramer H¹.

Author information

Abstract

BACKGROUND:

Mindfulness-based stress reduction (MBSR) is frequently used to treat pain-related conditions, but its effects on low back pain are uncertain.

PURPOSE:

To assess the efficacy and safety of MBSR in patients with low back pain.

DATA SOURCES:

Searches of MEDLINE/PubMed, Scopus, the Cochrane Library, and PsycINFO to 15 June 2016.

STUDY SELECTION:

Randomized controlled trials (RCTs) that compared MBSR with usual care or an active comparator and assessed pain intensity or pain-related disability as a primary outcome in patients with low back pain.

DATA EXTRACTION:

Two reviewers independently extracted data on study characteristics, patients, interventions, outcome measures, and results at short- and long-term follow-up. Risk of bias was assessed using the Cochrane risk-of-bias tool.

DATA SYNTHESIS:

Seven RCTs involving 864 patients with low back pain were eligible for review. Compared with usual care, MBSR was associated with short-term improvements in pain intensity (4 RCTs; mean difference [MD], -0.96 point on a numerical rating scale [95% CI, -1.64 to -0.34 point]; standardized mean difference [SMD], -0.48 point [CI, -0.82 to -0.14 point]) and physical functioning (2 RCTs; MD, 2.50 [CI, 0.90 to 4.10 point]; SMD, 0.25 [CI, 0.09 to 0.41 point]) that were not sustained in the long term. Between-group differences in disability, mental health, pain acceptance, and mindfulness were not significant at short- or long-term follow-up. Compared with an active comparator, MBSR was not associated with significant differences in short- or long-term outcomes. No serious adverse events were reported.

LIMITATION:

The number of eligible RCTs was limited; only 3 evaluated MBSR against an active comparator.

CONCLUSION:

Mindfulness-based stress reduction may be associated with short-term effects on pain intensity and physical functioning. Long-term RCTs that compare MBSR versus active treatments are needed in order to best understand the role of MBSR in the management of low back pain.

Motor pattern changes in LBP

BMC Musculoskelet Disord. 2017 Apr 19;18(1):161. doi: 10.1186/s12891-017-1523-3.

The influence of fatigue and chronic low back pain on muscle recruitment patterns following an unexpected external perturbation.

Jubany J^{1,2}, Danneels L³, Angulo-Barroso R^{4,5}.

Author information

Abstract

BACKGROUND:

Chronic low back pain (CLBP) has been associated with altered trunk muscle responses as well as increased muscle fatigability. CLBP patients and fatigued healthy subjects could experience similar neuromuscular strategies to attempt to protect the spine. The current study examined muscle activation differences between healthy and CLBP subjects following a perturbation. In addition, the possible role of muscle fatigue was evaluated by investigating the healthy control subjects in a non-fatigued and a fatigued condition. Both experiments were combined to evaluate possible similar strategies between CLBP and fatigued samples.

METHODS:

Cross-sectional study where 24 CLBP subjects and 26 healthy subjects were evaluated. Both groups (CLBP vs. healthy) and both conditions (non-fatigued and a fatigued condition) were evaluated while a weight was suddenly dropped on a held tray. Erector spinae, multifidus, obliques and biceps brachii were recorded using surface electromyography. Variables describing the bursts timing and variables describing the amount of muscle activity (number of bursts and amplitude increase) post impact were studied. The analysis between groups and conditions was carried out using ANOVAs with repeated measurements for the muscle factor.

RESULTS:

CLBP subjects reacted similarly to healthy subjects regarding muscle activity post impact. However, the CLBP group showed temporal characteristics of muscle activity that were in between the fatigued and non-fatigued healthy group. Clear differences in muscle activity were displayed for healthy subjects. Fatigued healthy subjects presented more reduced activity after impact (upper limb and trunk muscles) than non-fatigued healthy subjects and different temporal characteristic in the same way than CLBP patients. This same temporal characteristic with CLBP and healthy fatigued people was a delay of the first burst of muscle activity after impact.

CONCLUSION:

Though similar muscle pattern existed between CLBP and healthy people, CLBP temporal characteristics of muscle activity showed a pattern in between healthy people and fatigued healthy people. While the temporal muscle pattern dysfunction used by CLBP subjects could be related to maladaptive patterns, temporal and muscle activity characteristics used by healthy fatigued people may lead to back injuries.

Inflammatory**The association between inflammatory back pain characteristics and MRI findings in the spine and sacroiliac joints.**

Arnbak B^{1,2}, Jurik AG^{1,2,3}, Jensen TS^{1,2,3}, Manniche C^{1,2}.

Author information**Abstract****OBJECTIVE:**

To investigate the association between MRI findings at the sacroiliac joints (SIJs) and vertebral endplates and pain characteristics assumed to be indicative of axial inflammation.

METHODS:

Patients aged 18-40 years with persistent low back pain referred to an outpatient spine clinic participated, including an unknown proportion of axial spondyloarthritis patients. Data included MRI of the spine and SIJs and self-reported responses to questions covering the Calin, Berlin, ASAS and Bailly inflammatory back pain (IBP) definitions.

RESULTS:

In the 1,020 included patients, 53% were females and the median age was 33 years. Positive associations were found between the SIJ MRI findings and pain characteristics, odds ratios ranging from 1.4-2.7; 'SIJ bone marrow edema (BME)' was associated with 'morning stiffness >60 minutes', 'SIJ erosions' with the Calin, Berlin, and Bailly IBP definitions, 'alternating buttock pain' and 'good response to NSAID'; 'SIJ fatty marrow deposition (FMD)' with 'insidious onset'; and 'SIJ sclerosis' with 'pain at night'. Also, the spinal MRI changes were associated with IBP, odds ratios ranging from 1.4-2.0; 'vertebral endplate BME' with 'morning stiffness', and 'vertebral endplate FMD' with the Calin and Bailly IBP definitions, 'improvement with exercise', 'morning stiffness >30 min' and 'pain worst in the morning'.

CONCLUSIONS:

The identified associations between inflammatory MRI findings and pain characteristics indicate that axial inflammation to some degree induces a specific pain pattern. Thus, the results add to knowledge of axial inflammatory processes. However, all identified associations were weak, which compromise the use of IBP as a marker of axial inflammation. This article is protected by copyright. All rights reserved.

3. DISC

Degen changes

Eur Radiol. 2017 Jun;27(6):2507-2520. doi: 10.1007/s00330-016-4584-z. Epub 2016 Oct 5.

The intervertebral disc, the endplates and the vertebral bone marrow as a unit in the process of degeneration.

Farshad-Amacker NA^{1,2}, Hughes A³, Herzog RJ⁴, Seifert B⁵, Farshad M⁶.

Author information

Abstract

OBJECTIVES:

The association of disc degeneration (DD) and vertebral endplate degeneration (EPD) is still not well understood. This study aimed to find segmental predictive risk factors for DD and EPD and to illuminate associations of the disc, endplate and bone marrow changes in the process of degeneration.

METHODS:

After institutional review board approval, 450 lumbar levels, followed up with MRI for at least 4 years, were retrospectively graded for DD according to Pfirrmann (PFG), for EPD according to the endplate score (EPS) and according to the presence, extension and type of Modic changes (MC). Clustered logistic regression and multivariate analysis was applied in nested, matched case-control subgroups to evaluate potential local risk factors for progression.

RESULTS:

An EPS score of ≥ 4 was identified as an independent risk factor for progression of DD (OR = 2.32, 95%CI:1.07-5.01, $p = 0.03$) and MC (OR = 5.49, 95%CI:2.30-13.10, $p < 0.001$). Progression of DD was significantly accompanied by progression or evolution of MC (OR = 12.25, 95%CI:1.49-100.6, $p = 0.02$) and with progression of EPS (OR = 1.71, 95%CI:1.00-1.05, $p = 0.01$). Once advanced DD has occurred, it becomes a risk factor for progression in EPS (OR = 2.24, 95%CI:1.23-4.12, $p < 0.01$).

CONCLUSIONS:

The degenerative processes in the disc, endplate and bone marrow are highly associated. An EPS ≥ 4 is an independent risk factor for DD and MC progression in a population with low back pain.

KEY POINTS:

- The degenerative processes in the disc, endplate and bone marrow are associated.
- An endplate score ≥ 4 is a risk factor for DD and MC progression.
- Modic changes are last to occur in the development of segmental intervertebral degeneration.
- A new segmental grading system is suggested.

7. PELVIC ORGANS/WOMAN'S HEALTH

Pelvic pain and mental disorders

Mental disorders in patients with chronic pelvic pain syndrome (CPPS)☆

Christian Brünahl Christoph Dybowski¹ Rebecca Albrecht Björn Riegel Johanna Höink
Margit Fisch Bernd Löwe

DOI: <http://dx.doi.org/10.1016/j.jpsychores.2017.04.011>

Highlights

- 95.2% of the patients from a specialized outpatient clinic for CPPS suffer from at least one mental disorder
- The most frequent mental disorders in patients from a specialized outpatient clinic for CPPS are somatoform, depressive and anxiety disorders
- Both female and male patients show high frequencies of mental comorbidity
- Patients with CPPS should be examined for mental disorders already in primary and secondary care

Abstract

Objective

Chronic pelvic pain syndrome (CPPS) is a debilitating pain condition with prevalence rates between 2.0% and 26.6%. Studies indicate that CPPS is often associated with psychosocial factors, but little is known about the presence of full-blown mental disorders in female and male patients with CPPS. Therefore, the aim of this study was to investigate the frequencies of mental disorders in patients with CPPS.

Methods

Cross-sectional data were collected from patients visiting a specialized outpatient clinic. Frequencies of mental disorders were investigated using the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) and compared to the general population. Furthermore, self-rating questionnaires were used to assess somatic symptom severity (PHQ-15), depression severity (PHQ-9) and anxiety severity (GAD-7).

Results

Data from 178 CPPS patients (60.1% female; age $M = 49.1$, $SD = 18.0$) were analyzed. Of the total sample, 95.2% (95% CI 90.8–97.9) suffered from at least one mental disorder. The most prevalent mental disorders were somatoform disorders (91.7%; 95% CI 86.4–95.4), followed by mood disorders (50.6%; 95% CI 42.8–58.4) and anxiety disorders (32.1%; 95% CI 25.2–39.8). The self-reported symptom burden was also significantly higher than in the general population. Compared to men, women met the diagnoses of somatoform ($p = 0.012$) and anxiety disorders ($p = 0.027$) significantly more often and reported a significantly higher total somatic symptom severity ($p = 0.001$).

Conclusion

Our results provide evidence for a clinically relevant psychosocial symptom burden in patients with CPPS, indicating the need for the examination of psychopathologies and multi-professional treatment for this patient group.

Impact of C section

Am J Obstet Gynecol. 2017 Apr 4. pii: S0002-9378(17)30417-9. doi: 10.1016/j.ajog.2017.03.006.

Cesarean delivery in the second stage of labor and the risk of subsequent premature birth.

Wood SL¹, Tang S², Crawford S³.

Author information

Abstract

BACKGROUND:

Cesarean delivery is being increasingly used by obstetricians for indicated deliveries in the second stage of labor. Unplanned extension of the uterine incision involving the cervix often occurs with these surgeries. Therefore, we hypothesized that cesarean delivery in the second stage of labor may increase the rate of subsequent spontaneous premature birth.

OBJECTIVE:

We sought to determine if cesarean delivery in the late first stage of labor or in the second stage of labor increases the risk of a subsequent spontaneous preterm birth.

STUDY DESIGN:

We conducted a retrospective cohort study of matched first and second births from a large Canadian perinatal database. The primary outcomes were spontaneous premature birth <37 and <32 weeks of gestation in the second birth. The exposure was stage of labor and cervical dilation at the time of the first cesarean delivery. The protocol and analysis plan was registered prior to obtaining data at Open Science Foundation.

RESULTS:

In total, 189,021 paired first and second births were identified. The risk of spontaneous preterm delivery <37 and <32 weeks of gestation in the second birth was increased when the first birth was by cesarean delivery in the second stage of labor (relative risk, 1.57; 95% confidence interval, 1.43-1.73 and relative risk, 2.12; 95% confidence interval, 1.67-2.68, respectively). The risk of perinatal death in the second birth, excluding congenital anomalies, was also correspondingly increased (relative risk, 1.44; 95% confidence interval, 1.05-1.96).

CONCLUSION:

Cesarean delivery in second stage of labor was associated with a 2-fold increase in the risk of spontaneous preterm birth <32 weeks of gestation in a subsequent birth. This information may inform management of operative delivery in the second stage.

C section and subsequent Primi's

Am J Obstet Gynecol. 2017 Apr 4. pii: S0002-9378(17)30417-9. doi: 10.1016/j.ajog.2017.03.006.

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Gum chewing after C section

BMC Pregnancy Childbirth. 2017 Apr 18;17(1):105. doi: 10.1186/s12884-017-1286-8.

Chewing gum for intestinal function recovery after caesarean section: a systematic review and meta-analysis.

Wen Z^{1,2}, Shen M^{3,4}, Wu C¹, Ding J², Mei B².

Author information

Abstract

BACKGROUND:

Gum chewing has been reported to enhance the intestinal function recovery after caesarean section, current perspectives and practice guidelines vary widely on the use of gum chewing, more studies on the role of gum chewing after caesarean section are needed.

