

2. LBP

Spouse criticism

Pain. 2017 Oct 30. doi: 10.1097/j.pain.0000000000001037

Spouse criticism and hostility during marital interaction: effects on pain intensity and behaviors among individuals with chronic low back pain.

Burns JW¹, Post KM, Smith DA, Porter LS, Buvanendran A, Fras AM, Keefe FJ.

Individuals with chronic pain may experience negative responses from spouse, family, and friends. Responses such as overt criticism and hostility may be associated with worsening pain and function for chronic pain sufferers.

We used a laboratory procedure to evaluate whether variability in spouse criticism/hostility exhibited toward chronic low back pain (CLBP) patients during a conflictual discussion predicted variability in patient pain and function during a subsequent pain-induction task. Chronic low back pain patients (n = 71) and their spouses (n = 71) participated in a 10-minute discussion followed by the patient undergoing a 10-minute structured pain behavior task (SPBT). Spouse criticism/hostility perceived by patients and patient Beck Depression Inventory-II (BDI) scores correlated significantly and positively with pain intensity during the SPBT, whereas perceived spouse hostility, patient BDI scores, and spouse trait hostility correlated significantly and positively with observed pain behaviors during the SPBT. Spouse criticism/hostility coded by raters from video recordings interacted significantly with patient BDI scores, such that observed spouse criticism/hostility was related significantly and positively with pain behaviors only for patients with high BDI scores.

Patient sex interacted significantly with observed spouse criticism/hostility, such that observed spouse criticism/hostility was related significantly and positively with pain behaviors only for female patients.

Results support the hypothesis that spouse criticism and hostility-actually expressed or perceived-may worsen CLBP patient symptoms. Further, women patients and patients high in depressive symptoms appeared most vulnerable to spouse criticism/hostility. Thus, negative marital communication patterns may be appropriate targets for intervention, especially among these 2 at risk groups.

7. PELVIC ORGANS/WOMAN'S HEALTH

Endometriosis and bladder pain

Neurourol Urodyn. 2018 Jan 10. doi: 10.1002/nau.23462.

Endometriosis increased the risk of bladder pain syndrome/interstitial cystitis: A population-based study.

Wu CC^{1,2}, Chung SD^{3,4}, Lin HC⁵.

OBJECTIVE:

Previous studies have suggested an association between bladder pain syndrome/interstitial cystitis (BPS/IC) and endometriosis. However, no nation-wide population study has yet reported an association between them. In this study, we examined the risk of BPS/IC among subjects with endometriosis during a 3-year follow-up in Taiwan using a population-based dataset.

STUDY DESIGN:

This study comprised 9191 subjects with endometriosis, and 27 573 subjects randomly selected as controls. We individually followed-up each subject (n = 36 764) for a 3-year period to identify subjects subsequently diagnosed with BPS/IC. A Cox proportional hazards regression model was employed to estimate the risk of subsequent BPS/IC following a diagnosis of endometriosis.

RESULTS:

Incidences of BPS/IC during the 3-year follow-up period was 0.2% and 0.05% for subjects with and without endometriosis, respectively. The hazard ratio for developing BPS/IC over a 3-year period for subjects with endometriosis compared to subjects without endometriosis was 4.43 (95% CI: 2.13-9.23). After adjusting for co-morbidities like diabetes, hypertension, coronary heart disease, obesity, hyperlipidemia, chronic pelvic pain, irritable bowel syndrome, fibromyalgia, chronic fatigue syndrome, depression, panic disorder, migraines, sicca syndrome, allergies, endometriosis, asthma, tobacco use, and alcohol abuse, the Cox proportional hazards regressions revealed that the hazard ratio for BPS/IC among subjects with endometriosis was 3.74 (95% CI = 1.76-7.94, P < 0.001) compared to that in controls.

CONCLUSIONS:

This study provides epidemiological evidence of an association between endometriosis and a subsequent diagnosis of BPS/IC.

D 3 and CA absorption

Osteoporos Int. 2017 Dec 23. doi: 10.1007/s00198-017-4351-2.

Stimulation of intestinal calcium absorption by orally administrated vitamin D3 compounds: a prospective open-label randomized trial in osteoporosis.

Uenishi K¹, Tokiwa M², Kato S^{3,4}, Shiraki M⁵.

Intestinal fractional calcium absorption (FCA) was assessed before and after vitamin D3 treatment. Serum 1,25(OH)₂D concentration was significantly increased by plain vitamin D3 and reduced by eldecalcitol. The 1 α hydroxyl calcidiol and eldecalcitol treatments increased FCA, which may be induced through direct stimulation of vitamin D receptors in the intestine.

INTRODUCTION:

To assess the effects of vitamin D3 compounds on intestinal FCA and calcium-regulating hormones in post-menopausal osteoporosis, a randomized open-label prospective study was conducted.

METHODS:

Forty eligible patients were allocated randomly into four groups: eldecalcitol (ELD; 0.75 μ g/day), 1 α hydroxyl calcidiol (ALF; 1 μ g/day), plain vitamin D3 (800 IU/day), and control. Before and after the 4-week treatment, intestinal FCA was estimated by using a double isotope method, and serum concentrations of calcium-regulating hormones and a bone turnover marker were measured.

RESULTS:

The baseline FCA value of the participants was 21.5 \pm 7.9% (mean \pm SD) and was significantly correlated with serum 1,25(OH)₂D (calcitriol) concentration. After the treatment, the FCA significantly increased by 59.5% (95% CI, 41.6 to 77.4%) in the ELD group and by 45.9% (27.9 to 63.8%) in the ALF group, whereas no significant change in the plain vitamin D3 group was found. Unlike the baseline FCA, post-treatment FCA exhibited no significant correlation with serum calcitriol concentration. Parathyroid hormone levels were suppressed by ALF and plain vitamin D3 but were sustained in the ELD and control groups. Serum calcitriol tended to be suppressed by ELD, whereas plain vitamin D3 treatment increased both serum 25(OH)D and calcitriol concentrations.

CONCLUSION:

These findings suggest that oral administration of vitamin D3 analogues (ALF and ELD) stimulates FCA but plain vitamin D3 does not. Those effects of vitamin D3 compounds on FCA were independent of serum calcitriol concentration, suggesting that ALF and ELD may directly stimulate intestinal vitamin D receptors.

Exercise and pelvic floor strength**Regular Exercisers Have Stronger Pelvic Floor Muscles than Non-Regular Exercisers at Midpregnancy**

Kari Bø, Professor, PhD, Exercise scientist, Marie Ellstrøm Engh, PhD, Associate Professor, Consultant Gynecologist Gunvor Hilde, PhD, Exercise scientist, Physical Therapist PlumX Metrics

DOI: <http://dx.doi.org/10.1016/j.ajog.2017.12.220>

Background

Today, all healthy pregnant women are encouraged to be physically active throughout pregnancy, with recommendations to participate in at least 30 min of aerobic activity on most days of the week, in addition to perform strength training of the major muscle groups 2-3 days per week, and also pelvic floor muscle training. There is, however, an ongoing debate whether general physical activity enhances or declines pelvic floor muscle function.

Objectives

To compare vaginal resting pressure, pelvic floor muscle strength and endurance in regular exercisers (exercise ≥ 30 minutes ≥ 3 times per week) and non-exercisers at mid-pregnancy. Furthermore, to assess whether regular general exercise or pelvic floor muscle strength was associated with urinary incontinence.

Study design

This was a cross-sectional study at mean gestational week 20.9 (± 1.4) including 218 nulliparous pregnant women, mean age 28.6 years (range 19-40) and pre-pregnancy body mass index 23.9 kg/m² (SD 4.0). Vaginal resting pressure, pelvic floor muscle strength and pelvic floor muscle endurance were measured by a high precision pressure transducer connected to a vaginal balloon. International Consultation on Incontinence Questionnaire Urinary Incontinence Short Form was used to assess urinary incontinence. Differences between groups were analyzed using Independent Sample T-test. Linear regression analysis was conducted to adjust for pre-pregnancy body mass index, age, smoking during pregnancy and regular pelvic floor muscle training during pregnancy. P-value was set to ≤ 0.05 .

Results

Regular exercisers had statistically significant stronger (mean 6.4 cm H₂O (95% CI: 1.7, 11.2)) and more enduring (mean 39.9 cm H₂Osec (95% CI: 42.2, 75.7)) pelvic floor muscles. Only pelvic floor muscle strength remained statistically significant, when adjusting for possible confounders. Pelvic floor muscle strength and not regular general exercise was associated with urinary continence (adjusted B: -6.4 (95% CI: -11.5, -1.4)).