METHODS:

We performed a comprehensive, systematic meta-analysis of randomized controlled trials (RCTs) on the efficacy of gum chewing after caesarean section. Studies were identified by searching EMBASE et al database (until June 30, 2016). Summary odd ratios or weighted mean differences with 95% confidence intervals were calculated for each outcome with fixed- or random-effects model.

RESULTS:

Ten RCTs with a total of 1659 women were included in our meta-analysis. Gum chewing provided significant benefits in reducing the time to first passage of flatus, first defecation, first bowel sound, first bowel movement and the length of hospital stay, but not in the time to first feeling of hunger.

CONCLUSIONS:

Gum chewing hastens the intestinal function recovery after caesarean section and offers a safe and inexpensive option. High-quality and larger-scale RCTs are still warranted to clarify the role of gum chewing in intestinal function recovery after caesarean section.

Antidepressant use and Autism

JAMA Pediatr. 2017 Apr 17. doi: 10.1001/jamapediatrics.2017.0124.

Risk for Autism Spectrum Disorders According to Period of Prenatal Antidepressant Exposure: A Systematic Review and Meta-analysis.

Mezzacappa A¹, Lasica PA¹, Gianfagna F², Cazas O¹, Hardy P³, Falissard B⁴, Sutter-Dallay AL⁵, Gressier F³.

IMPORTANCE: Several studies have examined the links between prenatal exposure to antidepressants and autism spectrum disorders (ASDs) in children, with inconsistent results, especially regarding the impact of the trimester of exposure.

OBJECTIVE: To perform a systematic review of the literature and a meta-analysis of published studies to assess the association between ASDs and fetal exposure to antidepressants during pregnancy for each trimester of pregnancy and preconception.

DATA SOURCES: PubMed, EMBASE, and PsycINFO databases up to May 2016 were searched in June 2016 for observational studies. For the meta-analyses, data were analyzed on RevMan version 5.2 using a random-effect model. For the review, studies were included if they had been published and were cohort or case-control studies, and for the meta-analysis, studies were included if they were published studies and the data were not derived from the same cohorts.

STUDY SELECTION: We included all the studies that examined the association between ASDs and antenatal exposure to antidepressants.

DATA EXTRACTION AND SYNTHESIS: Three reviewers independently screened titles and abstracts, read full-text articles, and extracted data. The quality of the studies was also assessed.

MAIN OUTCOMES AND MEASURES: Primary outcome was the association between antidepressants during pregnancy and ASDs. Secondary outcomes were the associations between antidepressants in each individual trimester or before pregnancy and ASDs.

RESULTS: Our literature search identified 10 relevant studies with inconsistent results. For prenatal exposure, the meta-analysis on the 6 case-control studies (117 737 patients) evidenced a positive association between antidepressant exposure and ASDs (odds ratio [OR], 1.81; 95% CI, 1.49-2.20). The association was weaker when controlled for past maternal mental illness (OR, 1.52; 95% CI, 1.09-2.12). A similar pattern was found whatever the trimester of exposure considered (first trimester: OR, 2.09, 95% CI, 1.66-2.64; second: OR, 2.00, 95% CI, 1.55-2.59; and third: OR, 1.90, 95% CI, 1.20-3.02. Controlled for past maternal mental illness: first trimester: OR, 1.79; 95% CI, 1.27-2.52, second: OR, 1.67, 95% CI, 1.14-2.45; and third: OR, 1.54, 95% CI, 0.82-2.90). No association was found when the 2 cohort studies were pooled (772 331 patients) for the whole pregnancy (hazard ratio, 1.26; 95% CI, 0.91-1.74) or for the first trimester. In addition, preconception exposure to antidepressants was significantly associated with an increased risk for ASDs (OR controlled for past maternal illness, 1.77; 95% CI, 1.49-2.09).

CONCLUSIONS AND RELEVANCE:

There is a significant association between increased ASD risk and maternal use of antidepressants during pregnancy; however, it appears to be more consistent during the preconception period than during each trimester. Maternal psychiatric disorders in treatment before pregnancy rather than antenatal exposure to antidepressants could have a major role in the risk for ASDs. Future studies should address the problem of this potential confounder.

8. VISCERA

CD management

Aliment Pharmacol Ther. 2017 May 3. doi: 10.1111/apt.14125.

The benefit of combination therapy depends on disease phenotype and duration in Crohn's disease.

Ananthakrishnan AN¹, Sakuraba A², Barnes EL³, Pekow J², Raffals L⁴, Long MD³, Sandler RS⁵.

Author information

Abstract

BACKGROUND:

The impact of combination therapy on disease-related morbidity in patients with established Crohn's disease (CD) or ulcerative colitis (UC) remains to be well-defined.

AIM:

To examine the effect of combination therapy on disease outcomes in CD and UC.

METHODS:

Using a multicenter prospective cohort, we classified CD and UC patients as being on monotherapy with anti-TNF or on combination with an immunomodulator. The primary outcome was a composite of new IBD-related surgery, hospitalisations, penetrating complications, need for corticosteroids or new biological at 1 year. Multivariable regression models adjusted for potential confounders.

RESULTS:

We included 707 patients with CD (45% combination therapy) and 164 with UC (38% combination therapy). Combination therapy was not associated with reduction in the composite outcome in either CD (OR: 0.87, 95% CI: 0.63-1.22) or UC (OR: 1.45, 95% CI: 0.63-3.38). However, while no difference was noted in those with nonstricturing, nonpenetrating CD, a significant reduction in the likelihood of the outcome was seen in those with stricturing or penetrating CD (30% vs 39%, OR: 0.58, 95% CI: 0.37-0.90). A stronger effect was also observed in those with disease duration <5 years (OR: 0.35, 95% CI: 0.14-0.87) compared to those with a longer duration (OR: 0.75, 95% CI: 0.45-1.27). A similar reduction in occurrence of composite outcome was noted with infliximab and with other anti-TNF biologics.

CONCLUSION:

The benefit of combination immunomodulator-biological therapy is stronger in those with complicated Crohn's disease, particularly early on in their disease course.

Aspirin use

Aliment Pharmacol Ther. 2017 Apr 27. doi: 10.1111/apt.14079.

The risk of lower gastrointestinal bleeding in low-dose aspirin users.

Chen WC^{1,2}, Lin KH¹, Huang YT³, Tsai TJ¹, Sun WC¹, Chuah SK^{4,5}, Wu DC⁶, Hsu PI^{1,2}.

Author information

Abstract

BACKGROUND:

Aspirin increases the risk of gastrointestinal bleeding.

AIM:

To investigate the risk of lower gastrointestinal bleeding (LGIB) in aspirin users.

METHODS:

Low-dose (75-325 mg daily) aspirin users and controls matched by age, gender and enrollment time in a 1:5 ratio were selected from 1 million randomly sampled subjects in the National Health Insurance Research Database of Taiwan. Cox proportional hazard regression models were developed to evaluate the predictors of LGIB with adjustments for age, gender, comorbidities including coronary artery disease, ischaemic stroke, diabetes, hypertension, chronic kidney disease, liver cirrhosis, chronic obstructive pulmonary disease, dyslipidemia, uncomplicated peptic ulcer disease, history of peptic ulcer bleeding, and concomitant use of clopidogrel, ticlopidine, warfarin, nonsteroidal anti-inflammatory drugs (NSAIDs), cyclooxygenase-2 inhibitors, steroids, proton pump inhibitors (PPIs), histamine-2 receptor antagonists (H2RAs), nitrates, alendronate, selective serotonin reuptake inhibitors (SSRIs) and calcium channel blockers.

RESULTS:

A total of 53 805 aspirin users and 269 025 controls were included. Aspirin group had a higher incidence of LGIB within 1 year than control group (0.20% vs 0.06%, $P < .0001$). Aspirin (hazard ratio [HR]: 2.75, 95% confidence interval [CI]: 2.06-3.65), NSAIDs (HR: 8.61, 95% CI: 3.28-22.58), steroids (HR: 10.50, 95% CI: 1.98-55.57), SSRIs (HR: 11.71, 95% CI: 1.40-97.94), PPIs (HR: 8.47, 95% CI: 2.26-31.71), and H2RAs (HR: 10.83, 95% CI: 2.98-39.33) were significantly associated with LGIB.

CONCLUSIONS:

The risk of LGIB was higher in low-dose aspirin users than in aspirin nonusers in this nationwide cohort. Low-dose aspirin, NSAIDs, steroids, SSRIs, PPIs and H2RAs were independent risk factors for LGIB.

Gluten and functional dyspepsia

J Gastroenterol Hepatol. 2017 Apr 28. doi: 10.1111/jgh.13813.

Impact of gluten consumption in patients with functional dyspepsia: a case-control study.

Du L¹, Shen J^{1,2}, Kim JJ^{1,3}, He H¹, Chen B¹, Dai N¹.

Author information**Abstract****BACKGROUND AND AIM:**

Dietary factors and immune dysfunction may induce symptoms in patients with functional dyspepsia (FD). Aim of the study was to evaluate whether gluten consumption impacts symptom onset in patients with FD and to evaluate for possible histologic alterations in the duodenum of patients with FD.

METHODS:

We prospectively enrolled 101 patients newly diagnosed with FD and 31 asymptomatic controls. Specific FD symptoms and gluten consumption patterns were evaluated by self-reported questionnaires. Tight junction protein (claudin-1) expression and presence of intraepithelial lymphocyte (IEL) infiltration in the bulb (D1) and second portion (D2) of the duodenum were assessed by immunohistochemistry.

RESULTS:

Wheat bun consumption had higher frequency ($P = 0.047$) and increased average consumption ($P = 0.01$) scores in patients with FD compared to the control group. Of 101 patients with FD, early satiety ($P = 0.03$) was associated with increased wheat bun consumption frequency score. On histologic evaluation, claudin-1 expression was decreased in D1 (0.003 ± 0.001 vs. 0.012 ± 0.002 , $P = 0.003$) and D2 (0.002 ± 0.0004 vs. 0.012 ± 0.001 , $P < 0.001$), while duodenal IEL counts were increased in D1 (15.5 ± 7.8 vs. 3.1 ± 2.5 , $P < 0.001$) and D2 (20.6 ± 7.7 vs. 5.8 ± 3.4 , $P < 0.001$) among patients with FD compared to the control group. Finally, *Helicobacter pylori* infection was associated with increased IELs in D1 (20.6 ± 7.0 vs. 14.2 ± 7.4 , $P = 0.001$) among patients with FD.

CONCLUSIONS:

Among patients with FD, gluten-rich food may lead to symptom onset, specifically early satiety. Intestinal epithelial barrier dysfunction characterized by decreased claudin-1 expression and mucosal immune activation demonstrated by IEL infiltration may contribute to the pathogenesis of FD.

10 B. CERVICAL EXERCISES

Exercise helps

Clin Rheumatol. 2017 May 2. doi: 10.1007/s10067-017-3629-2.

Group-based exercise at workplace: short-term effects of neck and shoulder resistance training in video display unit workers with work-related chronic neck pain-a pilot randomized trial.

Caputo GM^{1,2}, Di Bari M³, Naranjo Orellana J⁴.

Author information

Abstract

Effectiveness of exercise therapy in video display unit (VDU) workers with work-related chronic neck pain (W-RCNP) is unclear. The aim of the study was to assess the efficacy of group-based neck-shoulder resistance exercises on symptoms and muscular function in VDU workers with W-RCNP. Thirty-five employees with CNP were randomly assigned to neck-shoulder resistance exercise (NSRE) group or to conventional stretching and postural exercise (SPE) group. Participants trained 45 min, twice a week for 7 weeks.

Primary outcomes were pain intensity (0-10 numeric rating scale, NRS) and pain-related disability (Vernon Neck Disability Index, NDI). Secondary outcomes were cervical active range of motion (AROM), endurance of neck flexors, strength of shoulder abductors, and health-related quality of life (SF-36). Post-treatment, pain and disability decreased 2.5 and 5 points in NSRE ($p = 0.001$) and 5 and 8 points in SPE ($p = 0.002$), with no significant differences between groups. AROM improved significantly in both groups; between-group differences were not significant.

Neck flexors endurance and shoulder abductors strength improved by 59.6 and 34.2% ($p = 0.001$) in the NSRE group and by 27.6% ($p = 0.009$) and 2.3% ($p = 0.002$) in the SPE group; between-group differences were significant ($p = 0.016$ and $p < 0.001$, respectively). SF-36 score remained unchanged. NSRE and SPE are feasible and equally effective in reducing pain and pain-related disability as group exercises in W-RCNP. NSRE may provide some advantage in improving strength and endurance in neck muscles. Further, larger studies should confirm these findings and assess whether a better muscle function confers long-term clinical advantages.

12 B. CERVICAL SURGERIES**RTW with fusions**

Spine (Phila Pa 1976). 2017 May 1;42(9):700-706. doi: 10.1097/BRS.0000000000001877.

Surgical and Functional Outcomes After Multilevel Cervical Fusion for Degenerative Disc Disease Compared With Fusion for Radiculopathy: A Study of Workers' Compensation Population.

Faour M¹, Anderson JT, Haas AR, Percy R, Woods ST, Ahn UM, Ahn NU.

Author information

Abstract

STUDY DESIGN:

Retrospective cohort comparative study.

OBJECTIVE:

To evaluate presurgical and surgical factors that affect return to work (RTW) status after multilevel cervical fusion, and to compare outcomes after multilevel cervical fusion for degenerative disc disease (DDD) versus radiculopathy.

SUMMARY OF BACKGROUND DATA:

Cervical fusion provides more than 90% of symptomatic relief for radiculopathy and myelopathy. However, cervical fusion for DDD without radiculopathy is considered controversial. In addition, multilevel fusion is associated with poorer surgical outcomes with increased levels fused.

METHODS:

Data of cervical comorbidities was collected from Ohio Bureau of Workers' Compensation for subjects with work-related injuries. The study population included subjects who underwent multilevel cervical fusion. Patients with radiculopathy or DDD were identified. Multivariate logistic regression was performed to identify factors that affect RTW status. Surgical and functional outcomes were compared between groups.

RESULTS:

Stable RTW status within 3 years after multilevel cervical fusion was negatively affected by: fusion for DDD, age > 55 years, preoperative opioid use, initial psychological evaluation before surgery, injury-to-surgery > 2 years and instrumentation. DDD group had lower rate of achieving stable RTW status (P = 0.0001) and RTW within 1 year of surgery (P = 0.0003) compared with radiculopathy group. DDD patients were less likely to have a stable RTW status [odds ratio, OR = 0.63 (0.50-0.79)] or RTW within 1 year after surgery [OR = 0.65 (0.52-0.82)]. DDD group had higher rate of opioid use (P = 0.001), and higher rate of disability after surgery (P = 0.002).

CONCLUSION:

Multiple detriments affect stable RTW status after multilevel cervical fusion including DDD. DDD without radiculopathy was associated with lower RTW rates, less likelihood to return to work, higher disability, and higher opioid use after surgery. Multilevel cervical fusion for DDD may be counterproductive. Future studies should investigate further treatment options of DDD, and optimize patient selection criteria for surgical intervention.

LEVEL OF EVIDENCE: 3.

13. CRANIUM/TMJ

Clinching muscle activity

J Oral Rehabil. 2017 Apr 27. doi: 10.1111/joor.12517.

A Pilot Study of Nocturnal Temporalis Muscle Activity in TMD Diagnostic Groups of Women.

Wei F¹, Van Horn MH¹, Coombs MC^{1,2}, She X¹, Gonzales TS², Gonzalez YM³, Scott JM⁴, Iwasaki LR^{3,5}, Nickel JC^{3,5}, Yao H^{1,2}.

Author information

Abstract

BACKGROUND:

Temporomandibular disorder (TMD) incidences are believed to be related to parafunctional behaviors like teeth clenching.

OBJECTIVES:

This pilot study aimed to (i) develop an automated clench-detection algorithm, and (ii) apply the algorithm to test for differences in nocturnal clenching in women with and without TMD.

METHODS:

Subjects gave informed consent to participate. Adult women were categorized using Diagnostic Criteria for TMD according to presence/absence (+/-) of both TM joint disc placement (DD) and chronic pain (P) into two groups (+DD+P, -DD-P) with 12 subjects each. Surface temporalis electromyography was recorded during oral tasks performed by subjects at two laboratory sessions. The data were used to characterize muscle activity per N of bite-force ($\mu\text{V}/\text{N}$) for each subject, develop the clench-detection algorithm and test its accuracy. Ambulatory surface temporalis electromyography was self-recorded by each subject over three nights and analyzed using the algorithm and bite-force (N) vs muscle activity $\mu\text{V}/\text{N}$ calibrations. Bonferroni-adjusted homoscedastic t-tests assessed for significant between-group differences in clenching ($p < 0.05$).

RESULTS:

Sensitivity, specificity, and accuracy of algorithm-detected laboratory clenches were all $\geq 96\%$. During self-recordings 95% of clenches had durations of < 4 seconds and peak forces of < 10 N in both groups. Mean clench durations were significantly longer ($p = 0.042$) in +DD+P (1.9 ± 0.8 seconds) than -DD-P subjects (1.4 ± 0.4 seconds). Mean temporalis duty factors (%clench time/total recording time) were significantly larger ($p = 0.041$) in +DD+P ($0.47 \pm 0.34\%$) than -DD-P ($0.26 \pm 0.22\%$) subjects.

CONCLUSIONS:

Nocturnal temporalis muscle activities detected by a validated algorithm were longer per clench and recording time in +DD+P compared to -DD-P women. This article is protected by copyright. All rights reserved.

TMJ prolotherapy

Br J Oral Maxillofac Surg. 2017 Apr 28. pii: S0266-4356(16)30686-6. doi: 10.1016/j.bjoms.2016.12.002.

Long-term therapeutic effects of dextrose prolotherapy in patients with hypermobility of the temporomandibular joint: a single-arm study with 1-4 years' follow up.

Refai H¹.

Author information

Abstract

The aim was to analyse the short-term and long-term therapeutic efficacy of dextrose prolotherapy for dislocation or subluxation (hypermobility) of the temporomandibular joint (TMJ).

Sixty-one patients with symptomatic hypermobility of the TMJ were included in this single-arm prospective study, in which they were each given four sessions of intra-articular and pericapsular injections six weeks apart. Each injection comprised 10% dextrose/mepivacaine solution 3ml. Clinical outcomes including severity of pain on movement according to the numerical rating scale (NRS), maximal interincisal opening, clicking, and frequency of locking were measured before treatment (T1), during treatment (T2) (just before the third session of injections), at the short-term follow-up (T3) (three months after treatment), and at the long-term follow-up (T4) (1-4 years after treatment). Condylar translation and osseous changes of each joint were evaluated at T1 and T4 using tomography. There was significant reduction in all variables by T2 ($p<0.001$, $p<0.001$, $p=0.006$, and $p<0.001$). The pain scores ($p<0.001$) and clicking ($p<0.001$) had decreased significantly by T3. linear tomograms of each joint at T1 and T4 showed no alteration in the morphology of the bony components of the joint, and at T4, tomographic open views of all joints showed condylar hypertranslation.

Dextrose prolotherapy provided significant and sustained reduction of pain and recovery of constitutional symptoms associated with symptomatic hypermobility of the TMJ without changing either the position of the condyle or the morphology of the bony components of the joint.

Nocturnal sleep architecture is altered by sleep bruxism

Marcelo Palinkas Marisa Semprini João Espir Filho Graziela de Luca Canto Isabela Hallak
Regalo César Bataglion Laíse Angélica Mendes Rodrigues Selma Siéssere **Simone Cecilio Hallak
Regalo**

DOI: <http://dx.doi.org/10.1016/j.archoralbio.2017.04.025>

Highlights

- Sleep bruxism impact on sleep architecture.
- Evaluation mechanism of sleep parameters in sleep bruxism.
- The sleep is essential for maintaining the health.

Abstract**Objective**

Sleep is a complex behaviour phenomenon essential for physical and mental health and for the body to restore itself. It can be affected by structural alterations caused by sleep bruxism. The aim of this study was to verify the effects of sleep bruxism on the sleep architecture parameters proposed by the American Academy of Sleep Medicine.

Design

The sample comprised 90 individuals, between the ages of 18 and 45 years, divided into two groups: with sleep bruxism ($n = 45$) and without sleep bruxism ($n = 45$). The individuals were paired by age, gender and body mass index: a polysomnography was performed at night.

Results

Statistically significant differences were found between ($P \leq 0.05$) individuals with sleep bruxism and individuals without sleep bruxism during total sleep time ($P = 0.00$), non-rapid eye movement (NREM) total sleep time ($P = 0.03$), NREM sleep time stage 3 ($P = 0.03$), NREM sleep latency ($P = 0.05$), sleep efficiency ($P = 0.05$), and index of microarousals ($P = 0.04$).

Conclusions

Sleep bruxism impairs the architecture of nocturnal sleep, interfering with total sleep time, NREM sleep latency, and sleep efficiency.

Herbsts splint and airways

Eur J Orthod. 2017 Apr 27. doi: 10.1093/ejo/cjx032.

Long-term effects of Class II Herbst treatment on the pharyngeal airway width.

Drosen C¹, Bock NC¹, von Bremen J¹, Pancherz H¹, Ruf S¹.

Author information**Abstract****OBJECTIVE:**

The aim was to assess the long-term effects of Class II malocclusion treatment with the Herbst appliance on the pharyngeal airway (PA) width in comparison to untreated individuals with Classes I and II malocclusion.

METHODS:

Lateral cephalometric radiographs of 13 male Class II patients from before (T1) and after (T2) treatment with the Herbst appliance as well as after the end of growth (T3) were retrospectively analyzed and compared to two untreated age- and gender-matched samples with Class I (n = 13) or Class II (n = 13) malocclusion. The PA dimensions were measured using the parameters p (narrowest distance between the soft palate and the posterior pharyngeal wall) and t (narrowest distance between the base of the tongue and the posterior pharyngeal wall). In addition, standard cephalometric measurements were performed.

RESULTS:

Relevant changes in PA dimensions were only seen for the post-treatment period, during which the distances p and t showed a significant increase in the Herbst group only (Δp : 2.3 mm, Δt : 3.3 mm) while remaining similar in both untreated groups (Δp : 0.5 mm, Δt : 0.5 mm, respectively, Δp : 0.7 mm, Δt : 1.6 mm). During the same period, posterior face height showed a significantly larger increase in the Herbst group than in both control groups (8.2 versus 5.8 mm, respectively, 5.4 mm), whereas anterior face height (NL-Me) showed a similar development in all groups (4.6 versus 4.4 mm, respectively 3.2 mm).

CONCLUSION:

In the long term, Herbst treatment resulted in a significant post-treatment increase of PA width, possibly due to an increased lower posterior facial height development compared to untreated individuals.

Temporalis clenching

J Oral Rehabil. 2017 Apr 27. doi: 10.1111/joor.12517.

A Pilot Study of Nocturnal Temporalis Muscle Activity in TMD Diagnostic Groups of Women.

Wei F¹, Van Horn MH¹, Coombs MC^{1,2}, She X¹, Gonzales TS², Gonzalez YM³, Scott JM⁴, Iwasaki LR^{3,5}, Nickel JC^{3,5}, Yao H^{1,2}.

Author information

Abstract

BACKGROUND:

Temporomandibular disorder (TMD) incidences are believed to be related to parafunctional behaviors like teeth clenching.

OBJECTIVES:

This pilot study aimed to (i) develop an automated clench-detection algorithm, and (ii) apply the algorithm to test for differences in nocturnal clenching in women with and without TMD.

METHODS:

Subjects gave informed consent to participate. Adult women were categorized using Diagnostic Criteria for TMD according to presence/absence (+/-) of both TM joint disc placement (DD) and chronic pain (P) into two groups (+DD+P, -DD-P) with 12 subjects each. Surface temporalis electromyography was recorded during oral tasks performed by subjects at two laboratory sessions. The data were used to characterize muscle activity per N of bite-force ($\mu\text{V}/\text{N}$) for each subject, develop the clench-detection algorithm and test its accuracy. Ambulatory surface temporalis electromyography was self-recorded by each subject over three nights and analyzed using the algorithm and bite-force (N) vs muscle activity $\mu\text{V}/\text{N}$ calibrations. Bonferroni-adjusted homoscedastic t-tests assessed for significant between-group differences in clenching ($p < 0.05$).

RESULTS:

Sensitivity, specificity, and accuracy of algorithm-detected laboratory clenches were all $\geq 96\%$. During self-recordings 95% of clenches had durations of < 4 seconds and peak forces of < 10 N in both groups. Mean clench durations were significantly longer ($p = 0.042$) in +DD+P (1.9 ± 0.8 seconds) than -DD-P subjects (1.4 ± 0.4 seconds). Mean temporalis duty factors (%clench time/total recording time) were significantly larger ($p = 0.041$) in +DD+P ($0.47 \pm 0.34\%$) than -DD-P ($0.26 \pm 0.22\%$) subjects.

CONCLUSIONS:

Nocturnal temporalis muscle activities detected by a validated algorithm were longer per clench and recording time in +DD+P compared to -DD-P women. This article is protected by copyright. All rights reserved

Airway respiration

Orthod Craniofac Res. 2017 May;20(2):95-101. doi: 10.1111/ocr.12145.

Influence of pharyngeal airway respiration pressure on Class II mandibular retrusion in children: A computational fluid dynamics study of inspiration and expiration.

Iwasaki T¹, Sato H¹, Suga H¹, Takemoto Y¹, Inada E¹, Saitoh I², Kakuno K³, Kanomi R³, Yamasaki Y¹.

Author information

Abstract

OBJECTIVES:

To examine the influence of negative pressure of the pharyngeal airway on mandibular retraction during inspiration in children with nasal obstruction using the computational fluid dynamics (CFD) method.

SETTING AND SAMPLE POPULATION:

Sixty-two children were divided into Classes I, II (mandibular retrusion) and III (mandibular protrusion) malocclusion groups.

MATERIAL AND METHODS:

Cone-beam computed tomography data were used to reconstruct three-dimensional shapes of the nasal and pharyngeal airways. Airflow pressure was simulated using CFD to calculate nasal resistance and pharyngeal airway pressure during inspiration and expiration.

RESULTS:

Nasal resistance of the Class II group was significantly higher than that of the other two groups, and oropharyngeal airway inspiration pressure in the Class II (-247.64 Pa) group was larger than that in the Class I (-43.51 Pa) and Class III (-31.81 Pa) groups ($P < .001$). The oropharyngeal airway inspiration-expiration pressure difference in the Class II (-27.38 Pa) group was larger than that in the Class I (-5.17 Pa) and Class III (0.68 Pa) groups ($P = .006$).