Conclusion

Regular exercisers at mid pregnancy have stronger pelvic floor muscles than their sedentary counterparts. However, pelvic floor muscle strength and not regular general exercise was associated with urinary incontinence. There is a need for additional studies in elite athletes and women performing more strenuous exercise regimens.

Natal autism and Vitamins

JAMA Psychiatry. 2018 Jan 3. doi: 10.1001/jamapsychiatry.2017.4050.

Association of Maternal Use of Folic Acid and Multivitamin Supplements in the Periods Before and During Pregnancy With the Risk of Autism Spectrum Disorder in Offspring.

Levine SZ¹, Kodesh A^{1,2}, Viktorin A^{3,4,5}, Smith L⁴, Uher R^{5,6}, Reichenberg A³, Sandin S^{3,4}.

IMPORTANCE:

The association of maternal use of folic acid and multivitamin supplements before and during pregnancy with the risk of autism spectrum disorder (ASD) in offspring is unclear.

OBJECTIVE:

To examine the associations between the use of maternal folic acid and multivitamin supplements before and during pregnancy and the risk of ASD in offspring.

DESIGN, SETTING, AND PARTICIPANTS:

A case-control cohort study of 45 300 Israeli children born between January 1, 2003, and December 31, 2007, were followed up from birth to January 26, 2015, for the risk of ASD. The cases were all children diagnosed with ASD and the controls were a random sample of 33% of all live-born children.

EXPOSURES:

Maternal vitamin supplements were classified for folic acid (vitamin B9), multivitamin supplements (Anatomical Therapeutic Chemical A11 codes vitamins A, B, C, and D), and any combination thereof exposed in the intervals before and during pregnancy.

MAIN OUTCOMES AND MEASURES:

The association between maternal vitamin supplementation and the risk of ASD in offspring was quantified with relative risks (RRs) and their 95% CIs fitting Cox proportional hazards regression models adjusted for confounders. Sensitivity analyses were performed to test the robustness of the results.

RESULTS:

Of the 45 300 children in the study (22 090 girls and 23 210 boys; mean [SD] age, 10.0 [1.4] years at the end of follow-up), 572 (1.3%) received a diagnosis of ASD. Maternal exposure to folic acid and/or multivitamin supplements before pregnancy was statistically significantly associated with a lower likelihood of ASD in the offspring compared with no exposure before pregnancy (RR, 0.39; 95% CI, 0.30-0.50; $P < .001$). Maternal exposure to folic acid and/or multivitamin supplements during pregnancy was statistically significantly associated with a lower likelihood of ASD in offspring compared with no exposure during pregnancy (RR, 0.27; 95% CI, 0.22-0.33; $P < .001$). Corresponding RRs were estimated for maternal exposure to folic acid before pregnancy (RR, 0.56; 95% CI, 0.42-0.74; $P = .001$), maternal exposure to folic acid during pregnancy (RR, 0.32; 95% CI, 0.26-0.41; $P < .001$), maternal exposure to multivitamin supplements before pregnancy (RR, 0.36; 95% CI, 0.24-0.52; $P < .001$), and maternal exposure to multivitamin supplements during pregnancy (RR, 0.35; 95% CI, 0.28-0.44; $P < .001$). The results generally remained statistically significant across sensitivity analyses.

CONCLUSIONS AND RELEVANCE:

Maternal exposure to folic acid and multivitamin supplements before and during pregnancy is associated with a reduced risk of ASD in the offspring compared with the offspring of mothers without such exposure

Vulvodynia

Daily Anxiety and Depressive Symptoms in Couples Coping with Vulvodynia: Associations with Women's Pain, Women's Sexual Function and Both Partners' Sexual Distress

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DOI: <http://dx.doi.org/10.1016/j.jpain.2017.12.264>

Highlights

- We examined daily affective factors, pain, sexual function and sexual distress.
- Pain increased on days women reported higher anxiety/depressive symptoms.
- Women's sexual function decreased on days they reported higher anxiety/depressive symptoms.
- Couples' sexual distress increased on days partners' reported higher anxiety/depressive symptoms.
- Daily anxiety/depressive symptoms should be targeted in couples therapy for vulvodynia.

Abstract

Vulvodynia is a idiopathic vulvovaginal pain condition that interferes with the sexual and mental health of affected couples.

Research has underscored that psychological factors, such as anxiety and depression, are associated with its development and maintenance and related sexual impairment. However, the daily role of anxiety and depressive symptoms in the pain and sexuality outcomes of couples coping with vulvodynia is not well understood. Using a dyadic daily experience method, 127 women ($M_{age} = 26.21$, $SD = 6.24$) diagnosed with vulvodynia and their partners ($M_{age} = 27.44$, $SD = 7.29$) reported on anxiety and depressive symptoms, pain, sexual function and sexual distress over a period of eight weeks. Multilevel modeling was used to examine how daily deviations in anxiety and depressive symptoms from a participant's own mean were associated with pain, sexual function and sexual distress. On days of sexual activity, when women reported higher anxiety and depressive symptoms (compared to their average), they reported greater pain and lower sexual function. On days of sexual activity, when women reported higher depressive symptoms, they reported greater levels of sexual distress, and when partners reported higher anxiety and depressive symptoms, both women and partners reported greater levels of sexual distress.

Results suggest that daily anxiety and depressive symptoms play a role in women's experience of vulvodynia-related pain, women's sexual function and the couple's sexual distress. Targeting daily anxiety and depressive symptoms could enhance the efficacy of psychological interventions for vulvodynia.

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Birth weight

JAMA Pediatr. 2017 Dec 26. doi: 10.1001/jamapediatrics.2017.4016.

Association of Timing of Weight Gain in Pregnancy With Infant Birth Weight.

Retnakaran R^{1,2,3}, Wen SW^{4,5,6,7}, Tan H⁷, Zhou S⁸, Ye C¹, Shen M^{4,5,6,7}, Smith GN⁹, Walker MC^{4,5,6}.

IMPORTANCE:

Gestational weight gain is a determinant of infant birth weight, but it is unclear whether its timing in pregnancy may hold implications in this regard. Previous studies have yielded conflicting findings on the association of maternal weight gain in early pregnancy with birth weight. However, as these studies have typically recruited women during the first trimester, they are inherently limited by a reliance on self-reported pregravid weight.

OBJECTIVE:

To evaluate the associations of directly measured maternal pregravid weight and the timing of subsequent weight gain across pregnancy with infant birth weight.

DESIGN, SETTING, AND PARTICIPANTS:

In this prospective, preconception, observational cohort study, 1164 newly married women in Liuyang, China, underwent pregravid evaluation at a median of 19.9 weeks before a singleton pregnancy during which they underwent serial weight measurements. The study was conducted from February 1, 2009, to November 4, 2015. Data analysis was performed between September 1, 2016 and May 6, 2017.

EXPOSURE:

Maternal weight gain was calculated for the following 10 gestational intervals: from pregravid to less than 14, 14 to 18, 19 to 23, 24 to 28, 29 to 30, 31 to 32, 33 to 34, 35 to 36, 37 to 38, and 39 to 40 weeks.

MAIN OUTCOMES AND MEASURES:

Associations of pregravid weight and weight gain within each of the 10 gestational intervals with the outcome of infant birth weight.

RESULTS:

The mean (SD) age of the 1164 women included in the study was 25.3 (3.1) years. Pregravid weight was consistently associated with infant birth weight. However, among the 10 gestational intervals, only weight gain from pregravid to 14 weeks and from 14 to 18 weeks was associated with birth weight. Birth weight increased by 13.6 g/kg (95% CI, 3.2-24.1 g/kg) of maternal weight gain from pregravid to 14 weeks and by 26.1 g/kg (95% CI, 3.8-48.4 g/kg) of maternal weight gain from 14 to 18 weeks.

CONCLUSION AND RELEVANCE:

Maternal weight only in the first half of gestation is a determinant of infant birth weight. Before pregnancy and early gestation may be a critical window for intervention to affect subsequent birth weight.

8. VISCERA

CV disease

J Am Heart Assoc. 2017 Dec 20;6(12). pii: e005890. doi: 10.1161/JAHA.117.005890.

Marital Status and Outcomes in Patients With Cardiovascular Disease.