CONCLUSION:

Large negative inspiratory pharyngeal airway pressure due to nasal obstruction in children with Class II malocclusion may be related to their retrognathia.

TMD anxiety

Publication:
May/June 2017
Volume 30 , Issue 3

Psychopathologic Profiles of TMD Patients with Different Pain Locations

Alexandros Tournavitis, DDS, MSc/Dimitrios Tortopidis, DDS, PhD/Konstantinos Fountoulakis, MD, PhD/George Menexes, BMath, MA, PhD/Petros Koidis, DDS, MS, PhD

Pages: 251–257

DOI: 10.11607/ijp.5155

Purpose: The aim of this study was to examine whether psychopathologic profile is related to the location of pain in temporomandibular disorder (TMD) patients with myofascial and/or temporomandibular joint pain.

Materials and Methods: A total of 75 painful TMD patients (39 women and 36 men) participated in the study. Participants were divided into three groups (myogenous, arthrogenous, and mixed) using the Research Diagnostic Criteria for TMD (RDC/TMD) Axis I guidelines for assessment of TMD signs and symptoms. Three psychometric instruments were used to assess the psychopathologic profile of the TMD subgroups. Patients' state and trait anxiety were assessed using the State-Trait Anxiety Inventory (STAI-S, STAI-T), depression was measured with the Center for Epidemiological Studies Depression Scale (CES-D), and psychosocial functioning was evaluated using the Global Disability Scale (Glo.Di.S). The three TMD groups were compared with Kruskal-Wallis test followed by pairwise Mann-Whitney tests relative to the psychometric scores. Statistical analyses were performed with SPSS 15.0 software. **Results:** No significant differences were detected among the different TMD groups in the three psychometric scales; STAI-T, CES-D, Glo.Di.S ($P > .05$). When the psychometric scale of state anxiety (STAI-S) was considered, significant differences were revealed between the myogenous and the arthrogenous pain groups ($P = .008$) and also between the mixed and the arthrogenous groups ($P < .001$).

Conclusion: These findings suggest that the psychopathologic profile is not related to the location of pain in TMD patients. However, anxiety was found to be higher in TMD patients with myogenous pain alone or combined with arthrogenous pain compared to those with only arthrogenous pain.

Condylar position

Assessment of condyle position, fossa morphology and disc displacement in symptomatic patients

Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology

Rabelo KA, et al.

Abstract

Objective

To determine whether associations exist between the morphology of the glenoid fossa, articular spaces and disc displacement by evaluating magnetic resonance imaging (MRI) of symptomatic patients. Sex and age were also evaluated for any effect on the parameters.

Study Design

MRI scans of 199 temporomandibular joints were assessed for the morphology of the glenoid fossa and articular spaces in both sagittal and coronal views. The presence of disc displacement and its type in closed- and open-mouth positions were also assessed. ANOVA, Tukey and Student t-tests or Mann-Whitney rank sum tests were used to investigate associations between these variables.

Results

A total of 113 joints (56.8%) presented with disc displacement. The articular spaces in the sagittal and coronal views were overall significantly larger in males than females in three of the six spaces (superior, posterior, and central spaces). Larger superior and medial articular spaces were associated with angled glenoid fossae. Higher mean values of the articular space sizes were associated with normal disc position ($p < 0.001$), except for the anterior articular space. When displacement was identified, higher values of the articular space sizes were also associated with disc reduction in open-mouth position ($p < 0.05$).

Conclusion

Condyles in a central position in the coronal view and slightly anteriorly positioned in the sagittal view are less likely to present disc displacement.

14. HEADACHES

Migraines and sleep

J Headache Pain. 2017 Dec;18(1):50. doi: 10.1186/s10194-017-0756-8. Epub 2017 Apr 28.

Insufficient sleep is prevalent among migraineurs: a population-based study.

Kim J¹, Cho SJ², Kim WJ³, Yang KI⁴, Yun CH⁵, Chu MK⁶.

Author information

Abstract

BACKGROUND:

Sleep disorder and sleep complaints are common in subjects with migraine. Although the association between sleep disorders and migraine has been reported, the association between perceived insufficient sleep and migraine has rarely reported. The aim of this study is to evaluate the association between insufficient sleep and migraine using the data of the Korean Headache-Sleep Study (KHSS).

METHODS:

The KHSS is a nation-wide cross-sectional population-based survey regarding headache and sleep for Korean adults aged 19 to 69 years. A difference of one hour or more between sleep need and average sleep time indicated insufficient sleep.

RESULTS:

Of 2,695 participants, 727 (27.0%) individuals were classified as having insufficient sleep. The prevalence of insufficient sleep among individuals with migraine (45.5%) was significantly higher compared to that among individuals with non-migraine headache (32.9%, $p = 0.004$) or among non-headache (20.4%, $p < 0.001$). Average sleep time did not differ among migraine, non-migraine headache, and non-headache groups (7.3 ± 1.2 vs. 7.2 ± 1.2 vs. 7.3 ± 1.4 , $p = 0.207$). Multivariable logistic regression analyses demonstrated that migraine had an increased odds ratio (OR) for insufficient sleep after adjusting for sociodemographic variables, short sleep time, insomnia, poor sleep quality, anxiety, and depression (OR = 1.8, 95% confidence interval [CI] = 1.2 - 2.7, $p = 0.002$).

CONCLUSIONS:

The prevalence of insufficient sleep was significantly higher among migraineurs compared to that in non-migraine headache or non-headache group.

Hypothalamus involvement

Neurology. 2017 Apr 26. pii: 10.1212/WNL.0000000000003963. doi: 10.1212/WNL.0000000000003963. [

Hypothalamus as a mediator of chronic migraine: Evidence from high-resolution fMRI.

Schulte LH¹, Allers A¹, May A².

Author information

Abstract

OBJECTIVE:

To identify pathophysiologic mechanisms of migraine chronification using a recently standardized protocol for high-resolution brainstem imaging of trigeminal nociceptive stimulation.

METHODS:

Eighteen episodic migraineurs (EMs), 17 chronic migraineurs (CMs), and 19 healthy controls (HCs) underwent painful ammonia stimulation of the left nostril in a 3T MRI scanner. Functional images were acquired with a brainstem-optimized protocol for high-resolution echo-planar imaging.

RESULTS:

We detected a significantly stronger activation of the anterior right hypothalamus in CMs compared to HCs. To exclude the headache as a prime mediator of the hypothalamic activations, we compared all migraineurs with headaches (EMs and CMs) with all migraineurs without headaches (EMs and CMs) and HCs in a second analysis and found a more posterior region of the hypothalamus to be more activated bilaterally during headaches.

CONCLUSIONS:

Our data corroborate the fact that the hypothalamus plays a crucial role in the pathophysiology of migraine chronification and acute pain stage of migraineurs. While the more posterior part of the hypothalamus seems to be important for the acute pain stage, the more anterior part seems to play an important role in attack generation and migraine chronification

22 A. IMPINGEMENT**Specific exercises for**

BMC Musculoskelet Disord. 2017 Apr 17;18(1):158. doi: 10.1186/s12891-017-1518-0.

Specific or general exercise strategy for subacromial impingement syndrome-does it matter? A systematic literature review and meta analysis.

Shire AR¹, Stæhr TAB², Overby JB², Bastholm Dahl M², Sandell Jacobsen J², Høyrup Christiansen D³.

Author information

Abstract

BACKGROUND:

Exercise is frequently suggested as a treatment option for patients presenting with symptoms of subacromial impingement syndrome. Some would argue implementing a specific exercise strategy with special focus on correction of kinematic deficits would be superior to general exercise strategy. There is however a lack of evidence comparing such exercise strategies to determine which is the most effective in the treatment of subacromial impingement syndrome. The aim of this review is to evaluate whether implementing specific exercise strategies involving resistive exercises are more effective than a general exercise strategy for the treatment of patients with subacromial impingement syndrome.

METHODS:

Randomized controlled trials were identified through an electronic search on PubMed/MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, Web of Science and PEDro. In addition, article reference lists and Clinicaltrials.gov were searched. Studies were considered eligible if they included interventions with resistive specific exercises as compared to general resistance exercise. Four reviewers assessed risk of bias and methodological quality guided by Cochrane recommendations. Results were synthesised qualitatively or quantitatively, where appropriate.

RESULTS:

Six randomized controlled trials were included with 231 participants who experienced symptoms of subacromial impingement syndrome. Four studies evaluated the effectiveness of specific scapular exercise strategy and two studies evaluated the effectiveness of specific proprioceptive strategy. Five studies were of moderate quality and one study was of low quality. No consistent statistical significant differences in outcomes between treatment groups were reported in the studies. Standardized mean difference (SMD) for pain was SMD -0.19 (95% CI -0.61, 0.22) and SMD 0.30 (95% CI -0.16, 0.76) for function.

CONCLUSIONS:

There is insufficient evidence to support or refute the effectiveness of specific resistive exercise strategies in the rehabilitation of subacromial impingement syndrome. More high quality research is needed to accurately assess this. This review provides suggestions on how to improve the methodological design of future studies in this area.

26. CARPAL TUNNEL SYNDROME

Fluoroquinolone use increases risk

Fluoroquinolone use and risk of carpal tunnel syndrome: A pharmacoepidemiologic study

Clinical Infectious Diseases

Cheng JZ, et al.

A pharmacoepidemiologic study was performed to determine the carpal tunnel syndrome risk with fluoroquinolone use. Findings support that Fluoroquinolone (FQ) use is associated with increased risk of carpal tunnel syndrome (CTS).

- Authors identified well documentation of fluoroquinolone (FQ) induced peripheral neuropathies and tendinopathies.
- A pharmacoepidemiologic study assessing the risk of carpal tunnel syndrome (CTS) with fluoroquinolone use was performed.
- A case-control study of over 6 million patients was conducted.
- Findings revealed that FQ use is associated with increased risk of CTS (RR = 1.34, 95% CI 1.31 – 1.37).

30 A. IMPINGEMENT

Impact

Ischiofemoral impingement syndrome , incidence and clinical importance

Middle East Journal of Family Medicine

Shawaqfeh JS, et al.

Abstract

Objective: To evaluate the incidence of ischiofemoral impingement (IFI) syndrome among patients who presented for pelvic MRI as a case of pelvic pain at KHMC.

Methods: 125 pelvic MRI were done between August 2015 and August 2016 , for patients who presented as cases of LBP or pelvic pain at KHMC and were reviewed.

All studies were done on a Skyra 3 Tesla MRI machine with standard protocol of coronal STIR images , axial T1 and T2WI and PD fat sat sequences.

The studies were reviewed for quadratus femoris muscle edema or atrophy and measurements of both quadratus femoris and ischiofemoral spaces were done. Results were analyzed using simple statistical methods.

Results:

7 patients of the 125 had the full blown picture of IFI syndrome accounting for around 5 % of patients.

2 of them had long standing unexplained pelvic pain.

5 of them had the changes after history of pelvic surgery or trauma.

Conclusion: Ischiofemoral impingement syndrome should be considered in the differential diagnosis of patients with LBP, hip pain or unexplained pelvic pain especially in patients with history of pelvic surgery or trauma.

32 A. KNEE/ACL[Return to sport](#)**Limb Symmetry Indexes Can Overestimate Knee Function After Anterior Cruciate Ligament Injury**

Authors: Elizabeth Wellsandt, DPT, PhD, Mathew J. Failla, PT, PhD, Lynn Snyder-Mackler, PT, ScD

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2017 **Volume:**47 **Issue:**5 **Pages:**334–338 **DOI:**10.2519/jospt.2017.7285

Study Design Prospective cohort.

Background

The high risk of second anterior cruciate ligament (ACL) injuries after return to sport highlights the importance of return-to-sport decision making. Objective return-to-sport criteria frequently use limb symmetry indexes (LSIs) to quantify quadriceps strength and hop scores. Whether using the uninvolved limb in LSIs is optimal is unknown.

Objectives

To evaluate the uninvolved limb as a reference standard for LSIs utilized in return-to-sport testing and its relationship with second ACL injury rates.

Methods

Seventy athletes completed quadriceps strength and 4 single-leg hop tests before anterior cruciate ligament reconstruction (ACLR) and 6 months after ACLR. Limb symmetry indexes for each test compared involved-limb measures at 6 months to uninvolved-limb measures at 6 months. Estimated preinjury capacity (EPIC) levels for each test compared involved-limb measures at 6 months to uninvolved-limb measures before ACLR. Second ACL injuries were tracked for a minimum follow-up of 2 years after ACLR.

Results

Forty (57.1%) patients achieved 90% LSIs for quadriceps strength and all hop tests. Only 20 (28.6%) patients met 90% EPIC levels (comparing the involved limb at 6 months after ACLR to the uninvolved limb before ACLR) for quadriceps strength and all hop tests. Twenty-four (34.3%) patients who achieved 90% LSIs for all measures 6 months after ACLR did not achieve 90% EPIC levels for all measures. Estimated preinjury capacity levels were more sensitive than LSIs in predicting second ACL injuries (LSIs, 0.273; 95% confidence interval [CI]: 0.010, 0.566 and EPIC, 0.818; 95% CI: 0.523, 0.949).

Conclusion

Limb symmetry indexes frequently overestimate knee function after ACLR and may be related to second ACL injury risk. These findings raise concern about whether the variable ACL return-to-sport criteria utilized in current clinical practice are stringent enough to achieve safe and successful return to sport.