Schultz WM¹, Hayek SS², Samman Tahhan A², Ko YA^{2,3}, Sandesara P², Awad M², Mohammed KH², Patel K², Yuan M⁴, Zheng S⁵, Topel ML², Hartsfield J², Bhimani R², Varghese T¹, Kim JH², Shaw L², Wilson P², Vaccarino V^{2,4,6}, Quyyumi AA⁷.

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BACKGROUND:

Being unmarried is associated with decreased survival in the general population. Whether married, divorced, separated, widowed, or never-married status affects outcomes in patients with cardiovascular disease has not been well characterized.

METHODS AND RESULTS:

A prospective cohort (inception period 2003-2015) of 6051 patients (mean age 63 years, 64% male, 23% black) undergoing cardiac catheterization for suspected or confirmed coronary artery disease was followed for a median of 3.7 years (interquartile range: 1.7-6.7 years). Marital status was stratified as married (n=4088) versus unmarried (n=1963), which included those who were never married (n=451), divorced or separated (n=842), or widowed (n=670). The relationship between marital status and primary outcome of cardiovascular death and myocardial infarction was examined using Cox regression models adjusted for clinical characteristics. There were 1085 (18%) deaths from all causes, 688 (11%) cardiovascular-related deaths, and 272 (4.5%) incident myocardial infarction events. Compared with married participants, being unmarried was associated with higher risk of all-cause mortality (hazard ratio [HR]: 1.24; 95% confidence interval [CI], 1.06-1.47), cardiovascular death (HR: 1.45; 95% CI, 1.18-1.78), and cardiovascular death or myocardial infarction (HR: 1.52; 95% CI, 1.27-1.83). Compared with married participants, the increase in cardiovascular death or myocardial infarction was similar for the participants who were divorced or separated (HR: 1.41; 95% CI, 1.10-1.81), widowed (HR: 1.71; 95% CI, 1.32-2.20), or never married (HR: 1.40; 95% CI, 0.97-2.03). The findings persisted after adjustment for medications and other socioeconomic factors.

CONCLUSIONS:

Marital status is independently associated with cardiovascular outcomes in patients with or at high risk of cardiovascular disease, with higher mortality in the unmarried population. The mechanisms responsible for this increased risk require further study.

Prunes helps transit time**The effect of prunes on stool output, gut transit time and gastrointestinal microbiota: a randomised controlled trial**

Ellen Lever S. Mark Scott Petra Louis Peter W. Emery Kevin Whelan

DOI: <http://dx.doi.org/10.1016/j.clnu.2018.01.003>

Background and aim

Prunes (dried plums) are perceived to maintain healthy bowel function, however their effects on gastrointestinal (GI) function are poorly researched and potential mechanisms of action are not clear. We aimed to investigate the effect of prunes on stool output, whole gut transit time (WGTT), gut microbiota and short-chain fatty acids (SCFA) in healthy adults.

Methods

We conducted a parallel group, randomised controlled trial with three treatment arms in 120 healthy adults with low fibre intakes and stool frequency of 3-6 stools/wk. Subjects were randomised to 80 g/d prunes (plus 300 ml/d water); 120 g/d prunes (plus 300 ml/d water) or control (300 ml/d water) for 4 weeks. Stool weight was the primary outcome and determined by 7-day stool collection. Secondary outcomes included stool frequency and consistency (stool diary), WGTT (radio-opaque markers), GI symptoms (diary), microbiota (quantitative PCR) and SCFA (gas liquid chromatography). Group assignment was concealed from the outcome assessors.

Results

There were significantly greater increases in stool weight in both the 80 g/d (mean +22.2 g/d, 95% CI -1-45.3) and 120 g/d (+32.8 g/d, 95% CI 13.9-51.7) prune groups compared with control (-0.8 g/d, 95% CI -17.2-15.6, $P=0.026$). Stool frequency was significantly greater following 80 g/d (mean 6.8 bowel movements/wk, SD 3.8) and 120 g/d (5.6, SD 1.9) prune consumption compared with control (5.4, SD 2.1) ($P=0.023$), but WGTT was unchanged. The incidence of flatulence was significantly higher after prune consumption. There were no significant differences in any of the bacteria measured, except for a greater increase in Bifidobacteria across the groups ($P=0.046$). Prunes had no effect on SCFA or stool pH.

Conclusions

In healthy individuals with infrequent stool habits and low fibre intake, prunes significantly increased stool weight and frequency and were well tolerated. Prunes may have health benefits in populations with low stool weight.

Appendicitis vs PID

Eur Radiol. 2018 Feb;28(2):673-682. doi: 10.1007/s00330-017-5032-4. Epub 2017 Sep 11.

How to differentiate acute pelvic inflammatory disease from acute appendicitis ? A decision tree based on CT findings.

El Hentour K¹, Millet I², Pages-Bouic E¹, Curros-Doyon F¹, Molinari N³, Taourel P¹.

PURPOSE:

To construct a decision tree based on CT findings to differentiate acute pelvic inflammatory disease (PID) from acute appendicitis (AA) in women with lower abdominal pain and inflammatory syndrome.

MATERIALS AND METHODS:

This retrospective study was approved by our institutional review board and informed consent was waived. Contrast-enhanced CT studies of 109 women with acute PID and 218 age-matched women with AA were retrospectively and independently reviewed by two radiologists to identify CT findings predictive of PID or AA. Surgical and laboratory data were used for the PID and AA reference standard. Appropriate tests were performed to compare PID and AA and a CT decision tree using the classification and regression tree (CART) algorithm was generated.

RESULTS:

The median patient age was 28 years (interquartile range, 22-39 years). According to the decision tree, an appendiceal diameter ≥ 7 mm was the most discriminating criterion for differentiating acute PID and AA, followed by a left tubal diameter ≥ 10 mm, with a global accuracy of 98.2 % (95 % CI: 96-99.4).

CONCLUSION:

Appendiceal diameter and left tubal thickening are the most discriminating CT criteria for differentiating acute PID from AA.

KEY POINTS:

- Appendiceal diameter and marked left tubal thickening allow differentiating PID from AA.
- PID should be considered if appendiceal diameter is < 7 mm.
- Marked left tubal diameter indicates PID rather than AA when enlarged appendix.
- No pathological CT findings were identified in 5 % of PID patients.

Asthma and CD

Allergy Asthma Proc. 2018 Jan 1;39(1):51-58. doi: 10.2500/aap.2018.39.4100.

Heterogeneity of asthma and the risk of celiac disease in children.

Patel B, Wi CI, Hasassri ME, Divekar R, Absah I, Almallouhi E, Ryu E, King K, Juhn YJ.

BACKGROUND:

Although human leukocyte antigen (HLA)-DR and HLA-DQ genes and gluten play crucial roles in developing celiac disease (CD), most patients with these risk factors still do not develop CD, which indicates additional unrecognized risk factors.

OBJECTIVE:

To determine the association between asthma and the risk of CD in children.

METHODS:

We conducted a population-based retrospective case-control study in children who resided in Olmsted County, Minnesota. We identified children with CD (cases) between January 1, 1997, and December 31, 2014, and compared these with children without CD (controls) (1:2 matching). Asthma status was ascertained by using the predetermined asthma criteria (PAC) and the asthma predictive index (API). Data analysis included conditional logistic regression models and an unsupervised network analysis by using an independent phenome-wide association scan (PheWAS) data set.

RESULTS:

Although asthma status as determined by using PAC was not associated with the risk of CD (odds ratio [OR] 1.4 [95% confidence interval {CI}, 0.8-2.5]; $p = 0.2$), asthma status by using the API was significantly associated (OR 2.8 [95% CI, 1.3-6.0]; $p = 0.008$). A subgroup analysis indicated that children with both asthma as determined by using PAC and a family history of asthma had an increased risk of CD compared with those without asthma (OR 2.28 [95% CI, 1.11-4.67]; $p = 0.024$). PheWAS data showed a cluster of asthma single nucleotide polymorphisms and patients with CD.

CONCLUSION:

A subgroup of children with asthma who also had a family history of asthma seemed to be at an increased risk of CD, and, thus, the third factor that underlies the risk of CD might be related to genetic factors for asthma. Heterogeneity of asthma plays a role in determining the risk of asthma-related comorbidity.

12 B. CERVICAL SURGERIES**Disc replacement**

Spine (Phila Pa 1976). 2018 Feb 1;43(3):E163-E170. doi: 10.1097/BRS.0000000000002264.