Level of Evidence Prognosis, 2b. *J Orthop Sports Phys Ther* 2017;47(5):334–338. Epub 29 Mar 2017. doi:10.2519/jospt.2017.7285

37. OSTEOARTHRITIS/KNEE**Measuring crepitus****Subjective Crepitus as a Risk Factor for Incident Symptomatic Knee Osteoarthritis: Data from the Osteoarthritis Initiative.**

Lo GH^{1,2}, Strayhorn MT^{1,2}, Driban JB³, Lyn Price L^{4,5}, Eaton CB⁶, McAlindon TE³.

Author information

Abstract

Objective Subjective crepitus is the complaint of hearing grating, cracking or popping sounds in and/or around a joint. We aimed to evaluate whether there is an association between crepitus and incident symptomatic knee osteoarthritis (SOA) in the Osteoarthritis Initiative (OAI), a multicenter longitudinal U.S. cohort.

Methods Knees without baseline SOA were included. Crepitus frequency was assessed using a question from the Knee Injury and Osteoarthritis Outcome Score (KOOS) at baseline, 12-, 24-, and 36-month visits. Frequent knee pain and radiographs were assessed at baseline and annual visits up to 48-months. Radiographic OA (ROA) was tibiofemoral Kellgren and Lawrence (KL) grade ≥ 2 . SOA was a knee with both frequent symptoms and ROA. We performed a repeated measures analysis with a predictor of crepitus and outcome of incident SOA, adjusting for age, sex, and BMI where never complaining of crepitus was the referent group.

Results 3495 participants (42.2% male) with mean age of 61.1 (9.2) years, mean BMI of 28.2 (4.7) kg/m². Odds of incident SOA was higher with greater frequency of crepitus (never, rarely, sometimes, often, always); adjusted odds ratios were (referent), 1.5, 1.8, 2.2, 3.0 (p for trend < 0.0001). The group at OAI baseline with ROA but without symptoms contributed 26% of the observations, but over 75% of the incident SOA cases.

Conclusion Among those without SOA, subjective knee crepitus predicts incident SOA longitudinally, with most cases occurring in those with pre-existing tibiofemoral ROA but without frequent knee pain. An important limitation is that patellofemoral OA was not systematically evaluated within the OAI. Subjective crepitus offers utility for identification of at-risk individuals, predictive modeling, and future research. This article is protected by copyright. All rights reserved.

Hyaluronic Acid**Comparative effectiveness of low, moderate and high molecular weight hyaluronic acid injections in delaying time to knee surgery**

Anand R. Shewale, MS C. Lowry Barnes, MD Lori A. Fischbach, PhD, MPH Songthip Ounpraseuth, PhD Jacob T. Painter, Pharm D, MBA, PhD Bradley C. Martin, Pharm D, PhD Bradley C. Martin

DOI: <http://dx.doi.org/10.1016/j.arth.2017.04.041>

Abstract**Background**

We compared the effectiveness of low molecular weight (LMWHA), moderate molecular weight (MMWHA), and high molecular weight (HMWHA) hyaluronic acid for prevention or delay of knee surgery in patients with knee osteoarthritis (OA).

Methods

An observational cohort study using Lifelink Plus claims (2006-2015) was used. The primary outcome measure of the study included all surgical interventions of the knee. The secondary outcome measures were 1) unicompartmental (UKR) or total knee replacement (TKR) and 2) TKR only. A high dimensional propensity score (hdPS) using 1:1 matching was used to adjust for confounding. The likelihood of each outcome was assessed using Cox proportional hazard models.

Results

A cohort of 30,417 incident HA users with knee OA met our inclusion-exclusion criteria. There was no difference in the likelihood of composite surgical events between LMWHA users (HR: 0.939; 95%CI: 0.870-1.013) and MMWHA users (HR: 1.032; 95%CI: 0.952-1.119) when compared to HMWHA users in a matched hdPS analysis. However, a significantly lower likelihood for all outcome measures was demonstrated in LMWHA and MMWHA users compared to HMWHA users when hdPS was not used.

Conclusion

There was no significant difference in the likelihood of surgical interventions between LMWHA, MMWHA and HMWHA users after accounting for empirically derived confounders.

Neuropathic**Is there a possible neuropathic pain component in knee osteoarthritis**
Archives of Rheumatology

sponsor

Polat CS, et al.

The purpose of this study was to analyze the neuropathic pain (NP) component in patients with osteoarthritis (OA) of the knee and its association with physical function, risk factors, and stages of osteoarthritis. This research indicated that some of the knee osteoarthritis patients had a NP component as the underlying cause of knee pain. It was showed that patients with NP had longer symptom duration, increased severity of pain, and disability. Accordingly, the presence of NP component in these patients should be considered. Once it is determined, appropriate intervention strategies for NP should be incorporated in the routine treatment modalities of knee osteoarthritis.

Methods

- Researchers included 109 patients (16 males, 93 females; mean age 62.5±8.5 years; range 44 to 81 years) diagnosed with knee OA according to the American College of Rheumatology criteria between July 2014 and June 2015.
- They examined patients with visual analog scale for pain severity, PainDETECT questionnaire for presence and severity of neuropathic pain, Western Ontario and McMaster Universities osteoarthritis index for physical function, and the Kellgren-Lawrence system for severity of OA.
- In this study, presence of the associated risk factors were also questioned.

Results

- A sum of 12 patients (11%) were categorized as having likely NP and 23 patients (21.1%) were classified as having possible NP.
- It was showed that PainDETECT scores were significantly associated with the visual analog scale scores and Western Ontario and McMaster Universities osteoarthritis index pain, physical function and total scores.
- The data illustrated that patients with neuropathic pain had significantly longer symptom duration than the patients without NP.
- Nevertheless, there were no relationship between the other risk factors and NP.

41 A. ACHILLES TENDON AND CALF**Prolo and sclerotherapy**

Scand J Med Sci Sports. 2017 Apr 27. doi: 10.1111/sms.12898.

The effect of sclerotherapy and prolotherapy on chronic painful Achilles tendinopathy - a systematic review including meta-analysis.

Morath O¹, Kubosch EJ¹, Taeymans J², Zwingmann J¹, Konstantinidis L¹, Südkamp NP¹, Hirschmüller A¹.

Author information

Abstract

Chronic painful AT is a common disorder among athletes. Sclerotherapy (ST) and prolotherapy (AT) are two promising options among the numerous other conservative therapies. Since their efficacy and potential adverse effects (AE) are still unclear, we systematically searched, analysed, and synthesised the available literature on ST and PT for treating AT. Electronic databases, GoogleScholar and articles' reference lists were searched according to PRISMA guidelines. Eligibility criteria were set up according to the PICOS-scheme including human and animal studies. Three authors independently reviewed the results and evaluated methodological quality (Coleman Methodology Score and Cochrane Risk of Bias Assessment). The initial search yielded 1104 entries. After screening, 18 articles were available for qualitative synthesis, six of which were subjected to meta-analysis. The mean Coleman Score of the thirteen human studies was 50. Four RCTs were ranked as having a low risk of selection bias. Three of those reported a statistically significant drop in the VAS score, one a significant increase in the VISA-A Score. 12 of 13 human studies reported positive results in achieving pain relief and patient satisfaction, whereas only one study's finding differed. Meta-analysis revealed an unambiguous result in favour of the intervention (weighted mean difference D=-4.67cm, 95% CI -5.56 to - 3.76 cm (p<0.001)).

Only one serious AE and two minor AEs were reported in the entire literature. This SR suggests that ST and PT may be effective treatment options for AT and that they can be considered safe. Long-term studies and RCTs, are still needed to support their recommendation. This article is protected by copyright. All rights reserved.

44. RHUMATOID ARTHRITIS

Smoking and mortality

Arthritis Care Res (Hoboken). 2017 May 2. doi: 10.1002/acr.23269.

Smoking behavior changes in the early rheumatoid arthritis period and risk of mortality during 36 years of prospective follow-up.

Sparks JA¹, Chang SC^{1,2}, Nguyen UDT^{3,4}, Barbhuiya M¹, Tedeschi SK¹, Lu B¹, Costenbader KH¹, Zhang Y⁴, Choi HK⁵, Karlson EW¹.

Author information

Abstract

OBJECTIVE:

We investigated whether rheumatoid arthritis (RA) diagnosis influences smoking behavior changes and whether these changes were associated with mortality.

METHODS:

We identified an incident RA cohort in the Nurses' Health Study (NHS, 1976-2012). Behavioral data were collected through biennial questionnaires. We created a comparison cohort, matching RA cases to women without RA by age and calendar year at the index date of RA diagnosis. To investigate smoking behavior changes in the early RA period, sustained cessation was defined as permanently quitting within four years of RA/index date. We used Cox regression to obtain HRs for mortality, comparing sustained smoking cessation to continued smoking.

RESULTS:

Among 121,701 women in the NHS, we identified 938 with incident RA matched to 8,951 non-RA comparators. Among current smokers, 40.0% with RA permanently quit smoking in the early RA period compared to 36.1% of comparators (OR for sustained cessation 1.18, 95%CI 0.88-1.58). There were 313 (33.4%) deaths in the RA cohort and 2,042 (22.8%) among comparators. Compared to continued smoking, sustained cessation was associated with similarly decreased mortality in both the RA (HR 0.58, 95%CI 0.33-1.01) and comparison (HR 0.47, 95%CI 0.39-0.58) cohorts. Women with RA had higher mortality for >5 post-RA pack-years (HR 3.67, 95%CI 2.80-4.81) than comparators with >5 post-index pack-years (HR 1.88, 95%CI 1.62-2.17; $p_{\text{interaction}} < 0.001$, reference: ever smoker non-RA women with 0 post-index pack-years).

CONCLUSION:

Sustained smoking cessation within four years of RA diagnosis reduced mortality risk, with a similar effect observed among non-RA comparators. Smoking >5 pack-years after RA diagnosis significantly increased mortality beyond the risk of non-RA comparators. This article is protected by copyright. All rights reserved

45 B. MANUAL THERAPY CERVICAL

PT vs Manual Therapy

Manual therapy compared with physical therapy in patients with non-specific neck pain: A randomized controlled trial

Chiropractic & Manual Therapies

Groeneweg R, et al.

This randomized controlled trial aimed to compare the effectiveness of Manual Therapy Utrecht (MTU) to physical therapy, especially active exercise therapy (PT) in patients with non-specific neck pain. Between the MTU and PT groups, patients with neck pain improved in both groups without statistically significant or clinically relevant differences during the 1-year follow-up.

Methods

- The authors included patients with neck pain (18–70 years) in a pragmatic randomized controlled trial with a one-year follow-up.
- The initial outcome measures were global perceived effect and functioning (Neck Disability Index).
- Pain intensity (Numeric Rating Scale for Pain) was included as secondary outcome measure.
- They measured outcomes at 3, 7, 13, 26 and 52 weeks.
- For overall between-group differences, multilevel analyses (intention-to-treat) were the primary analyses.
- Additional to the primary and secondary outcomes the number of treatment sessions of the MTU group and PT group was examined.
- From September 2008 to February 2011, data were collected.

Results

- The authors included 181 patients.
- At 1 year, multilevel analyses demonstrated no statistically significant overall differences between the MTU and PT groups on any of the primary and secondary outcomes.
- The MTU group revealed significantly lower treatment sessions contrasted with the PT group (respectively 3.1 vs. 5.9 after 7 weeks; 6.1 vs. 10.0 after 52 weeks).

48 A. STM**New massage therapy for LBP****The efficacy of a preparatory phase of a touch-based approach in treating chronic low back pain: A randomized controlled trial**

Journal of Pain Research
Zangrando F, et al.

This randomized controlled study aimed to find out the relative efficacy of massage therapy between traditional massage and a new massage approach for chronic low back pain (CLBP) and to explore whether any reduction in pain was linked to interoceptive awareness and parasympathetic activation. Compared to the traditional approach, the new massage approach with a preparatory phase that is pleasant to the touch was more effective for CLBP.

Methods

- The researchers conducted a single-blind, randomized, controlled trial.
- They allocated 51 patients to a traditional massage therapy group (TMG; N=24, mean age: 50.54±9.13 years) or experimental massage therapy group (SMG; N=27, mean age: 50.77±6.80 years).
- The initial outcome was the reduction in pain per the visual analog scale (VAS).
- Multidimensional pain intensity on the McGill Pain Questionnaire, pain-related disability per the Waddell Disability Index, interoceptive awareness per the Multidimensional Assessment of Interoceptive Awareness Questionnaire, quality of life per the Short Form - 12 Health Survey, and heart rate variability, expressed as the coherence ratio (CR) by photoplethysmography were included as secondary outcome measures.
- They evaluated the following outcome measures at baseline, at the end of the treatment program, and at the 3-month follow-up.
- They calculated the mean and standard deviation for continuous data.
- They used Mann–Whitney U test to perform between-group comparisons, Friedman’s analysis for data on the 3 assessment times in each group, and Spearman’s R coefficient to analyze correlations.

Results

- With better maintenance at the 3-month follow-up (VAS p=0.005 and p=0.098; Waddell Index p=0.034 and 0.044; McGill total p=0.000 and 0.003), both approaches had a positive result on pain, an effect that was more acute in the SMG vs. TMG for all pain scales.
- CR scores were significant at baseline and at the end of the treatment program (p=0.000 and 0.002) in the SMG.