Progressive Bone Formation After Cervical Disc Replacement: Minimum of 5-Year Follow-up.

Zhou F¹, Ju KL², Zhao Y¹, Zhang F¹, Pan S¹, Heller JG², Sun Y¹.

STUDY DESIGN:

Retrospective review.

OBJECTIVE:

Our objective was to examine the prevalence, clinical significance, ramifications, and possible etiology of postoperative bone formation at the index level after cervical disc replacement (CDR) with a minimum of 5 years of follow-up.

SUMMARY OF BACKGROUND DATA:

CDR can be complicated by postoperative ossification and unwanted ankylosis at the index level, which some authors have termed "heterotopic ossification." This terminology may be inaccurate as it assumes the postoperative bone formation is unnatural and a consequence of the CDR surgery. We advocate that this phenomenon has more to do with individual patient factors rather than the surgery.

METHODS:

Patients who underwent Bryan CDR for cervical myelopathy or radiculopathy between 12/2003 and 8/2008 with a minimum of 5-years follow-up were analyzed. They were divided into two groups, those with and without postoperative bone formation. Patient-reported outcomes (Japanese Orthopaedic Association score, Neck Disability Index, Visual Analogue Scale for neck and arm pain) and radiographic parameters were collected pre- and postoperatively and compared between groups.

RESULTS:

Sixty-one patients (76 levels) were identified (mean follow-up 94.2 mo). The overall incidence of postoperative ossification was 50%. Both groups had sustained significant improvements across all patient-reported outcome measures at final follow-up. Notably, patients with more severe preoperative cervical spondylosis had higher rates of postoperative ossification (P=0.036) and adjacent segment degeneration (P=0.010).

CONCLUSION:

Although the long-term incidence of postoperative bone formation after CDR was relatively high, this did not adversely affect patient outcomes. Patients with more severe preoperative spondylosis had higher rates of postoperative ossification, suggesting that postoperative ossification at the CDR segment is likely one of progressive bone formation in individuals already predisposed to forming bone rather than one of alleged heterotopic ossification as a consequence of the surgery.

Fusions help dizziness

The effectiveness of anterior cervical decompression and fusion for the relief of dizziness in patients with cervical spondylosis: A multicentre prospective cohort study

The Bone & Joint Journal | January 09, 2018

Peng B, et al.

In this prospective cohort study, researchers evaluated the efficacy of anterior cervical discectomy and fusion on the relief of dizziness in patients with cervical spondylosis, in order to ultimately assess if cervicogenic dizziness stems from the diseased cervical disc. They found that in this patient population, anterior cervical surgery could relieve dizziness. Data also indicated that dizziness is an accompanying manifestation of cervical spondylosis.

13 C. AIRWAYS/SWALLOWING/SPEECH**Sleep apnea and GERD**

Neonatology. 2017 Dec 21;113(3):206-211. doi: 10.1159/000485173.

Gastro-Oesophageal Reflux and Apnoea: Is There a Temporal Relationship?

Rossor T¹, Andradi G, Ali K, Bhat R, Greenough A.

BACKGROUND:

Gastro-oesophageal reflux (GOR) and apnoea are common in infants; whether there is a causal relationship is controversial.

OBJECTIVES:

To determine whether there was a temporal relationship between GOR and apnoea, in particular, the frequency of obstructive apnoeas and if the frequency of GOR episodes correlated with apnoea frequency when maturity at testing was taken into account.

METHODS:

Polysomnography and pH/multichannel intraluminal impedance (MII) studies were performed. Apnoeas were classified as central, obstructive, or mixed. MII events were classified as acidic (pH < 4) or weakly acidic (4 < pH < 7). Apnoea frequency in the 5-min period after a reflux event was compared to that in the 5-min period preceding the event and that in a 5-min reflux-free period (control period).

RESULTS:

Forty infants (median gestational age 29 [range 24-42] weeks) were assessed at a post-conceptual age of 37 (30-54) weeks. Obstructive (n = 580), central (n = 900), and mixed (n = 452) apnoeas were identified; 381 acid reflux events were detected by MII and 153 by the pH probe only. Apnoeas were not more frequent following GOR than during control periods. Both the frequency of apnoeas (p = 0.002) and GOR episodes (p = 0.01) were inversely related to post-conceptual age at testing, but were not significantly correlated with each other when controlled for post-conceptual age.

CONCLUSIONS:

These results suggest that GOR does not cause apnoea.

Sleep and pain

Pain. 2017 Sep 1. doi: 10.1097/j.pain.0000000000001053. [Epub ahead of print]

Chronic exposure to insufficient sleep alters processes of pain habituation and sensitization.

Simpson NS¹, Scott-Sutherland J, Gautam S, Sethna N, Haack M.

Chronic pain conditions are highly co-morbid with insufficient sleep. While the mechanistic relationships between the two are not understood, chronic insufficient sleep may be one pathway through which central pain-modulatory circuits deteriorate, thereby contributing to chronic pain vulnerability over time.

To test this hypothesis, an in-laboratory model of three weeks of restricted sleep with limited recovery (five nights of 4-hour sleep/night followed by two nights of 8-hour sleep/night) was compared to three weeks of 8-hour sleep/night (control protocol). Seventeen healthy adults participated, with fourteen completing both three-week protocols. Measures of spontaneous pain, heat-pain thresholds, cold-pain tolerance (measuring habituation to cold over several weeks), and temporal summation of pain (examining the slope of pain ratings during cold water immersion) were assessed at multiple points during each protocol. Compared to the control protocol, participants in the sleep-restriction/recovery protocol experienced mild increases in spontaneous pain ($p < 0.05$). Heat-pain thresholds decreased following the first week of sleep restriction ($p < 0.05$), but normalized with longer exposure to sleep restriction. In contrast, chronic exposure to restricted sleep was associated with decreased habituation to, and increased temporal summation in response to cold pain (both $p < 0.05$), although only in the last two weeks of the sleep restriction protocol.

These changes may reflect abnormalities in central pain-modulatory processes. Limited recovery sleep did not completely resolve these alterations in pain-modulatory processes, indicating that more extensive recovery sleep is required. Results suggest that exposure to chronic insufficient sleep may increase vulnerability to chronic pain by altering processes of pain habituation and sensitization.

Sleep apnea and TKR

Reg Anesth Pain Med. 2018 Jan;43(1):43-49. doi: 10.1097/AAP.0000000000000666.

Clinical Indicators of the Need for Telemetry Postoperative Monitoring in Patients With Suspected Obstructive Sleep Apnea Undergoing Total Knee Arthroplasty.

Jules-Elysée KM, Desai NA, Ma Y, Zhang W, Luu TH, Memtsoudis SG, Liguori GA.

Abstract

BACKGROUND AND OBJECTIVES:

Obstructive sleep apnea is associated with increased complication rates postoperatively. Current literature does not provide adequate guidance on management of these patients. This study used the STOP-Bang questionnaire to diagnose patients with possible obstructive sleep apnea (score ≥ 3). We hypothesized that a STOP-Bang score of 3 or greater would significantly correlate with the number of oxygen desaturation episodes during the first 48 hours after total knee arthroscopy.

METHODS:

The STOP-Bang questionnaire was administered to 110 patients preoperatively. All patients underwent spinal-epidural anesthesia with a saphenous nerve block and sedation and were connected to the Nellcor OxiMax N-600x pulse oximeter for 48 hours postoperatively.

RESULTS:

Final analysis included 98 patients. There was no significant difference in the total number of desaturation events between STOP-Bang groups (score < 3 vs ≥ 3 and score < 5 vs ≥ 5). The total number of desaturation events on postoperative day 1 was greater than that on day 0 (32.8 ± 42.7 vs 4.1 ± 10.0 , $P < 0.0001$). The total number of desaturation events correlated with length of hospital stay ($r = 0.329$, $P = 0.0001$). Patients with a preoperative serum CO₂ of 30 mmol/L or greater had significantly longer episodes of desaturation on postoperative day 0 compared with CO₂ of less than 30 mmol/L (233.7 ± 410.1 vs 82.0 ± 126.2 seconds, $P = 0.044$).

CONCLUSIONS:

A high preoperative value of CO₂ should be a warning for possible prolonged episodes of desaturation postoperatively. An attempt to limit postoperative desaturation events should be made to minimize length of stay.

Asthma and breathing training**Physiotherapy breathing retraining for asthma: a randomised controlled trial**

Prof Stephen T Holgate, Prof Mike Thomas, PhD

DOI: [http://dx.doi.org/10.1016/S2213-2600\(17\)30474-5](http://dx.doi.org/10.1016/S2213-2600(17)30474-5)

Background Despite effective pharmacotherapy, asthma continues to impair quality of life for most patients. Non-pharmacological approaches, including breathing retraining, are therefore of great interest to patients. However, clinicians rarely advocate breathing retraining and access to this intervention is restricted for most patients due to the limited availability of suitable physiotherapists and poor integration of breathing retraining into standard care. We aimed to assess the effectiveness of a digital self-guided breathing retraining intervention.

Methods In this randomised controlled trial, we recruited patients from 34 general practices in the UK. Eligibility criteria for patients with asthma were broad, comprising a physician diagnosis of asthma, age of 16–70 years, receipt of at least one anti-asthma medication in the previous year, and impaired asthma-related quality of life (Asthma Quality of Life Questionnaire [AQLQ] score of <5.5). We developed a self-guided intervention, which was delivered as a DVD plus a printed booklet (DVDB). Participants were randomly assigned to receive either the DVDB intervention, three face-to-face breathing retraining sessions, or standard care, in a 2:1:2 ratio, for 12 months. Randomisation was achieved using the Southampton Clinical Trials Unit telephone randomisation service by use of random number generators. The primary outcome was the AQLQ score in the intention-to-treat population at 12 months. The trial was powered to show equivalence between the two active intervention groups, and superiority of both intervention groups over usual care. Secondary outcomes included patient-reported and physiological measures of asthma control, patient acceptability, and health-care costs. This trial was registered with International Standard Randomised Controlled Trial Number registry, number ISRCTN88318003.

Findings Between Nov 5, 2012 and Jan 28, 2014, invitations to participate in the study were sent to 15 203 patients with general practitioner-diagnosed asthma, of whom 655 were recruited into the study. AQLQ scores at 12 months were significantly higher in the DVDB group (mean 5.40, SD 1.14) than in the usual care group (5.12, SD 1.17; adjusted mean difference 0.28, 95% CI 0.11 to 0.44), and in the face-to-face group (5.33, SD 1.06) than in the usual care group (adjusted mean difference 0.24, 95% CI 0.04 to 0.44); AQLQ scores were similar between the DVDB group and the face-to-face group (0.04, 95% CI –0.16 to 0.24). There were no significant differences between the randomisation groups in FEV1 or fraction of exhaled nitric oxide. 744 adverse events occurred in 272 patients: 101 (39%) of 261 patients in the DVDB group, 55 (42%) of 132 patients in the face-to-face group, and 132 (50%) of 262 in the usual care group, with patients reporting one or more event. 11 (4%) patients in the DVDB group, four (3%) patients in the face-to-face group, and 20 (8%) patients in the usual care group had a serious adverse event.

Interpretation

Breathing retraining programmes improve quality of life in patients with incompletely controlled asthma despite having little effect on lung function or airway inflammation. Such programmes can be delivered conveniently and cost-effectively as a self-guided digital audiovisual programme, so might also reduce health-care costs.

14. HEADACHES

Hyperalgesia in migraineurs

The Journal of Headache and Pain
December 2017, 18:117|

Characterization of migraineurs presenting interictal widespread pressure hyperalgesia identified using a tender point count: a cross- Toshihide Toriyama Tetsuyoshi Horiuchi Kazuhiro Hongo

Background

Migraineurs exhibit pain hypersensitivity throughout the body during and between migraine headaches. Migraine is classified as a central sensitivity syndrome, typified by fibromyalgia showing widespread pressure hyperalgesia determined by a tender point. This study was performed to examine whether: 1) there is a subgroup of episodic migraineurs with widespread pressure hyperalgesia during and between attacks; 2) if such a subgroup exists, what is the prevalence and what is the difference between groups with interictal widespread hyperalgesia and acute allodynia regarding the demographic and clinical characteristics of migraine.

Methods

This was a cross-sectional study. A total of 176 consecutive episodic migraineurs and 132 age- and sex-matched controls were recruited. The presence of widespread pressure hyperalgesia was investigated using manual tender point survey. To classify a subject's response as widespread pressure hyperalgesia, the cutoff value for responders was defined as the positive tender point count below which 95% of controls responded.

Results

Based on the number of positive tender points in controls, the cutoff value of tender point count for pressure hyperalgesia responders was 7. Of the 176 subjects, interictal widespread pressure hyperalgesia and acute allodynia were observed in 74 (42%) and 115 (65.3%) patients, respectively. Univariate analysis indicated that risk factors associated with interictal widespread pressure hyperalgesia were female gender, younger age at migraine onset, higher frequency of migraine attacks, severe headache impact, cutaneous allodynia and depression. Multivariate logistic regression analysis confirmed that independent risk factors associated with interictal widespread pressure hyperalgesia were female gender, higher frequency of migraine attack and younger age at onset.

Conclusion

Interictal widespread pressure hyperalgesia was common (42%) in the episodic migraineurs and was associated with younger age at onset, female gender, and higher frequency of headache, but not duration of migraine illness. Presence of interictal widespread pressure hyperalgesia is assumed to be an indicator of genetic susceptibility to migraine attacks. We expect that a tender point count, as an alternative to quantitative sensory testing, will become useful as a diagnostic indicator of interictal hyperalgesia in migraineurs to predict susceptibility to migraine attacks and to permit tailored treatment.

Sphenopalatine ganglion

Sphenopalatine ganglion: Block, radiofrequency ablation and neurostimulation - A systematic review

The Journal of Headache and Pain | January 10, 2018

Ho KWD, et al.

Researchers planned the systematic review to collect and summarize the level of evidence supporting the use of sphenopalatine ganglion block, radiofrequency ablation and neurostimulation. For treating cluster headache, sphenopalatine ganglion seemed a promising target using blocks, radiofrequency ablation and neurostimulation. Some evidence, supporting sphenopalatine ganglion block use, have also been recognized in a few other conditions.

Migraine's may produce Kidney disease

vBMJ Open. 2017 Dec 27;7(12):e018483. doi: 10.1136/bmjopen-2017-018483.

Migraine and subsequent chronic kidney disease risk: a nationwide population-based cohort study.

Weng SC^{1,2}, Wu CL^{1,3,4,5}, Kor CT⁵, Chiu PF^{3,4,5}, Wu MJ^{1,2,4}, Chang CC^{3,4,5}, Tarng DC^{1,6,7}.

Author information

Abstract

OBJECTIVE:

We compared the incidence and risk of chronic kidney disease (CKD) between subjects with new-onset migraine and matched controls without migraine in this large-scale retrospective cohort study.

DESIGN:

Population-based cohort study.

SETTING:

8880 subjects with migraine and 503 070 subjects without migraine were enrolled between January 1, 2000 and December 31, 2013, all diagnosed to be without kidney disease. All the participants were registered in the National Health Insurance Research Database.

PARTICIPANTS:

Finally, data from 7156 subjects with migraine and 7156 propensity-score-matched control subjects were analysed.

PRIMARY OUTCOME MEASURE:

We used Cox proportional hazards regression to estimate adjusted HRs for incident CKD; subgroup analyses were performed to assess the interactive effects of migraine with demographics, comorbidities and long-term medications.

RESULTS:

The incidence of CKD was higher in the migraine group than in the control group. The risk of developing CKD was significantly higher in subjects with migraine than without migraine (P=0.031). Subjects with migraine aged <65 years (age 40-64 (adjusted HR (aHR) 1.35; 95% CI 1.05 to 1.73); age <40 (aHR 1.55; 95% CI 1.02 to 2.36)), with ≥1 comorbid diseases (1-2 diseases (aHR 1.30; 95% CI 1.01 to 1.68); ≥3 diseases (aHR 1.45; 95% CI 1.01 to 2.07)), and not receiving anti-migraine agents (aHR 1.26; 95% CI 1.04 to 1.54) were at a higher risk of developing CKD compared with the control subjects. The interaction between migraine and comorbidities was not significant; age, male gender and long-term use of non-steroidal anti-inflammatory drugs (NSAIDs) were independent risk factors for CKD in subjects with migraine.

CONCLUSION:

Migraine may be an independent risk factor for CKD. Young subjects with migraine, and those with comorbid conditions or without medical control, are likely to be at higher risk for CKD. Ageing, male sex and NSAIDs tend to have an association with CKD in subjects with migraine.