48 B. TRIGGER POINTS NEEDLING/ACUPUNCTURE**Research into**

Musculoskelet Sci Pract. 2017 Apr 18;30:1-9. doi: 10.1016/j.msksp.2017.04.009.

Evolution of the methodological quality of controlled clinical trials for myofascial trigger point treatments for the period 1978-2015: A systematic review.

Stoop R¹, Clijisen R², Leoni D³, Soldini E³, Castellini G⁴, Redaelli V⁵, Barbero M³.

Author information

Abstract

BACKGROUND:

The methodological quality of controlled clinical trials (CCTs) of physiotherapeutic treatment modalities for myofascial trigger points (MTrP) has not been investigated yet.

OBJECTIVES:

To detect the methodological quality of CCTs for physiotherapy treatments of MTrPs and demonstrating the possible increase over time.

DESIGN:

Systematic review.

METHODS:

A systematic search was conducted in two databases, Physiotherapy Evidence Database (PEDro) and Medicine Medical Literature Analysis and Retrieval System online (MEDLINE), using the same keywords and selection procedure corresponding to pre-defined inclusion criteria. The methodological quality, assessed by the 11-item PEDro scale, served as outcome measure. The CCTs had to compare at least two interventions, where one intervention had to lay within the scope of physiotherapy. Participants had to be diagnosed with myofascial pain syndrome or trigger points (active or latent).

RESULTS:

A total of n = 230 studies was analysed. The cervico-thoracic region was the most frequently treated body part (n = 143). Electrophysical agent applications was the most frequent intervention. The average methodological quality reached 5.5 on the PEDro scale. A total of n = 6 studies scored the value of 9. The average PEDro score increased by 0.7 points per decade between 1978 and 2015.

CONCLUSIONS:

The average PEDro score of CCTs for MTrP treatments does not reach the cut-off of 6 proposed for moderate to high methodological quality. Nevertheless, a promising trend towards an increase of the average methodological quality of CCTs for MTrPs was recorded. More high-quality CCT studies with thorough research procedures are recommended to enhance methodological quality

52. EXERCISE**Exercise practice and strength increase**

Med Sci Sports Exerc. 2017 May 2. doi: 10.1249/MSS.0000000000001300.

Practicing the Test Produces Strength Equivalent To Higher Volume Training.

Mattocks KT¹, Buckner SL, Jessee MB, Dankel SJ, Mouser JG, Loenneke JP.

Author information

Abstract

PURPOSE:

To determine if muscle growth is important for increasing muscle strength or if changes in strength can be entirely explained from practicing the strength test.

METHODS:

Thirty-eight untrained individuals performed knee extension and chest press exercise for 8 weeks. Individuals were randomly assigned to either a high-volume training group (HYPER) or a group just performing the one repetition maximum (1RM) strength test (TEST). The HYPER group performed 4 sets to volitional failure (~8-12RM) while the TEST group performed up to 5 attempts to lift as much weight as possible one time each visit.

RESULTS:

Data are presented as mean (90% CI). The change in muscle size was greater in the HYPER group for both the upper and lower body at most but not all sites. The change in 1RM strength for both the upper [difference of -1.1 (-4.8, 2.4) kg] and lower body [difference of 1.0 (-0.7, 2.8) kg for dominant leg] was not different between groups (similar for non-dominant). Changes in isometric and isokinetic torque were not different between groups. The HYPER group observed a greater change in muscular endurance [difference of 2 (1, 4) repetitions] only in the dominant leg. There were no differences in the change between groups in upper body endurance. There were between group differences for exercise volume [mean (95% CI)] of the dominant [difference of 11049.3 (9254.6, 12844.0) kg] leg (similar for non-dominant) and chest press with the HYPER group completing significantly more total volume [difference of 13259.9 (9632.0, 16887.8) kg].

CONCLUSION:

These findings suggests that exercise volume nor the change in muscle size from training contributed to greater strength gains compared to just practicing the test.

Exercise for osteoporosis

BMC Geriatr. 2017 May 2;17(1):102. doi: 10.1186/s12877-017-0490-8.

The effects of low-repetition and light-load power training on bone mineral density in postmenopausal women with sarcopenia: a pilot study.

Hamaguchi K¹, Kurihara T¹, Fujimoto M¹, Iemitsu M¹, Sato K², Hamaoka T³, Sanada K⁴.

Author information

Abstract

BACKGROUND:

Age-related reduction in bone mineral density (BMD) is generally accelerated in women after menopause, and could be even more pronounced in individuals with sarcopenia. Light-load power training with a low number of repetitions would increase BMD, significantly reducing bone loss in individuals at risk of osteoporosis. This study investigated the effects of low-repetition, light-load power training on BMD in Japanese postmenopausal women with sarcopenia.

METHODS:

The training group (n = 7) followed a progressive power training protocol that increased the load with a weighted vest, for two sessions per week, over the course of 6 weeks. The training exercise comprised five kinds of exercises (squats, front lunges, side lunges, calf raises, and toe raises), and each exercise contained eight sets of three repetitions with a 15-s rest between each set. The control group (n = 8) did not undergo any training intervention. We measured BMD, muscle strength, and anthropometric data.

RESULTS:

Within-group changes in pelvis BMD and knee extensor strength were significantly greater in the training group than the control group (p = 0.029 and 0.030 for pelvis BMD and knee extensor strength, respectively). After low-repetition, light-load power training, we noted improvements in pelvis BMD (1.6%) and knee extensor strength (15.5%). No significant within- or between-group differences were observed for anthropometric data or forearm BMD.

CONCLUSIONS:

Six weeks of low-repetition, light-load power training improved pelvis BMD and knee extensor strength in postmenopausal women with sarcopenia. Since this training program does not require high-load exercise and is therefore easily implementable as daily exercise, it could be an effective form of exercise for sedentary adults at risk for osteoporosis who are fearful of heavy loads and/or training that could cause fatigue.

53. CORE**Pilates and LBP**

J Manipulative Physiol Ther. 2017 Apr 13. pii: S0161-4754(17)30055-6. doi: 10.1016/j.jmpt.2017.02.010.

Trunk Muscle EMG During Intermediate Pilates Mat Exercises in Beginner Healthy and Chronic Low Back Pain Individuals.

Pereira ILR¹, Queiroz B¹, Loss J², Amorim C³, Sacco ICN⁴.

Author information

Abstract

OBJECTIVE:

The purpose of this study was to compare the electromyographic pattern of core muscles during intermediate Pilates mat exercises between healthy people and those with low back pain.

METHODS:

We evaluated healthy participants (n = 19; mean ± standard deviation [SD]: age 28 ± 8 years, body mass 65 ± 10 kg, height 160.0 ± 9.1 cm) and a low back pain group (n = 13; mean ± SD: age 30 ± 9 years, body mass 67 ± 12 kg, height 170.0 ± 6.6 cm). Electromyographic analysis assessed the multifidus, external oblique, internal oblique, and rectus abdominis muscles during classical Pilates exercises (single leg stretch, criss-cross, and dead bug). We calculated the root mean square normalized by maximum voluntary contraction, and the time of peak activation was provided by a linear envelope and normalized by the total movement cycle.

RESULTS:

The criss-cross exercise presented the highest values of root mean square for trunk flexors (rectus abdominis and oblique) compared with the other exercises, followed by the single leg stretch and the dead bug, which had similar muscle activation. The single leg stretch presented more activation of the rectus abdominis and oblique, whereas the criss-cross and dead bug created more activation of the oblique compared with the multifidus and rectus.

CONCLUSIONS:

The Pilates exercises presented different muscle recruitment patterns, and allowed the activation of the lumbopelvic stabilizing muscles even in the first session for healthy individuals and those with chronic low back pain.

56. ATHLETICS

Arterial change in athletes

The Relationship Between Lifelong Exercise Volume and Coronary Atherosclerosis in Athletes
Vincent L. Aengevaeren, Arend Mosterd, Thijs L. Braber, Niek H. J. Prakken, Pieter A. Doevendans, Diederick E. Grobbee, Paul D. Thompson, Thijs M. H. Eijvogels, Birgitta K. Velthuis

<https://doi.org/10.1161/CIRCULATIONAHA.117.027834>

Abstract

Background—Higher levels of physical activity are associated with a lower risk of cardiovascular events. Nevertheless, there is debate on the dose-response relationship of exercise and CVD outcomes and whether high volumes of exercise may accelerate coronary atherosclerosis. We aimed to determine the relationship between lifelong exercise volumes and coronary atherosclerosis.

Methods—Middle aged men engaged in competitive or recreational leisure sports underwent a non-contrast and contrast-enhanced computed tomography scan to assess coronary artery calcification (CAC) and plaque characteristics. Participants reported lifelong exercise history patterns. Exercise volumes were multiplied by Metabolic Equivalent of Task (MET) scores to calculate MET-min/week. Participants were categorized as <1000 MET-min/week, 1000-2000 MET-min/week or >2000 MET-min/week.

Results—284 men (55±7 years) were included. CAC was present in 150/284 (53%) participants with a median CAC score of 35.8 [9.3-145.8]. Athletes with a lifelong exercise volume >2000 MET-min/week (n=75) had a significantly higher CAC score (9.4 [0-60.9] versus 0 [0-43.5], p=.02) and prevalence of CAC (68%, OR_{adjusted}=3.2 (95%CI: 1.6-6.6)) and plaque (77%, OR_{adjusted}=3.3 (95%CI: 1.6-7.1)) compared to <1000 MET-min/week (n=88, 43% and 56% respectively). Very vigorous intensity exercise (≥9 METs) was associated with CAC (OR_{adjusted}=1.47 (95%CI: 1.14-1.91)) and plaque (OR_{adjusted}=1.56 (95%CI: 1.17-2.08)). Among participants with CAC>0, there was no difference in CAC score (p=.20), area (p=.21), density (p=.25) and regions of interest (p=.20) across exercise volume groups. Among participants with plaque, the most active group (>2000 MET-min/week) had a lower prevalence of mixed plaques (48% versus 69%, OR_{adjusted}=0.35 (95%CI: 0.15-0.85)) and more often had only calcified plaques (38% versus 16%, OR_{adjusted}=3.57 (95%CI: 1.28-9.97)) compared to the least active group (<1000 MET-min/week).

Conclusions—Participants in the >2000 MET-min/week group had a higher prevalence of CAC and atherosclerotic plaques. The most active group did however have a more benign composition of plaques, with fewer mixed plaques and more often only calcified plaques. These observations may explain the increased longevity typical of endurance athletes despite the presence of more coronary atherosclerotic plaque in the most active participants.

Groin injuries in tennis players

Musculoskelet Sci Pract. 2017 Apr 13;29:144-149. doi: 10.1016/j.msksp.2017.04.006

Comparisons of hip strength and countermovement jump height in elite tennis players with and without acute history of groin injuries.

Moreno-Pérez V¹, Lopez-Valenciano A¹, Barbado D¹, Moreside J², Elvira JLL¹, Vera-Garcia FJ³.

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

Despite the high groin-injury (GI) prevalence in tennis, no studies have assessed the extent to which intrinsic groin injury risk factors, such as hip muscle strength, have recovered in elite tennis players with a history of previous GI.

OBJECTIVE:

To investigate whether elite tennis players with a history of GI show differences in hip strength and jump height between injured and uninjured limbs and compared with dominant limb in tennis players without history of acute groin-injuries (NGI).

DESIGN:

Cohort study.

PARTICIPANTS:

Sixty-one tennis players completed this study: 17 in the GI group and 44 in the NGI. Isometric adductor and abductor hip strength were assessed with a handheld dynamometer, and unilateral counter-movement jump tests were performed on a contact mat connected to an Ergo tester. Paired t-tests were conducted to identify differences between injured and non-injured limbs in the GI group, and independent measures t-tests were conducted to compare between GI and NGI groups.

RESULTS:

Isometric adductor strength and adductor/abductor strength ratios were lower in the injured limb (16.4% and 20.1%, respectively) compared with uninjured side within the GI group, and lower than the dominant side in the NGI group. No significant differences were found for unilateral jump heights between sides in the GI, nor isometric abductor strength, when comparing GI to NGI groups.

CONCLUSIONS:

Isometric adductor weakness and adductor/abductor strength ratio deficits suggest that adductor muscle strength is not fully recovered in these athletes, potentially increasing their risk of a repeat groin injury.

Exercise for overhead athletes

Br J Sports Med. 2017 Apr 12. pii: bjsports-2016-096915. doi: 10.1136/bjsports-2016-096915.

Exercise prescription for overhead athletes with shoulder pathology: a systematic review with best evidence synthesis.

Wright AA¹, Hegedus EJ², Tarara DT³, Ray SC⁴, Dischiavi SL².

Author information

Abstract

OBJECTIVE:

To produce a best evidence synthesis of exercise prescription used when treating shoulder pathology in the overhead athlete.

DESIGN:

A systematic review of exercises used in overhead athletes including case studies and clinical commentaries.

DATA SOURCES:

MEDLINE, PubMed, SPORTDiscus and CINAHL from database inception through July 8, 2016.

METHODS:

We examined data from randomised controlled trials and prospective cohort (level I-IV evidence) studies that addressed exercise intervention in the rehabilitation of the overhead athlete with shoulder pathology. Case studies and clinical commentaries (level V evidence) were examined to account for expert opinion-based research. Data were combined using best evidence synthesis and graded (A-F) recommendations (Centre for Evidence-Based Medicine).