16. CONCUSSIONS**Gait changers**

Int J Sports Phys Ther. 2017 Dec;12(7):1011-1022.

GAIT DEFICITS UNDER DUAL - TASK CONDITIONS IN THE CONCUSSED ADOLESCENT AND YOUNG ATHLETE POPULATION: A SYSTEMATIC REVIEW.

Grants L¹, Powell B¹, Gessel C¹, Hiser F¹, Hassen A¹.

BACKGROUND:

There are no current sport concussion assessments that capture the effects of dual-task conditions on gait. Multiple studies have evaluated changes, but none have comprehensively examined literature related to the adolescent and young adult population. Purpose: The purpose of this systematic review is to synthesize documented changes in gait under dual-task conditions in adolescents and young adults after sustaining a concussion. Study Design: Systematic Review.

METHODS:

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was consulted to guide this systematic review. Six databases were searched: Cinahl, ProQuest, PubMed, Scopus, SPORTdiscus, and Web of Science. Concussion, gait, and dual-task, along with their synonymous terms were the search terms used. Inclusion criteria consisted of adolescent and young adult age groups, acute concussion, dual-tasking, and matched controls. Quality assessment was performed using The Joanna Briggs Institute Critical Appraisal Checklist for Case Control Studies.

RESULTS:

Ten full-text articles were selected for inclusion. Concussed individuals demonstrated longer stride times with shorter stride lengths, increased mediolateral displacement with corresponding increases in sagittal and frontal plane peak velocity, and decreased sagittal plane Center of Mass (COM) and Center of Pressure (COP) displacement. The majority of included studies demonstrated moderate to large effect sizes in these gait characteristics.

CONCLUSION:

Concussed individuals demonstrated decreased gait stability while ambulating with a dual-task condition. Though statistically significant differences between concussed individuals and matched controls lasted only 72 hours, concussed individuals demonstrated continued improvements in gait for up to two months post-injury, which has the potential to affect an athlete's ability to perform. Further research is needed to determine if a gait examination with a dual-task condition is a realistic, reliable, and valid measure to be included in return to sport testing.

LEVEL OF EVIDENCE: 2a.

KEYWORDS: Adolescent; concussion; dual-task; gait

20 A. ROTATOR CUFF**Ossified STSL****The prevalence and morphometric analysis of ossified superior transverse scapular ligaments in patients with rotator cuff tears**

Jung Youn Kim, MD Yong Girl Rhee, MD

DOI: <http://dx.doi.org/10.1016/j.jse.2017.11.027>

Background

The prevalence of ossified superior transverse scapular ligaments (OSTSLs) in rotator cuff tears (RCTs) has not yet been determined. The purposes of this study were to evaluate the prevalence of OSTSLs in RCTs and to investigate the correlation between OSTSL morphology and supraspinatus muscle atrophy.

Methods

We analyzed a total of 213 patients with RCTs for whom 3-dimensional (3D) computed tomography (CT) and magnetic resonance imaging were performed prior to arthroscopic procedures. The mean age of the patients was 59.73 ± 8.43 years, and 103 patients were men. OSTSLs were identified based on 3D CT findings. The correlations between OSTSLs and age, sex, and RCT size were analyzed. The horizontal and vertical diameters, area, and circumference of the suprascapular foramen were measured. By use of the occupation ratio calculated from magnetic resonance imaging results, supraspinatus muscle atrophy was evaluated.

Results

Of 213 patients with RCTs, 22 (10.3%) had OSTSLs. OSTSLs were found at a rate of 15.5% (16 of 103) in men, higher than that in women ($P = .016$). The rate of OSTSLs increased with age ($P = .003$). RCT size was not correlated with the prevalence of OSTSLs. As the horizontal diameter and circumference of the suprascapular foramen increased, muscle atrophy progressed ($P = .001$ and $P = .046$, respectively).

Conclusion

One of ten patients with RCTs had OSTSLs; the rate of OSTSLs was higher among men and increased with age. For patients with RCTs preparing to undergo arthroscopic superior transverse ligament resection, preoperatively identifying OSTSLs through 3D CT would be useful for the resection.

Open repair more risky

Arthroscopy. 2018 Jan 2. pii: S0749-8063(17)31332-4. doi: 10.1016/j.arthro.2017.10.027.

Comparison of Short-term Complications After Rotator Cuff Repair: Open Versus Arthroscopic.

Day M¹, Westermann R², Duchman K², Gao Y², Pugely A², Bollier M², Wolf B².

PURPOSE:

To define and compare the incidence and risk factors for short-term complications after arthroscopic and open rotator cuff repair (RTCR), and to identify independent risk factors for complications after RTCR.

METHODS:

All patients who underwent open or arthroscopic RTCR from 2005 to 2013 were identified in the American College of Surgeons National Surgical Quality Improvement Program database. Short-term complications were categorized as surgical, medical, mortality, and unplanned 30-day readmission. Univariate analysis allowed the comparison of patient demographics and comorbidities. Propensity score matching was used to control for demographic differences between arthroscopic and open RTCR patient groups. Independent risk factors for complication were identified using multivariate logistic regression.

RESULTS:

Overall, 11,314 RTCRs were identified (24% open, 76% arthroscopic). The mean operative time for open RTCR was 78 minutes compared with 91 minutes for arthroscopic repairs ($P < .001$). The overall complication rate was 1.3%, with the highest complication unplanned return to the operating room (41 patients, 0.36%). The 30-day readmission was 1.16% (76/6,560 patients) and the mortality rate was 0.03% (3 patients). Total 30-day complications in the propensity-score-matched patient group were higher after open versus arthroscopic repair (1.79% vs 1.17%; $P = .006$). The overall infection rate after RTCR was 0.56%, with deep wound infection higher in the open repair patient group ($P = .003$). Multivariate analysis identified age >65 years (odds ratio [OR] 1.6; 95% confidence interval [CI] 1.2-2.3), operative time >90 minutes (OR 1.5; CI 1.1-2.1), and open RTCR (OR 1.6; CI 1.1-2.3) as independent risk factors for complications.

CONCLUSIONS:

Short-term complications after RTCR are rare. Total complications are higher after open RTCR in propensity-matched patient groups and in multivariate analysis. Risk factors for complications include patient age >65 , operative time >90 minutes, and open repair. Open RTCR is associated with an increased risk of surgical infections.

LEVEL OF EVIDENCE:

Level III, retrospective comparative trial.

22 B. INSTABILITY

Dislocators and surgery

Surgical stabilization for first-time shoulder dislocators: a multicenter analysis

Caitlin M. Rugg, MD Carolyn M. Hettrich, MD Shannon Ortiz, MPH
Brian R. Wolf, MD  MOON Shoulder Instability Group Alan L. Zhang, MD

DOI: <http://dx.doi.org/10.1016/j.jse.2017.10.041>

Background

Anterior shoulder dislocations in young patients are associated with high rates of recurrent instability. Although some surgeons advocate for surgical stabilization after a single dislocation event in this population, there is sparse research evaluating surgical treatment for first-time dislocators.

Methods

Patients undergoing surgical stabilization for anterior shoulder instability were prospectively enrolled at multiple institutions from 2015-2017 and stratified by number of dislocations before surgery. Demographic data, preoperative patient-reported outcomes, imaging findings, surgical findings, and procedures performed were compared between groups. Analysis of variance, χ^2 , and multivariate logistic regression were used for statistical analysis.

Results

The study included 172 patients (mean age, 25.3 years; 79.1% male patients) for analysis (58 patients with 1 dislocation, 69 with 2-5 dislocations, 45 with >5 dislocations). There were no intergroup differences in demographic characteristics, preoperative patient-reported outcomes, or physical examination findings. Preoperative imaging revealed increased glenoid bone loss in patients with multiple dislocation events ($P = .043$). Intraoperatively, recurrent dislocators were more likely to have bony Bankart lesions (odds ratio [OR], 3.26; $P = .024$) and biceps pathology (OR, 6.27; $P = .013$). First-time dislocators more frequently underwent arthroscopic Bankart repair and/or capsular plication (OR, 2.22; $P = .016$), while recurrent dislocators were more likely to undergo open Bristow-Latarjet procedures (OR, 2.80; $P = .049$) and surgical treatment for biceps pathology (OR, 5.03; $P = .032$).

Conclusions

First-time shoulder dislocators who undergo stabilization are more likely to undergo an arthroscopic procedure and less likely to have bone loss or biceps pathology compared with recurrent dislocators. Future studies are needed to ascertain long-term outcomes of surgical stabilization based on preoperative dislocation events.

37. OSTEOARTHRITIS/KNEE**Knee pain and Omega-3**

Clin J Pain. 2018 Feb;34(2):182-189. doi: 10.1097/AJP.0000000000000517.

Omega-6: Omega-3 PUFA Ratio, Pain, Functioning, and Distress in Adults With Knee Pain.

Sibille KT^{1,2}, King C³, Garrett TJ⁴, Glover TL^{2,5}, Zhang H⁶, Chen H⁶, Reddy D², Goodin BR⁷, Sotolongo A⁸, Petrov ME⁹, Cruz-Almeida Y^{1,2}, Herbert M¹⁰, Bartley EJ², Edberg JC⁸, Staud R¹¹, Redden DT¹², Bradley LA⁸, Fillingim RB².

OBJECTIVES:

Osteoarthritis (OA) is associated with inflammation, chronic pain, functional limitations, and psychosocial distress. High omega-3 (n-3) polyunsaturated fatty acids (PUFAs) are associated with lower levels of inflammatory mediators, anti-nociception, and adaptive cognitive/emotional functioning. High omega-6 (n-6) PUFAs are associated with inflammation, nociception, and psychological distress. While findings related to n-3 supplementation in knee OA are mixed, consideration of the n-6:n-3 ratio and additional outcome measures may provide improved understanding of the potential relevance of these fatty acids in OA. On the basis of recommended and typical ranges of the n-6:n-3 ratio, we hypothesized that in adults with knee pain, those with a high n-6:n-3 ratio would have greater pain/functional limitations, experimental pain sensitivity, and psychosocial distress compared with those with a low n-6:n-3 ratio.

MATERIALS AND METHODS:

A cross-sectional investigation of clinical and experimental pain and physical and psychosocial functioning was completed in 167 adults ages 45 to 85 meeting knee OA screening criteria. Blood samples were collected and the plasma n-6:n-3 PUFA ratio determined. Quartile splits were computed and low (n=42) and high (n=41) ratio groups were compared.

RESULTS:

The high ratio group reported greater pain and functional limitations, (all Ps<0.04), mechanical temporal summation (hand and knee, P<0.05), and perceived stress (P=0.008) but not depressive symptoms.

DISCUSSION:

In adults with knee pain, a high n-6:n-3 ratio is associated with greater clinical pain/functional limitations, experimental pain sensitivity, and psychosocial distress compared with a low ratio group. Findings support consideration of the n-6:n-3 PUFA ratio and additional clinical endpoints in future research efforts.

PRP helps

The effects of injecting intra-articular platelet-rich plasma or prolotherapy on pain score and function in knee osteoarthritis

Clinical Interventions in Aging | January 09, 2018

Rahimzadeh P, et al.

Researchers investigated the effects of platelet-rich plasma (PRP) injection and prolotherapy (PRL) on the level of pain and function of the knee joint in patients with osteoarthritis (OA).

They suggested a significant decrease in the overall Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score of patients who undergo either PRP therapy or PRL. In the overall WOMAC score, this positive change led to an improvement in the quality of life of patients with knee OA shortly after the first injection. Compared to PRL, PRP injection was found to be more effective in the treatment of knee OA.

40. ANKLE SPRAINS AND INSTABILITY

Balance

Sports Medicine pp 1–13 | Cite as

Balance Training Does Not Alter Reliance on Visual Information during Static Stance in Those with Chronic Ankle Instability: A Systematic Review with Meta-Analysis

- Kyeongtak S Evan Rhodes Erik A. Wikstrom

Background

Visual, vestibular, and somatosensory systems contribute to postural control. Chronic ankle instability (CAI) patients have been observed to have a reduced ability to dynamically shift their reliance among sources of sensory information and rely more heavily on visual information during a single-limb stance relative to uninjured controls. Balance training is proven to improve postural control but there is a lack of evidence regarding the ability of balance training programs to alter the reliance on visual information in CAI patients.

Objective

Our objective was to determine if balance training alters the reliance on visual information during static stance in CAI patients.

Methods

The PubMed, CINAHL, and SPORTDiscus databases were searched from their earliest available date to October 2017 using a combination of keywords. Study inclusion criteria consisted of (1) using participants with CAI; (2) use of a balance training intervention; and (3) calculation of an objective measure of static postural control during single-limb stance with eyes open and eyes closed. Sample sizes, means, and standard deviations of single-leg balance measures for eyes-open and eyes-closed testing conditions before and after balance training were extracted from the included studies. Eyes-open to eyes-closed effect sizes [Hedges' *g* and 95% confidence intervals (CI)] before and after balance training were calculated, and between-study variability for heterogeneity and potential risks of publication bias were examined.

Results

Six studies were identified. The overall eyes-open to eyes-closed effect size difference between pre- and post-intervention assessments was not significant (Hedges' *g* effect size = 0.151, 95% CI = -0.151 to 0.453, $p = 0.26$). This result indicates that the utilization of visual information in individuals with CAI during the single-leg balance is not altered after balance training. Low heterogeneity ($Q(5) = 2.96$, $p = 0.71$, $I^2 = 0\%$) of the included studies and no publication bias were found.

Conclusion

On the basis of our systematic review with meta-analysis, it appears that traditional balance training protocols do not alter the reliance on visual information used by CAI patients during a single-leg stance.

44. RHUMATOID ARTHRITIS

Acylcarnitines and OA

Medium- and long-chain acylcarnitines are associated with osteoarthritis severity and arterial stiffness in end-stage osteoarthritis patients: a case-control study

Authors

- **Kaspar Tootsi, Jaak Kals, Mihkel Zilmer, Kaido Paapstel, Aigar Ottas, Aare Märtson**
- **DOI:** 10.1111/1756-185X.13251 [View/save citation](#)

Aim

Arterial pathology has been suggested to be involved in osteoarthritis (OA). Metabolic profiling enables the determination of low-molecular-weight molecules, which might further explain the pathogenesis of OA and its relationship with cardiovascular diseases (CVD). The aim of this study was to compare the metabolic profile of lipid metabolism-related compounds and arterial stiffness in OA patients and in controls.

Method

The serum of 70 end-stage OA patients prior to joint replacement surgery and 82 age-matched controls were analyzed by the AbsoluteIDQ™ p180 kit (BIOCRATES Life Sciences AG, Innsbruck, Austria) using the targeted metabolomic approach. Arterial stiffness was assessed by measuring carotid-femoral and carotid-radial pulse wave velocity. Aortic-brachial pulse wave velocity ratio (PWV-ratio) was used as the measure of arterial stiffness gradient. Principal component analysis was performed to analyze the large number of metabolites.

Results

The OA patients had decreased levels of C10:1, C10:2, C12, C12:1, C14, C14:2, C14:1-OH, carnitine palmitoyltransferase 1 (CPT1) ratio and total AC/C0 compared with age-matched controls. There was independent association between acylcarnitines and PWV-ratio in the OA patients. Furthermore, acylcarnitines were associated with OA radiographic severity. The component that resembles acylcarnitines was an independent predictor of the PWV-ratio for OA patients.

Conclusion

We found decreased levels of acylcarnitines in OA patients. Furthermore, medium-and long-chain acylcarnitines associated independently with arterial stiffness and were related to radiographic severity of OA. Thus, acylcarnitines might play an important role in the association between OA and CVD.

45 A. MANUAL THERAPY LUMBAR & GENERAL**Cytokines levels**

Clin J Pain. 2018 Jan;34(1):68-75. doi: 10.1097/AJP.0000000000000507.

Elevated Production of Nociceptive CC Chemokines and sE-Selectin in Patients With Low Back Pain and the Effects of Spinal Manipulation: A Nonrandomized Clinical Trial.

Teodorczyk-Injeyan JA¹, McGregor M¹, Triano JJ¹, Injeyan SH².

BACKGROUND:

The involvement of inflammatory components in the pathophysiology of low back pain (LBP) is poorly understood. It has been suggested that spinal manipulative therapy (SMT) may exert anti-inflammatory effects.

PURPOSE:

The purpose of this study was to determine the involvement of inflammation-associated chemokines (CC series) in the pathogenesis of nonspecific LBP and to evaluate the effect of SMT on that process.