RESULTS:

There were 33 unique exercises in six level I-IV studies that met our inclusion criteria. Most exercises were single-plane, upper extremity exercises performed below 90° of elevation. There were 102 unique exercises in 33 level V studies that met our inclusion criteria. These exercises emphasised plyometrics, kinetic chain and sport-specific training.

CONCLUSIONS AND RELEVANCE:

Overall, evidence for exercise interventions in overhead athletes with shoulder pathology is dominated by expert opinion (grade D). There is great variability between exercise approaches suggested by experts and those investigated in research studies and the overall level of evidence is low. The strongest available evidence (level B) supports the use of single-plane, open chain upper extremity exercises performed below 90° of elevation and closed chain upper extremity exercises. Clinical expert pieces support a more advanced, global treatment approach consistent with the complex, multidimensional nature of sport

57. GAIT

Walking's impact on the brain

How walking benefits the brain
American Physiological Society News

sponsor

Researchers at New Mexico Highlands University (NMHU) found that the foot's impact during walking sends pressure waves through the arteries that significantly modify and can increase the supply of blood to the brain. The research was presented at the APS annual meeting at Experimental Biology 2017.

Until recently, the cerebral blood flow (CBF) was thought to be involuntarily regulated by the body and relatively unaffected by changes in the blood pressure caused by exercise or exertion. The NMHU research team and others previously found that the foot's impact during running (4–5 G-forces) caused significant impact-related retrograde (backward-flowing) waves through the arteries that sync with the heart rate and stride rate to dynamically regulate blood circulation to the brain.

In the current study, the research team used non-invasive ultrasound to measure internal carotid artery blood velocity waves and arterial diameters to calculate hemispheric CBF to both sides of the brain of 12 healthy young adults during standing upright rest and steady walking (1 meter/second).

The researchers found that though there is lighter foot impact associated with walking compared with running, walking still produces larger pressure waves in the body that significantly increase blood flow to the brain. While the effects of walking on CBF were less dramatic than those caused by running, they were greater than the effects seen during cycling, which involves no foot impact at all.

“New data now strongly suggest that brain blood flow is very dynamic and depends directly on cyclic aortic pressures that interact with retrograde pressure pulses from foot impacts,” the researchers wrote. “There is a continuum of hemodynamic effects on human brain blood flow within pedaling, walking and running. Speculatively, these activities may optimize brain perfusion, function, and overall sense of wellbeing during exercise.”

“What is surprising is that it took so long for us to finally measure these obvious hydraulic effects on cerebral blood flow,” first author Ernest Greene explained. “There is an optimizing rhythm between brain blood flow and ambulating. Stride rates and their foot impacts are within the range of our normal heart rates (about 120/minute) when we are briskly moving along.”

Changes with LBP

Gait Posture. 2017 Apr 23;55:172-176. doi: 10.1016/j.gaitpost.2017.04.027. [

Altered spatiotemporal characteristics of gait in older adults with chronic low back pain.

Hicks GE¹, Sions JM², Coyle PC², Pohlig RT³.

Author information

Abstract

Previous studies in older adults have identified that chronic low back pain (CLBP) is associated with slower gait speed.

Given that slower gait speed is a predictor of greater morbidity and mortality among older adults, it is important to understand the underlying spatiotemporal characteristics of gait among older adults with CLBP.

The purposes of this study were to determine (1) if there are differences in spatiotemporal parameters of gait between older adults with and without CLBP during self-selected and fast walking and (2) whether any of these gait characteristics are correlated with performance of a challenging walking task, e.g. stair negotiation. Spatiotemporal characteristics of gait were evaluated using a computerized walkway in 54 community-dwelling older adults with CLBP and 54 age- and sex-matched healthy controls.

Older adults with CLBP walked slower than their pain-free peers during self-selected and fast walking. After controlling for body mass index and gait speed, step width was significantly greater in the CLBP group during the fast walking condition. Within the CLBP group, step width and double limb support time are significantly correlated with stair ascent/descent times. From a clinical perspective, these gait characteristics, which may be indicative of balance performance, may need to be addressed to improve overall gait speed, as well as stair-climbing performance. Future longitudinal studies confirming our findings are needed, as well as investigations focused on developing interventions to improve gait speed and decrease subsequent risk of mobility decline.

59. PAIN**Attachment and chronic pain**

Eur J Pain. 2017 Apr 18. doi: 10.1002/ejp.1036.

Adult attachment insecurity is positively associated with medically unexplained chronic pain.

McWilliams LA¹.

Author information

Abstract

BACKGROUND:

Attachment insecurity (i.e. anxiety in relationships and/or discomfort in close relationships) is associated with self-reports of physical symptoms, medically unexplained symptoms and health conditions involving pain. Medically unexplained chronic pain (MUCP) may represent a particularly severe form of symptom reporting that is also characteristic of individuals with insecure attachment. This study investigated relationships between adult attachment style ratings and past-year MUCP in a sample of the general U.S. population and the ability of attachment style ratings to account for variance in past-year MUCP beyond that accounted for by potential confounders.

METHOD:

Data from the National Comorbidity Survey Replication (N = 5645) were used. Attachment was assessed with an interview-administered version of a commonly used self-report measure of secure, anxious and avoidant attachment. MUCP was assessed with a brief interview. Depressive and anxiety disorders were included as covariates and were assessed with a fully structured interview based on DSM-IV criteria.

RESULTS:

The past-year prevalence of MUCP was 2.45% (95% CI = 2.07-2.83). The two insecure attachment styles (i.e. anxious and avoidant) were positively associated with MUCP. These associations remained statistically significant after adjusting for demographic variables and depressive and anxiety disorders. When the two insecure attachment styles were considered together, only avoidant attachment remained significantly associated with MUCP.

CONCLUSION:

Attachment insecurity ratings were positively associated with past-year MUCP and remained so after statistically adjusting for depressive and anxiety disorders. Further research aimed at understanding the mechanism(s) responsible for the association between attachment insecurity and MUCP is warranted.

SIGNIFICANCE:

Consistent with earlier research regarding transient physical symptoms, medically unexplained chronic pain was associated with attachment insecurity. Understanding the mechanisms responsible for this association could guide treatment innovations

Memory of pain

Pain Manag Nurs. 2017 Apr 18. pii: S1524-9042(16)30152-7. doi: 10.1016/j.pmn.2017.02.198.

The Effect of Positive Affect on the Memory of Pain.

Babel P¹.

Author information

Abstract

The aim of the study was to assess the accuracy of the memory of experimentally induced pain and the affect that accompanies experimentally induced pain. Sixty-two healthy female volunteers participated in the study. In the first phase of the study, the participants received three pain stimuli and rated pain intensity, pain unpleasantness, state anxiety, and their positive and negative affect. About a month later, in the second phase of the study, the participants were asked to rate the pain intensity, pain unpleasantness, state anxiety, and the emotions they had felt during the first phase of the study. Both recalled pain intensity and recalled pain unpleasantness were found to be underestimated. Although the positive affect that accompanied pain was remembered accurately, recalled negative affect was overestimated and recalled state anxiety was underestimated. Experienced pain, recalled state anxiety, and recalled positive affect accounted for 44% of the total variance in predicting recalled pain intensity and 61% of the total variance in predicting recalled pain unpleasantness.

Together with recent research findings on the memory of other types of pain, the present study supports the idea that pain is accompanied by positive as well as negative emotions, and that positive affect influences the memory of pain.

Central pain mechanisms

Pain Pract. 2017 Apr 27. doi: 10.1111/papr.12600.

Psychological distress and widespread pain contribute to the variance of the central sensitization inventory: A cross-sectional study in patients with chronic pain.

van Wilgen CP¹, Vuijk PJ², Kregel J³, Voogt L⁴, Meeus M^{5,6}, Descheemaker F⁷, Keizer D⁸, Nijs J^{1,9}.

Author information

Abstract

OBJECTIVES:

Central sensitization (CS) implies increased sensitivity of the nervous system, resulting in increased pain sensitivity as well as widespread pain. Recently, the Central Sensitization Inventory (CSI) was developed to assess symptoms of CS and central sensitivity syndromes. The aim of this study was to examine the convergent validity of the CSI by comparing the outcome to psychosocial factors and clinical features of CS.

METHODS:

In a cross-sectional explorative study, patients with chronic pain completed multiple questionnaires, including the CSI, pain catastrophizing scale, SCL-90 for psychological distress, duration of pain, intensity of pain, widespread pain, and lateralization of pain. Based on bivariate correlations, relevant predictors of CS were selected and used to fit an exploratory structural equation model (SEM) of CS.

RESULTS:

In total 114 patients with chronic pain were included, 56.1% being women. The average pain duration was 88 months. The mean total score on the CSI was 36.09 (15.26). The CSI was strongly related to known contributing and related factors of CS. SEM analysis showed that both psychological distress and widespread pain contributed significantly to the variance in symptoms of CS in patients with chronic pain.

CONCLUSION:

In this study, the convergent validity of the CSI was measured with demonstration of a strong relationship between contributing factors and clinical features of CS. These findings of convergent validity, considering former studies of the CSI, underline the use of the questionnaire in the clinical practice. This article is protected by copyright. All rights reserved.

61. FIBROMYALGIA**Blood markers in FM**

Clin Rheumatol. 2017 May 2. doi: 10.1007/s10067-017-3647-0.

Evaluation of blood neutrophil-lymphocyte ratio and platelet distribution width as inflammatory markers in patients with fibromyalgia.

Aktürk S¹, Büyükavcı R².

Author information

Abstract

Fibromyalgia syndrome (FMS) is characterized by chronic widespread pain and systemic symptoms. The aetiology and pathogenesis of fibromyalgia are not yet fully understood. Blood neutrophil/lymphocyte ratio (NLR) is a marker of systemic inflammatory response. Platelet distribution width (PDW) and mean platelet volume (MPV) are the determinants of platelet activation and studied as markers in inflammatory diseases. The aim of the present study was to evaluate levels of NLR, PDW and MPV in patients with fibromyalgia. A total of 197 FMS patients and 53 healthy controls are included in the study. Demographic characteristics, erythrocyte sedimentation rate, C-reactive protein, neutrophil, lymphocyte and platelet counts, platelet distribution width and mean platelet volume levels were recorded. In the patient group, the blood NLR and MPV were significantly higher and the PDW was significantly lower compared to the control group. In the roc curve analysis, blood PDW \geq had 90.4% sensitivity and 90% specificity in predicting fibromyalgia.

The results of this study suggest NLR and PDW as promising inflammatory markers indicating fibromyalgia and may be beneficial in facilitating the diagnosis of FMS patients.

Comparisons of FM and Chronic pain**Original Article****Clinical Characteristics of Fibromyalgia in a Chronic Pain Population****Authors**

- **Mark Gostine, red Davis, radley Roberts, Rebecca Risko, Michael Asmus, Joseph C. Cappelleri, Alesia Sadosky**
- **DOI:** 10.1111/papr.12583 Pain practice

Abstract**Objective**

To compare fibromyalgia (FM) characteristics among patients identified in a community-based chronic pain cohort based on traditional International Classification of Diagnoses Ninth Revision, ICD-9 diagnostic coding, with that of patients identified using a novel predictive model.

Methods

This retrospective study used data collected from July 1999 to February 17, 2015 in multiple chronic pain clinics in the United States. Patients were assigned to the FM case group based on specific inclusion criteria using ICD-9 codes or, separately, from results of a novel FM predictive model that was developed using random forest and logistic regression techniques. Propensity scoring (1:1) matched FM patients (cases) to non-malignant chronic pain patients without FM (controls). Patient-reported measures (e.g., pain, fatigue, quality of sleep) and clinical characteristics (i.e., co-morbidities, procedures, and regions of pain) were outcomes for analysis.

Results

Nine ICD-9-CM diagnoses had odds ratios with large effect sizes (Cohen's $d > 0.8$), demonstrating the magnitude of the difference between the FM and matched non-FM cohorts; chronic pain syndrome, latex allergy, muscle spasm, fasciitis, cervicalgia, thoracic pain, shoulder pain, arthritis, and cervical disorders (all $P < 0.0001$). Six diagnoses were found to have a moderate effect size (Cohen's $0.5 < d < 0.8$); cystitis, cervical degeneration, anxiety, joint pain, lumbago, and cervical radiculitis.

Conclusions

The identification of multiple comorbidities, diagnoses, and musculoskeletal procedures that were significantly associated with FM may facilitate differentiation of FM patients from other conditions characterized by chronic widespread pain. Predictive modeling may enhance identification of FM patients who may otherwise go undiagnosed.

62 A. NUTRITION/VITAMINS**Vit. C for chronic pain**

J Transl Med. 2017 Apr 14;15(1):77. doi: 10.1186/s12967-017-1179-7.

The role of vitamin C in the treatment of pain: new insights.

Carr AC¹, McCall C².

Author information

Abstract

The vitamin C deficiency disease scurvy is characterised by musculoskeletal pain and recent epidemiological evidence has indicated an association between suboptimal vitamin C status and spinal pain. Furthermore, accumulating evidence indicates that vitamin C administration can exhibit analgesic properties in some clinical conditions.

The prevalence of hypovitaminosis C and vitamin C deficiency is high in various patient groups, such as surgical/trauma, infectious diseases and cancer patients. A number of recent clinical studies have shown that vitamin C administration to patients with chronic regional pain syndrome decreases their symptoms. Acute herpetic and post-herpetic neuralgia is also diminished with high dose vitamin C administration. Furthermore, cancer-related pain is decreased with high dose vitamin C, contributing to enhanced patient quality of life. A number of mechanisms have been proposed for vitamin C's analgesic properties. Herein we propose a novel analgesic mechanism for vitamin C; as a cofactor for the biosynthesis of amidated opioid peptides. It is well established that vitamin C participates in the amidation of peptides, through acting as a cofactor for peptidyl-glycine α -amidating monooxygenase, the only enzyme known to amidate the carboxy terminal residue of neuropeptides and peptide hormones. Support for our proposed mechanism comes from studies which show a decreased requirement for opioid analgesics in surgical and cancer patients administered high dose vitamin C.

Overall, vitamin C appears to be a safe and effective adjunctive therapy for acute and chronic pain relief in specific patient groups.

MD and bone health

J Transl Med. 2017 Apr 24;15(1):81. doi: 10.1186/s12967-017-1184-x.

Preliminary results demonstrating the impact of Mediterranean diet on bone health.

Savanelli MC¹, Barrea L¹, Macchia PE², Savastano S³, Falco A¹, Renzullo A³, Scarano E³, Nettore IC³, Colao A³, Di Somma C⁴.

Author information

Abstract

BACKGROUND:

Nutrition is an environmental factor affecting bone health. Nutrition is considered essential to achieve and maintain optimal bone mass. Mediterranean diet (MD) has shown to prevent bone disease. Aim of this study is to investigate the relationship between bone health status and adherence the MD.

METHODS:

Four-hundred eighteen healthy people (105 males and 313 females, age 50 ± 14 years) were recruited in the outdoor hospital of the "Campus Salute Onlus" held in Piazza del Plebiscito in Naples, October 17-20th 2013 and 09-11th October 2014. All subjects underwent clinical assessment, calcaneal quantitative ultrasound (QUS) scanner and PREvención con DIeta MEDiterránea (PREDIMED) questionnaire.

RESULTS:

Globally, prevalence of osteoporosis and osteopenia were 7.7 and 46.0%, respectively. The majority of subjects (60.5%) had an average score (score 6-9) of adherence to MD. The T-score showed positive correlation with PREDIMED score ($r = 0.250$, $p < 0.001$). The higher T-scores were positively associated with a higher consumption of extra-virgin olive oil (EVOO), vegetables, fruits, legumes, and fish and negatively associated with consumption of red meat. The higher T-scores were positively associated with the highest odds of PREDIMED scores (higher adherence) (OR 6.91, IC 6.27-7.61, $p < 0.001$). Multiple regression analysis models indicated that, among the single food items investigated, high T-score can be predicted by consumption of EVOO ($p < 0.001$), fish ($p < 0.001$) and fruit ($p = 0.002$) intake. A PREDIMED score of 3 was found to be predictive for a low T-score ($\alpha = 0.05$, R-squared index = 0.417).

CONCLUSIONS:

The results demonstrate a positive correlation between bone health status and adherence to MD, suggesting that a high adherence to MD promotes bone health. The observations here reported confirmed that a specific dietary approach, such as MD, can represent a modifiable environmental factor for osteoporosis' prevention

CA supplementation and CV problems

J Clin Hypertens (Greenwich). 2017 May 2. doi: 10.1111/jch.13010.

Calcium supplementation and cardiovascular risk: A rising concern.

Tankeu AT¹, Ndip Agbor V², Noubiap JJ³.

Author information

Abstract

Over the past decade, the number of individuals taking calcium supplementation worldwide has been on the rise, especially with the emergence of new pharmaceutical companies specialized in the marketing of dietary supplements; with calcium supplementation being their main business axis. This is mostly because of the established role of calcium in the prevention and treatment of osteoporosis and, to a lesser extent, its role in the prevention of fractures. Recently, a rising body of evidence on the adverse effect of calcium supplementation on nonskeletal, especially cardiovascular, health has been a cause for concern. In fact, a significant number of studies have reported an association between calcium supplementation and adverse cardiovascular events, even though high dietary calcium intake was shown to have a protective effect.

The mechanism by which calcium supplementation could cause a cardiovascular event was still unclear until a recent study published in the Journal of the American Heart Association. Combining this recent finding with available data associating calcium supplementation with cardiovascular mortality and all-cause mortality, we call on the need for an evidence-based approach to calcium supplementation, while stressing on the safety of dietary calcium intake over the former on cardiovascular health.

Lactose intolerance

J Nutr. 2017 Apr 26. pii: jn246108. doi: 10.3945/jn.116.246108.

Lactose Intolerance (LCT-13910C>T) Genotype Is Associated with Plasma 25-Hydroxyvitamin D Concentrations in Caucasians: A Mendelian Randomization Study.

Alharbi O¹, El-Sohemy A².

Author information

Abstract

Background: The *LCT*-13910C>T gene variant is associated with lactose intolerance (LI) in different ethnic groups. Individuals with LI often limit or avoid dairy consumption, a major dietary source of vitamin D in North America, which may lead to inadequate vitamin D intake.

Objective: The objective was to determine the prevalence of genotypes predictive of LI in different ethnic groups living in Canada and to determine whether the *LCT* genotype is associated with plasma 25(OH)D concentrations.

Methods: Blood samples were drawn from a total of 1495 men and women aged 20-29 y from the Toronto Nutrigenomics and Health Study for genotyping and plasma 25(OH)D analysis. Intakes of dairy were assessed by using a 196-item food frequency questionnaire. The prevalence of *LCT*-13910C>T genotypes was compared by using χ^2 analysis. Using a Mendelian randomization approach, we examined the association between *LCT* genotypes and 25(OH)D concentrations.

Results: Approximately 32% of Caucasians, 99% of East Asians, 74% of South Asians, and 59% of those with other or mixed ethnicities had the CC genotype associated with LI. Compared with those with the TT genotype, those with the CC genotype had a lower mean \pm SE total dairy intake (2.15 ± 0.09 compared with 2.67 ± 0.12 servings/d, $P = 0.003$), a lower skim-milk intake (0.20 ± 0.03 compared with 0.46 ± 0.06 servings/d, $P = 0.0004$), and a lower plasma 25(OH)D concentration (63 ± 1.9 compared with 75.8 ± 2.4 nmol/L, $P < 0.0001$). The CT and CC genotypes were associated with a 50% and a 2-fold increased risk, respectively, of a suboptimal plasma 25(OH)D concentration (<75 nmol/L)

Conclusions: In Caucasians, the CC genotype that predicts LI is associated with a lower plasma 25(OH)D concentration, which is attributable at least in part to a lower intake of dairy, particularly skim milk. Increased risk of suboptimal concentrations of vitamin D was also observed among those with the CT genotype, suggesting an intermediate effect of the heterozygous genotype.

B 12 and Vit D on OCD

Vitamin B12, folic acid, homocysteine and vitamin D levels in children and adolescents with obsessive compulsive disorder

Psychiatry Research

Esnafoglu E, et al.

This research aimed to examine whether vitamin B12, homocysteine and vitamin D play a role in the aetiology of paediatric obsessive compulsive disorder (OCD). The results of this study suggest that one carbon metabolism and vitamin D deficiency can play a role in the aetiology of OCD.

Methods

- For the purpose of this study, 52 children and adolescent OCD patients were compared with 30 healthy controls.
- After that, the members were tested for vitamin B12, folic acid, homocysteine and vitamin D levels and were assessed with a sociodemographic form, state-trait anxiety inventory 1 and 2, Kovacs Depression Inventory and Yale-Brown Obsessive Compulsive Scale (Y-BOCS).

Results

- The results obtained from the study found significantly lower levels of vitamin B12 and vitamin D and higher levels of homocysteine in the patient group compared to control group (p values for all three scores were <0.001), whereas there was no significant difference between groups in terms of folate levels ($p=0.083$).

Grape juice and mood

Eur J Nutr. 2017 Apr 20. doi: 10.1007/s00394-017-1454-7.

Cognitive and mood improvements following acute supplementation with purple grape juice in healthy young adults.

Haskell-Ramsay CF¹, Stuart RC², Okello EJ³, Watson AW³.

Author information

Abstract

PURPOSE:

Berry-derived phenolic compounds found in grapes have been associated with a number of health benefits, including the augmentation of human brain function and cognition. Previous intervention studies of Concord grape juice have demonstrated improvement to memory and driving ability following 3- to 4-month supplementation in middle-aged and older adults. However, no studies to date have demonstrated acute cognitive benefits of grape juice, and investigation of these effects in young adults is lacking.

METHODS:

This randomised, placebo-controlled, double-blind, counterbalanced-crossover study, assessed the effects of 230 ml purple grape juice or sugar-matched control in 20 healthy young adults. Computerised measures of episodic memory, working memory, attention and mood were completed at baseline and following a 20-min absorption period.

RESULTS:

Purple grape juice significantly improved reaction time on a composite attention measure ($p = 0.047$) and increased calm ratings ($p = 0.046$) when compared to placebo. Order effects also indicated an enduring positive effect on pre-dose memory reaction time ($p = 0.018$) and post-dose calm ratings ($p = 0.019$) when purple grape was consumed first.

CONCLUSIONS:

These findings in a small sample of healthy young adults suggest that purple grape juice can acutely enhance aspects of cognition and mood. No significant effects of juice were observed on memory measures, suggesting that these may be less susceptible to manipulation following acute supplementation in healthy young adults. Potential mechanisms underlying these effects include modulation of cerebral blood flow, glucoregulation and inhibition of monoamine oxidase activity, all of which require further exploration.

63. PHARMACOLOGY**Smoking and Opioid use**

Nicotine Tob Res. 2017 May 3. doi: 10.1093/ntr/ntx094

Smoking, pain intensity, and opioid consumption one to three months after major surgery: A retrospective study in a hospital-based Transitional Pain Service.

Montbriand JJ¹, Weinrib AZ^{1,2}, Azam MA^{1,2}, Ladak SSJ¹, Shah BR¹, Jiang J¹, McRae K¹, Tamir D¹, Lyn S¹, Katznelson R¹, Clarke HA¹, Katz J^{1,2}.

Author information**Abstract****INTRODUCTION:**

The present study investigated the associations between smoking, pain, and opioid consumption in the three months after major surgery in patients seen by the Transitional Pain Service. Current smoking status and lifetime pack years were expected to be related to higher pain intensity, more opioid use, and poorer opioid weaning after surgery.

METHODS:

239 patients reported smoking status in their pre-surgical assessment (62 smokers, 92 past smokers, and 85 never smokers). Pain and daily opioid use were assessed in hospital before post-surgical discharge, at first outpatient visit (median of one month post-surgery), and at last outpatient visit (median of 3 months post-surgery). Pain was measured using numeric rating scale. Morphine equivalent daily opioid doses were calculated for each patient.

RESULTS:

Current smokers reported significantly higher pain intensity ($p < 0.05$) at one month post-surgery than never smokers and past smokers. Decline in opioid consumption differed significantly by smoking status, with both current and past smokers reporting a less than expected decline in daily opioid consumption ($p < 0.05$) at 3 months. Decline in opioid consumption was also related to pack years, with those reporting higher pack years having a less than expected decline in daily opioid consumption at 3 months ($p < 0.05$).

CONCLUSIONS:

Smoking status may be an important modifiable risk factor for pain intensity and opioid use after surgery.

IMPLICATIONS:

In a population with complex post-surgical pain, smoking was associated with greater pain intensity at one month after major surgery and less opioid weaning three months after surgery. Smoking may be an important modifiable risk factor for pain intensity and opioid use after surgery.

Opioid use and anxiety**Misuse of prescription opioids among chronic pain patients suffering from anxiety: A cross-sectional analysis****General Hospital Psychiatry**

sponsor

Feingold D, et al.

Researchers undertook this investigation to explore rates of misuse among chronic pain patients prescribed opioids, comparing individuals with and without anxiety. The results obtained from the study highlight the importance of detecting and addressing co-occurring anxiety when treating patients with chronic pain who receive prescription opioids.

Methods

- In the present study, chronic pain patients receiving prescription opioids (N = 554) were screened for anxiety utilizing the Generalized Anxiety Disorder (GAD-7) scale and for opioid misuse utilizing the Current Opioid Misuse Measure (COMM).

Results

- The results of this study showed that among patients who screened positive for anxiety (GAD-7 \geq 10), 50% also screened positive for opioid misuse, compared to 10% among those without anxiety.
- In addition, after controlling for possible confounding sociodemographic and clinical variables, patients with anxiety were significantly more prone to screen positive for opioid misuse (Adjusted Odds Ratio (AOR) = 2.18; 95% Confidence Interval (CI) = 1.37–4.17) compared to those without anxiety.
- However, this was maintained when conducting separate comparisons for severe, but not mild or moderate, level of anxiety.

65. NEUROLOGICAL CONDITIONS

Wheel chair use

Association of pectoralis minor muscle extensibility, shoulder mobility and duration of manual wheelchair use

Archives of Physical Medicine and Rehabilitation

Finley M, et al.

A cross-sectional cohort study was conducted to evaluate the link of pectoralis minor muscle (PMm) length and extensibility to shoulder pain, shoulder girdle motion, and duration of manual wheelchair (MWC) use and compare differences in muscle length, muscle extensibility, peak humeral elevation and pain among groups based on duration of wheelchair use. This is the first evaluation to distinguish the correlation of reduced PMm extensibility with reduced shoulder girdle mobility, pain, and duration of wheelchair use in individuals with SCI