METHODS:

Patients presenting with nonradicular, nonspecific LBP (minimum pain score 3 on 10-point visual analog scale) were recruited according to stringent inclusion criteria. They were evaluated for appropriateness to treat using a high velocity low amplitude manipulative thrust in the lumbar-lumbosacral region. Blood samples were obtained at baseline and following the administration of a series of 6 high velocity low amplitude manipulative thrusts on alternate days over the period of 2 weeks. The in vitro levels of CC chemokine ligands (CCL2, CCL3, and CCL4) production and plasma levels of an inflammatory biomarker, soluble E-selectin (sE-selectin), were determined at baseline and at the termination of treatments 2 weeks later.

RESULTS:

Compared with asymptomatic controls baseline production of all chemokines was significantly elevated in acute ($P=0.004$ to <0.0001), and that of CCL2 and CCL4 in chronic LBP patients ($P<0.0001$). Furthermore, CCL4 production was significantly higher ($P<0.0001$) in the acute versus chronic LBP group. sE-selectin levels were significantly higher ($P=0.003$) in chronic but not in acute LBP patients. Following SMT, patient-reported outcomes showed significant ($P<0.0001$) improvements in visual analog scale and Oswestry Disability Index scores. This was accompanied by a significant decline in CCL3 production ($P<0.0001$) in both groups of patients. Change scores for CCL4 production differed significantly ($P<0.0001$) only for the acute LBP cohort, and no effect on the production of CCL2 or plasma sE-selectin levels was noted in either group.

CONCLUSIONS:

The production of chemotactic cytokines is significantly and protractedly elevated in LBP patients. Changes in chemokine production levels, which might be related to SMT, differ in the acute and chronic LBP patient cohorts.

59. PAIN**PTSD****Number and Type of Post-Traumatic Stress Disorder (PTSD) Symptom Domains are Associated with Patient-Reported Outcomes in Patients with Chronic Pain**

Dale J. Langford, PhD Brian R. Theodore, PhD Danica Balsiger, BS Christine Tran, MSW **Ardith Z. Doorenbos**, PhD, RN, FAAN David J. Tauben, MD, FACP Mark D. Sullivan, MD, PhD PlumX Metrics

DOI: <http://dx.doi.org/10.1016/j.jpain.2017.12.262>

Highlights

- PTSD symptoms are associated with multiple outcomes in patients with chronic pain
- Even one PTSD symptom was associated with poorer pain-related outcomes overall
- The PTSD symptom of numbness or detachment is particularly important
- Subsyndromal PTSD and numbness or detachment are important in chronic pain

Abstract

Post-Traumatic Stress Disorder (PTSD) commonly accompanies complex chronic pain, yet PTSD is often overlooked in chronic pain management. Using the 4-item Primary Care (PC)-PTSD screening tool, we evaluated the relationship between the number and type of PC-PTSD symptoms endorsed and a set of patient-reported outcomes, including: pain intensity and interference; function; mood; quality of life; and substance abuse risk in a consecutive sample of patients with chronic pain (n=4,402). Patients completed PainTracker™, a web-based patient-reported outcome tool that provides a multidimensional evaluation of chronic pain, as part of their intake evaluation at a specialty pain clinic in a community setting. Twenty-seven percent of the sample met PC-PTSD screening criteria for PTSD by endorsing three of the four symptom domains. Significant ordinal trends were observed between increasing number of PTSD symptoms and all outcomes evaluated. The occurrence of even one PTSD symptom was associated with overall poorer outcomes, suggesting that subsyndromal PTSD is clinically significant in the context of chronic pain. Among the four PTSD domains assessed, “numbness/detachment” was most strongly associated with negative pain outcomes by relative weight analysis. Results from this cross-sectional study suggest that a range of pain-related outcomes may be significantly related to co-morbid PTSD.

Perspective

: We present evidence that PTSD symptoms are significantly related to a broad set of pain-related patient-reported outcomes. These findings highlight the need to evaluate for PTSD symptoms in patients with chronic pain, especially feelings of numbness or detachment from others, in order to improve understanding and management of chronic pain.

63. PHARMACOLOGY**Opioid's**

Ann Fam Med. 2018 Jan;16(1):6-13. doi: 10.1370/afm.2148.

Prescription Opioid Use and Satisfaction With Care Among Adults With Musculoskeletal Conditions.

Sites BD¹, Harrison J², Herrick MD³, Masaracchia MM³, Beach ML^{3,4}, Davis MA^{5,6,7}.

PURPOSE:

In the current payment paradigm, reimbursement is partially based on patient satisfaction scores. We sought to understand the relationship between prescription opioid use and satisfaction with care among adults who have musculoskeletal conditions.

METHODS:

We performed a cross-sectional study using nationally representative data from the 2008-2014 Medical Expenditure Panel Survey. We assessed whether prescription opioid use is associated with satisfaction with care among US adults who had musculoskeletal conditions. Specifically, using 5 key domains of satisfaction with care, we examined the association between opioid use (overall and according to the number of prescriptions received) and high satisfaction, defined as being in the top quartile of overall satisfaction ratings.

RESULTS:

Among 19,566 adults with musculoskeletal conditions, we identified 2,564 (13.1%) who were opioid users, defined as receiving 1 or more prescriptions in 2 six-month time periods. In analyses adjusted for sociodemographic characteristics and health status, compared with nonusers, opioid users were more likely to report high satisfaction with care (odds ratio = 1.32; 95% CI, 1.18-1.49). According to the level of use, a stronger association was noted with moderate opioid use (odds ratio = 1.55) and heavy opioid use (odds ratio = 1.43) ($P < .001$ for trend).

CONCLUSIONS:

Among patients with musculoskeletal conditions, those using prescription opioids are more likely to be highly satisfied with their care. Considering that emerging reimbursement models include patient satisfaction, future work is warranted to better understand this relationship.

NSAID's

Effectiveness of non-steroidal anti-inflammatory drugs among patients with primary hypertrophic osteoarthropathy: A systematic review

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Shakya P, et al.

This paper encompassed an assessment of the effectiveness of non-steroidal anti-inflammatory drugs (NSAIDs), a PGE2 synthesis blocker with the goal of reducing the symptoms among primary hypertrophic osteoarthropathy (PHO) patients. The conclusion drawn was that NSAIDs were effective in improving arthralgia or arthritis symptoms in maximum PHO patients. Hence, the use of NSAIDs was recommended in the case of PHO patients for treating arthralgia or arthritis.

65. NEUROLOGICAL CONDITIONS**MS and diet**

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Diet quality is associated with disability and symptom severity in multiple sclerosis.

Fitzgerald KC¹, Tyry T², Salter A², Cofield SS², Cutter G², Fox R², Marrie RA².

OBJECTIVE:

To assess the association between diet quality and intake of specific foods with disability and symptom severity in people with multiple sclerosis (MS).

METHODS:

In 2015, participants in the North American Research Committee on MS (NARCOMS) Registry completed a dietary screener questionnaire that estimates intake of fruits, vegetables and legumes, whole grains, added sugars, and red/processed meats. We constructed an overall diet quality score for each individual based on these food groups; higher scores denoted a healthier diet. We assessed the association between diet quality and disability status as measured using Patient-Determined Disease Steps (PDDS) and symptom severity using proportional odds models, adjusting for age, sex, income, body mass index, smoking status, and disease duration. We assessed whether a composite healthy lifestyle measure, a healthier diet, healthy weight (body mass index <25), routine physical activity, and abstinence from smoking was associated with symptom severity.

RESULTS:

Of the 7,639 (68%) responders, 6,989 reported physician-diagnosed MS and provided dietary information. Participants with diet quality scores in the highest quintile had lower levels of disability (PDDS; proportional odds ratio [OR] for Q5 vs Q1 0.80; 95% confidence interval [CI] 0.69-0.93) and lower depression scores (proportional OR for Q5 vs Q1 0.82; 95% CI 0.70-0.97). Individuals reporting a composite healthy lifestyle had lower odds of reporting severe fatigue (0.69; 95% CI 0.59-0.81), depression (0.53; 95% CI 0.43-0.66), pain (0.56; 95% CI 0.48-0.67), or cognitive impairment (0.67; 95% CI 0.55-0.79).

CONCLUSIONS:

Our large cross-sectional survey suggests a healthy diet and a composite healthy lifestyle are associated with lesser disability and symptom burden in MS.